Abu Dhabi Polytechnic

General Catalog

March 2018

The purpose of this catalog is to provide information regarding the educational and training programs of Abu Dhabi Polytechnic (AD Poly) to prospective and current students, faculty, and staff. This information includes admissions, academic regulations & requirements, services available to students, and academic offerings. While every effort has been made to make this catalog as complete and accurate as possible, changes may occur at any time, especially in requirements, deadlines, curricula, and listed courses.

The provisions of this catalog do not constitute a contract, expressed or implied, between any applicant, student, faculty, or staff member of AD Poly or the Institute of Applied Technology. This catalog is for informational purposes only. AD Poly reserves the right to change or alter any statement herein without prior notice.

Document Revision Form

Document name: Abu Dhabi Polytechnic General Catalogue

Rev #	Date	Revised by and reason for revision	Approved by	Approval Date
Rev 0				
Rev 1				
Rev 2	June 2013	Consolidation between Abu Dhabi Polytechnic and AAI AA Handbooks insertion of (Revised by Effectiveness and Assessment Manager)		
Rev 3	July 2013	Updated EET and ISET Applied Bachelor (Revised by Head of ISET)		
Rev 4	July 2013	Insertion of Document Revision Form (Revised by Effectiveness and Assessment Manager)		
Rev 5	Sept 2013	Update Petroleum Engineering Program (PET) (Revised by Head of PET Program)		
Rev 6	Oct 2013	P7 Updated Mission statement (Revised by Effectiveness and Assessment Manager)	Executive Committee 24th September 2013	
Rev 7	Nov 2013	Change Chief Academic Officer to Manager Students and Support Services P7 Clarification re OJT/OCT P14 Consolidate Admissions Requirements with Student Handbook, and Policy and Procedures Manual P15 Remove statement on Late Admissions as this is a remnant from merging handbooks P15 Consolidation of Foundation entry requirements with information in Student Handbook P37 amendment re credit hours P43 Remove duplicated statement on Foundation Program.		
Rev 8	Sept 2014	Update to statement on page 9, Grading Chart p26/27, Failed courses P26, Attendance p 30, Undergraduate grading p38, Updates to coding for Academic Support p113-115, 117, 121-122, EMET p60-63, 96-113, AEET p55-58, p77, ISET 63-68,118-119,123-141.	See Student Handbook. Plus annual upgrading from HOPs.	October 2014
Rev 9	Oct 2014	Change AD Poly to Abu Dhabi Polytechnic	Director	October 2014
Rev 10	Dec 2014	P4-5 Table of contents(Updating Pages Number & Adding MET Program), P56 Updating statements to include Meteorology Program P78-82 Adding Diploma, Higher Diploma and Bachelor of Science Degrees in Meteorology Program Requirements P84 Changing the sentence from alphabetical order into (Course descriptions of programs, which are offered in AD Polytechnic, are listed below.) P123 Adding ENGL-107 English for Met Course Description P129 Adding ICT-140 Modeling and Simulation I Course Description P130 ICT-210 Modeling and Simulation II Course Description P128 Adding MATH-104 Math IV,	MET HOP	January 2015

Rev #	Date	Revised by and reason for revision	Approved by	Approval Date
		MATH-201 Statistics, and MATH-301 Advanced Math Course Descriptions P156 – P162 Adding MET Courses Course Descriptions		
11	Nov 15	Annual review updating: Academic Support p127-129,131,134-135, Autonomous Systems p57-59, AEET p55-59, 85-9, Meteorology p 78-81, 156-162, PET pages 70-77, 148-156 to reflect changes to programs and specializations P9		
12	Jan 2016	Change Meteorology Science to Meteorology	MET HOP / ERT	January 2016
13	Sept 2016	Annual review updating: Changes to P6/7 re changes to Semester and addition of Applied Bachelor – throughout pages 8 - 43 Attendance and punctuality p31 Academic Support p127-130, Autonomous Systems p57-59, AEET p58-61,, 89-98-, Aviation 10-14,43-55,98-110,130 EMET62.65,110-127,ISET 65-71, 136-147, 148-155, Meteorology p 78-81, 156-162, PET pages 72-84, 155-163 and MET 84-88, 163-170 to reflect changes to programs and specializations	Due to Substantial change to programs	November 2016
14	March 2018	All sections of the catalog has been revised and amended to align with the 2011 CAA Standards, Stipulation 1F.	Heads of Programs	March 2018

1. Table of Contents

2. Welcome to Abu Dhabi Polytechnic

Dr. Ali Hilal Alnaqbi

Welcome to Abu Dhabi Polytechnic. AD Poly is a governmental entity managed by the Institute of Applied Technology. AD Poly is an exciting new venture that is bringing the internationally recognized Applied Bachelor / Higher Diplomas of advanced careers and majors in collaboration with various partners and a talented team of administrators, faculty members and instructors.

If you are a prospective student, we encourage you to browse this catalog and learn about the career opportunities and higher diploma and bachelor programs that we've developed for emerging industries in the UAE.

If you are a parent, please read what the AD Poly community offers your child: an accredited, innovative, and career-oriented program.

AD Poly uses all emerging technologies to enhance students' skills to support Abu Dhabi Economic Vision 2030.

You will find that AD Poly provides rigorous educational and highly specialized training programs. The AD Poly community comprises ambitious students and academic staff who set a rigorous pace in the achievement of teaching, hands-on and research excellence. We aim to provide innovative teaching, learning and training environments for students wishing to engage in future careers and intellectual property creation. This catalog is designed to assist prospective students, parents, and others with relevant information on joining AD Poly. It can assist you to understand the admissions process, student and faculty responsibilities, and academic policies and procedures at AD Poly.

Dr. Ali Hilal Alnaqbi

Director, Abu Dhabi Polytechnic

3. Academic Calendar for 2017-2018

Semester 1 (2017-2018)

Sun	20 Aug 2017	Staff report to work (previous and new)
Wed	**23 Aug 2017**	**Semester 1 Classes Begin**
Wed-Sun	23-27 Aug 2017	Add/drop period
Thu - Sun	31 Aug - 3 Sep 2017	Observing Arafat and Eid Al Adha (TBC)
Thu	21 Sep 2017	Last day for withdrawal without penalty
Friday	22 Sep 2017	Hijri New Year (TBC)
Sun - Thu	**15 - 19 Oct 2017**	**Midterm Exams (Week 8)**
Sun -Thu	12 - 16 Nov 2017	Early registration for Semester 2 (Week12)
Thu	30 Nov 2017	Martyrs' Day
Thu	30 Nov 2017	Prophet's Birthday (TBC)
Sat - Sun	02 - 03 Dec 2017	UAE National Day
Sun - Thu	**10 - 14 Dec 2017**	**Semester 1 Final Exams (Week 16)**
Sun - Sun	*17 Dec 2017 – 6 Jan 2018*	*Winter Break (3 weeks students 2 weeks staff)*

Semester 2 (2017-2018)

Tue	**02 Jan 2018**	**Staff Return**
Sun	**07 Jan 2018**	**Semester 2 Classes Begin**
Sun - Tue	07 - 09 Jan 2018	Add/drop period
Thu	25 Jan 2018	Last Day for withdrawal without penalty
Sun - Thu	**25 Feb – 1 March 2018**	**Midterm Exams (Week 8)**
Sun - Thu	*25 Mar – 05 Apr 2018*	*Spring Break (2 weeks students 1 week staff)*
Sun - Thu	08 - 12 Apr 2018	Early registration for Summer
Sun	1 Apr – 05 Apr	Staff PD week
Friday	13 Apr 2018	Israa & Miaraj (TBC)
Sun – Thu	**6 May – 10 May 2018**	**Semester 2 Final Exams (Week 16)**

Summer (2017-2018)

Sun	**13 May 2018**	**Summer Classes Begin**
Sun-Tue	13 - 15 May	Add/Drop period
Thu	31 May 2018	Last Day for withdrawal without penalty
Sun-Thu	**3 – 7 June 2018**	**Midterm Exams (Week 4)**
Thu–Sun	14 – 17 June 2018	Eid Al Fitr (TBC)
Sun –Thu	24 - 28 June 2018	Early registration for semester 1, AY 18-19
Wed– Thu	**27 – 28 June 2018**	**Summer Final Exams (Week 7)**
Sun	*1 July 2018*	*Summer Break*
Sun	**12 Aug 2018**	**All faculty return**
Sun	**19 Aug 2018**	**All students return**

TBC: To be confirmed

4. General Information

4.1 IAT History and Mandate

The Institute of Applied Technology (IAT) was founded in 2005 through Royal decree of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the United Arab Emirates, Ruler of Abu Dhabi as a corporate body with full financial and administrative independence. The establishment of IAT was an initiative of General Sheikh Mohamed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi. His Highness envisioned IAT as a world class Career-Technical Education system that would produce the scientists, engineers and technicians needed for the UAE to build a knowledge-based economy.

The Institute of Applied Technology is a dynamic organization which includes senior secondary schools, vocational education and training establishments, colleges, academies and other learning units. IAT also has a significant responsibility on behalf of the Abu Dhabi government to conduct special projects and educational activities that meet the strategic plans.

To achieve the objectives handed down to it by the Abu Dhabi Executive Council, IAT relies on best practice teaching and learning processes underpinning a modern curriculum, conducted in state-of-the-art facilities. The aim of IAT is to create the scientific and professional leaders of the future; therefore, the Institute, its facilities and its outcomes are continually expanding and evolving as the needs of the Emirate and the nation evolve.

4.2 Abu Dhabi Polytechnic

Abu Dhabi Polytechnic was established by IAT and licensed in December 2010 by the Ministry of Education to offer a dual educational-professional training system with multiple high-tech disciplines (specializations) to produce technologists and engineers to serve the UAE industrial manpower required for Abu Dhabi Economic Vision 2030. In November 2012, Al Ain International Aviation Academy merged with Abu Dhabi Polytechnic.

Academic Degrees and Job Qualification Certificates

Abu Dhabi Polytechnic currently offers accredited Certificate, Diploma, Higher Diploma, Applied Bachelor, and Bachelor of Science programs that were developed with industrial partners and therefore tailor-made to meet industrial needs. Abu Dhabi Polytechnic's programs thoroughly integrate knowledge and practical skills through balanced delivery of instructional material at AD Poly campuses and on-the-job training by industrial training providers appropriate for each discipline. In addition to academic studies, Abu Dhabi Polytechnic students receive on-the-job training leading to industrial job qualification certificates.

Graduates of the intended educational programs must meet the expectations of industrial standards and be able to perform immediately at graduation. Given the limited population of domestic industrial manpower in the UAE, the programs are designed for students who are not general seekers of degrees but aim to be employees of the targeted industries. Furthermore, industrial representatives and government agencies have to be involved in the development process as well as sponsoring the programs.

The Higher Diploma and Applied Bachelor programs are three- and four-year semester-based programs, respectively, where all the semesters including the summer term are compulsory. Each semester is composed of 16 instructional weeks and one exams week. Semesters are separated by a two week break in December and a Spring break in Semester 2. Figure 1 below illustrates the typical structure of the three-year program for the Higher Diploma and four-year program for the Applied Bachelor program.

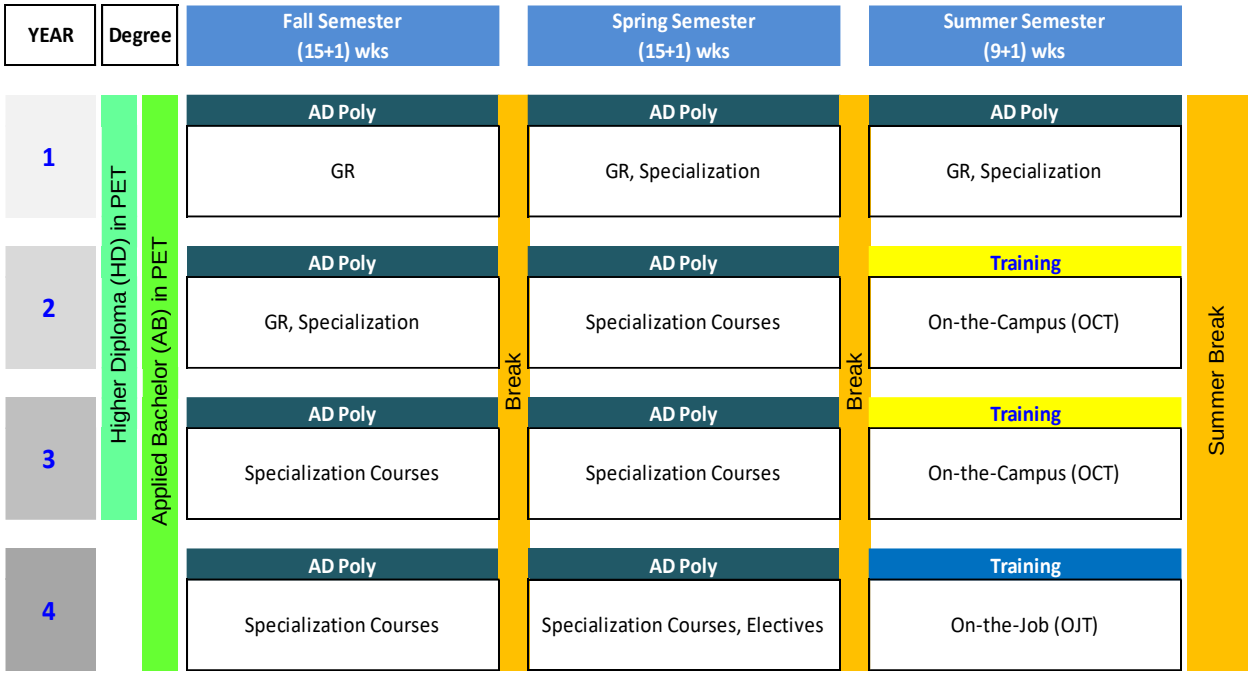


Figure 1: A typical Abu Dhabi Polytechnic Higher Diploma and Applied Bachelor programs structure (Different programs contain different details which could include different periods of On-the-Job Training provision)

4.3 Abu Dhabi Polytechnic Vision and Mission

The vision of Abu Dhabi Polytechnic is to create skilled professional technologists and engineers capable of performing at the highest international standards to build a knowledge-based economy in the UAE.

The mission of Abu Dhabi Polytechnic is to graduate technologists and engineers with an accredited academic degree and industrially recognized skills and competencies. Abu Dhabi Polytechnic accomplishes this mission through a dual educational-professional training system with multiple high-tech specializations to produce the workforce to serve the UAE industrial manpower for UAE aligned with Abu Dhabi Economic Vision 2030.

Values

Innovation: empowerment of employees, encouragement of creative thinking and collaboration with institutions to enhance their effectiveness and the ability to manage the ongoing change.

Flexibility: ability to proactively respond to all labor market changing requirements.

Professionalism: ethical values and goals oriented to provide optimal work experience.

Excellence: develop a quality management system to better control, manage and continually improve the dynamics of elements (institutional effectiveness, personal performance) that are considered critical in the policy and in the performance of its activities.

Integrity: adhere in our relationship with all stakeholders to our policies and standard with honesty, openness, transparency, accountability and consistency.

5. Licensure and Accreditation

Abu Dhabi Polytechnic was licensed in December 2010. Certificate, Diploma, Higher Diploma, Applied Bachelor, and Bachelor of Science were accredited by the Ministry of Education (MOE) as indicated in the table below.

Campus	Program Name	Initial Accreditation
Al Ain	Certificate, Diploma, and Higher Diploma in Aircraft Maintenance	January 2010
Al Ain	Diploma and Higher diploma in Aircraft Engineering Technologies	January 2011
Al Ain	Diploma and Higher Diploma in Air traffic Management	January 2012
Abu Dhabi	Higher Diploma in Nuclear Technology	February 2012
Abu Dhabi	Higher Diploma in Information Security Engineering Technology	January 2013
Abu Dhabi	Higher Diploma and Applied Bachelor in Petroleum Engineering Technology	November 2013
Abu Dhabi	Higher Diploma and Applied Bachelor in Information Security Engineering Technology	February 2014
Abu Dhabi	Higher Diploma and Applied Bachelor in Electromechanical Engineering Technology	February 2014
Abu Dhabi	Diploma, Higher Diploma, and Bachelor of Science in Meteorology	May 2016

5.1 International Accreditation

The Abu Dhabi Polytechnic Al Ain campus is the former Al Ain International Aviation Academy. AD Poly - Al Ain is an “EASA Part 147” and “GCAA CAR 147” approved maintenance training organization. The campus has the distinction of being the only or the first such facility in the Middle East to hold both approvals. “EASA” is the European Aviation Safety Agency, which holds responsibility for regulation of civil air transport. It promotes the highest common standards of safety and environmental protection in Civil Aviation in Europe and worldwide.

5.2 National Accreditation

“GCAA” is the General Civil Aviation Authority of the UAE. The GCAA is the Federal Aviation Authority which focuses on regulating Civil Aviation and ensures safety and security of aircrafts and passengers in the UAE. The GCAA is a member of the International Civil Aviation Organization (ICAO) and is internationally recognized. Abu Dhabi Polytechnic also has the support of the Ministry of Education (MOE). The Ministry sets the standards for curriculum, teachers and their qualifications and the overall outcome of the program. All academic program offered at Abu Dhabi Polytechnic are accredited by and under the standards of the MOE.

European Aviation Safety Agency

APPROVAL CERTIFICATE

REFERENCE EASA.147.0066

Pursuant to Commission Regulation (EC) N°2042/2003 for the time being in force and subject to the conditions specified below, the Agency hereby certifies:

AL AIN INTERNATIONAL AVIATION ACADEMY (AAIAA)
Al Ain International Aviation Academy
P.O.Box 66844, Nr Al Ain International Airport
Al Ain
United Arab Emirates

GCAA

دولة الإمارات العربية المتحدة
الهيئة العامة للطيران المدني
UAE General Civil Aviation Authority

United Arab Emirates
General Civil Aviation Authority
Approval Certificate No.

UAE CAR 147/12/2010

Pursuant to the United Arab Emirates Federal Act No. 20 (1991), Civil Aviation Law, Article 27 and Civil Aviation Regulations (CAR) 147 for the time being in force and subject to the conditions specified below ,the General Civil Aviation Authority hereby certifies:

AL AIN INTERNATIONAL AVIATION ACADEMY
PO BOX 66844, AL AIN, U.A.E.

6. Location and Facilities

Abu Dhabi Polytechnic has two campuses: the Abu Dhabi campus is located in Mohammed Bin Zayed City along the Abu Dhabi–Al Ain Highway and the Al Ain Campus is based on the outskirts of Al Ain near the International Airport.

Both campuses offer state-of-the-art facilities and excellent support services for a Career-based Technical Education (CTE) in English.

6.1 AD Poly Abu Dhabi Campus Facilities

The Abu Dhabi campus is located in the Institute of Applied Technology complex where it is equipped with a Learning Resource Center and library, 29 classrooms, 28 laboratories, and a variety of training facilities. The campus also provides a limited number of accommodations for male students.

6.2 AD Poly Al Ain Campus Facilities

Abu Dhabi Polytechnic's aviation program is housed at the Al Ain campus. The campus houses a complete set of aircraft maintenance training facilities. The facility is equipped with:

- A collection of aircrafts used in maintenance training under the roof of a 3,000 square meters hangar.
- 24 state-of-the-art classrooms, as well as 10 workshops and 14 laboratories equipped with electronics, avionics and mechanical training aids.
- Workshops equipped with fully-operational training devices that demonstrate the functioning of landing-gear, fuel systems, de-icing and anti-skid systems, and flight control systems.
- A Variety of jet engines to illustrate their technology and operation.
- A Learning Resource Center that includes a Library, an Internet Centre, and Computer Based Training classrooms.

AD Poly - Al Ain Campus Partners

AD Poly is proud to have partnerships with many prestigious organizations and become a major educational and training provider within the Al Ain Aerospace Cluster. The Abu Dhabi Polytechnic: Al Ain's partners contribute to the success of the programs and provide opportunities for students to develop knowledge and experience during and after graduation from Abu Dhabi Polytechnic.

7. Admissions

7.1 Admission Policy

Abu Dhabi Polytechnic has two official admission intakes per year. These intakes are in the first and second semester of the academic year. A student who has completed their Secondary School education (or will complete their Secondary School education by the time they are to enroll in Abu Dhabi Polytechnic) and has an official transcript may apply.

All applications for admission have to be submitted through the Ministry of Education National Admissions & Placement Office (NAPO) system.

An offer of admission is only valid for the semester for which a student applies. If the applicant is offered an admission but is unable to attend, the applicant may request in writing to postpone the admission for the next admission cycle. Admission consideration shall depend upon availability of seats, program offerings, and other considerations such as sponsor concurrence for certain programs.

7.2 Admission Requirements

Grade 12 students from ADEC, MOE, ATHS and STS schools, in order to be eligible for studies at AD Poly, must meet the following admission requirements:

- An applicant to AD Poly must be a UAE citizen. Both male and female students can apply.
- Students with an overall average of 70% and above for the MOE and ADEC Advance stream are eligible for admission in both branch Abu Dhabi and Al Ain.
- Students with an overall average of 80% and above for the MOE and ADEC General Stream are eligible for admission in both branch Abu Dhabi and Al Ain.
- Students with an overall average of 70% and above for the ATHS & STS are eligible for admission in both branch Abu Dhabi and Al Ain
- An applicant must score 500 or above on EmSat.
- Applicants must have EmSat score 1100 or who have scores of TOEFL 500/iBT 61, or IELTS (Academic) 5.0 will be directly admitted to the Program. Applicants who do not meet this criterion may enroll in the Foundation Program.
- An applicant needs to take an admission interview.
- An applicant must perform a medical check-up according to NAPO instructions.
- Military service certificate.

The following general documents are required for admission to Abu Dhabi Polytechnic:

- A completed application form
- An official Secondary School Certificate certified by the Ministry of Education
- A photocopy of the applicant's passport
- International standardized test of English (IELTS or TOEFL)
- A copy of UAE nationality documents
- A medical fitness certificate
- Six recent color photographs
- Any other diplomas, transcripts, or relevant documents

Applicants holding a Foreign Secondary School Certificate

Applicants who went to secondary school abroad should obtain a high school certificate awarded based on 12 years of study and accredited by the Ministry of Education. The applicant is required to provide the original Secondary School Certificate. Applicants who hold a non-UAE Secondary School Certificate must submit a Certificate Equivalency from the Ministry of Education.

7.3 Re-Admission to Abu Dhabi Polytechnic Programs

Students who have left an Abu Dhabi Polytechnic program may re-enter to the same program at a later date provided that:

- The application for re-entry is made within 12 months of leaving
- The Director approves the re-entry.

Students who apply for re-entry into a different program of study must complete a new application and submit supporting documents for the new program. In these circumstances the Student Services Office may waive resubmission of some documentation provided the details have not changed since the last application.

7.4 Repeating Students Policy and Guidelines

At the Abu Dhabi Polytechnic, we believe in career success and opportunity for all. Our students are drawn from both the traditional system of learning, IAT, and mature entry. Whatever the entry mode, the originating systems significantly contrast the Abu Dhabi Polytechnic in terms of the methods of deliver, the professional focus and aims as well as the learning objectives and level of curricular rigor.

It is accepted that student and sponsor expectations as well a time and financial expenditure may require some level of protection against the investment expended on those students.
For the purpose of clarity, “Repeat” will mean one of the following:

- Repeat of a course as agreed by the Academic Review Board
- Repeat of a complete program as agreed by the Academic Review Board
- Repeat of a previous year or stage of training as agreed by the Academic Review Board

The guidelines that will allow due consideration and recovery of students are as stipulated below:

- An Academic Review Board appointed by the Director will review each case and recommend those fit for repeat of the failed modules on the basis of the academic records on each student.
- Only students, who have failed a maximum of 2 subjects and have not been permitted a repeat already, are eligible for a repeat.
- Only one repeat is permitted per program per student.
- Repeat students are entitled to the same number of assessment attempts as if for the first time.
- Students undergoing repeat modules must attend all lessons. Failure to do so, without acceptable mitigating circumstances, will lead to the student being refused further training.

7.5 Withdrawals

Students can request to withdraw from their program at any time. The request is however to be initiated by the academic advisor, and routed through the department head, Student Services Office and then (if applicable) the student’s sponsor. Final authority to withdraw will be given by the Director to the student. If a student fails to follow withdrawal procedures, he will be given a failing grade in all coursework attempted in that semester.

7.6 Re-enrollment

Students can request to re-enrol only within one year of their leaving date. **They must retain the current admission requirements mentioned in the admission policy.**

- All requests to return after the student has withdrawn must be recommended to the Director.
- Students cannot re-enroll in the Abu Dhabi Polytechnic later than one week after the start of the course for which they are re-enrolling.

7.7 Credit Transfer and Recognition of Prior Learning Policy

In order to earn a degree from Abu Dhabi Polytechnic (AD Poly), a student must earn credits that fulfill the program requirements for graduation which are distributed among general education requirements (college requirements), major program requirements, and electives, as defined by the study plan for each program. This policy addresses the awarding of credits for the recognition of prior learning. Newly enrolled students at AD Poly may be awarded credit and/or satisfy college requirements in the following ways:

- Placement examination
- Challenge examination
- Nationally and internationally recognized tests (EmSAT, IELTS, TOFEL, SAT, AP, IB, or any other certified exams recognized by AD Poly)
- Articulation agreement with another institution
- Transfer course credits from another accredited institution

Placement Examination

Placement exams serve to assess the needs and backgrounds of individual students preparing for college curriculum. Student performance in these exams is used to place entering students at the proper level of study in a given subject by minimizing the repetition of subjects already mastered while minimizing the possibility of students being inadequately prepared for certain courses. Placement exams measure skills in problem solving, as well as general knowledge in a subject field.

Placement exams may be taken before or at the time of matriculation at AD Poly. The test may be taken only once. The placement exams are organized and conducted by the Academic Support Department (ASD) in close cooperation with Student Services. AD Poly has the right to develop placement exams based on the academic needs of its programs.

Mathematics Placement Examination (MPE)

All students admitted to AD Poly are required to take the Math Placement Exam (MPE) prior to registration of courses. Exam results will be used to place students in the appropriate mathematics course which reflects their math understanding. The ASD at AD Poly uses exam results to check new students' math knowledge and skills. Hence, students should be placed at the right math level for them. Students will be placed into MATH100 (Pre-calculus) unless they pass the MPE with a score of 70% or higher. At this point, MATH100 will be waived and students will be given permission to register for MATH111 (Calculus I).

Note: The MPE qualifies students to sit for further challenge exams. Students who don't pass the MPE can't sit for challenge exams for mathematics, physics and/or chemistry.

English Placement Examination

English language placement exams are required for students who obtained EmSAT or IELTS scores which fall below the specified admission criteria. Performance in one of these exams is used to determine which English course a student may enroll at AD Poly; results do not confer credit or satisfy other language requirements set by a program.

The minimum English knowledge and skill requirements are (EmSAT=1100 or IELTS score ≥ 5.0 or equivalent). English communication Skills (ENGL111) is a compulsory course for all students; however, this course can be exempted for students who are admitted to AD Poly with EmSAT≥1500 or IELTS ≥ 6.0 with all bands equal or above ≥ 5.5.

Challenge Examinations

Credit is available by optional challenge examinations at AD Poly to those students who have already studied certain subjects at the college level (Recognition of Prior Learning). In the case of a course where both experimental and theoretical skills are involved, students may be required to fulfill the laboratory portion. College credit achieved by challenge examination is entered as units of credit on the student's official academic record. Letter grades are not assigned.

Chemistry/Physics Challenge Exams

Students can earn credits for physics and chemistry courses according to the policy indicated in Table 1. They can sit for chemistry and physics challenge exams according to the following conditions:

1. The student must first pass the Math Placement Exam (MPE) or have earned a score on the EmSAT/SAT/AP/IB chemistry or physics exam as indicated in the Test Score Tables 1 and 2).
2. Next the student has to pass the chemistry/physics challenge exam with ≥ 70%.

Table 1*. The Test Score table provides a detailed list of accepted challenge exams and scores required to earn credit at AD Poly.*

Calculus Challenge Examination

Students who passed the MPE or earned a score from nationally or internationally recognized exams as indicated in the Test Score table (1) have the option to take a challenge examination in Calculus I and then Calculus II. The calculus challenge exams must be taken prior to matriculation and may be taken only by new or transfer students in the first semester of their enrollment at AD Poly.

Nationally and Internationally Recognized Tests

Nationally and internationally recognized tests include Emirates Standardized Test (EmSAT), International English Language Testing System (IELTS), Test of English as a Foreign Language (TOEFL), Scholastic Aptitude Test (SAT), Advanced Placement (AP), and International Baccalaureate (IB).

Students who request college credit or fulfillment of college requirements for EmSAT, IELTS, TOFEL, SAT, AP, IB and/or any other certified examinations taken in high school (i.e., before a student matriculates in the College) are asked to submit an official valid certification detailing their scores.

Transfer Course Credits from other Institutions

Admitted students to AD Poly might transfer credits courses completed at other accredited (licensed) internal or external institutions for degree credit at AD Poly. Courses and credits earned at other institutions and accepted for transfer at AD Poly will be listed in the student's transcript and designated with a letter (T). These credit courses will not be included either in student's GPA or CGPA.

Admitted students who are seeking to transfer credit courses must submit their valid attested documents including original credit courses transcript, course syllabi, and/or other evidence to the Student Services Office upon the acceptance at AD Poly by the second week of their first semester. The documents will be evaluated by the articulation committee toward credit course transfer by the department offering the course(s) within two weeks. The transferrable credit courses for undergraduate are courses completed at other accredited (licensed) institutions either with grade of at least C and above (≥ C) or with Pass for Pass/Fail courses only. The maximum number of credit courses that might be accepted for transfer cannot exceed 50% of the total course credits required for graduation at AD Poly.

General Conditions

- The placement and challenge exams' results will be valid for one academic year;
- Students transferring from other institutions (internal or external) into same program major, should provide valid documentations and are in a good academic standing (CGPA≥ 2.0 out of 4.0 points scale, or equivalent);
- Students transferring from other institutions (internal or external) who are not in a good academic standing are allowed to transfer to a different program from the one which the student is transferring;
- The final decision to grant credit is at the discretion of AD Poly, and any units of credit awarded will appear on the student's official academic record with a letter "T";
- Credit grant can be given only once for same course even if it was taken at two different institutions;
- Transfer undergraduate credits are only granted for courses with an overlap of 80% or more similarity between course learning outcomes (CLOs) and in which the student earned a grade of C (2.0 on a 4.0 scale) or better; and, for courses with at least the equivalent or greater credit value to AD Poly's course;
- As per accreditation standards, credits for training, internship, and graduation projects cannot be transferred from another institution to satisfy AD Poly degree requirements;
- All credits awarded towards a degree by showing recognition of prior learning or taking courses out of the college (with prior AD Poly approval) and/or transferred from other institutions should not exceed 50% of the total number of credits which are required to complete a degree at AD Poly;
- AD Poly treats credits taken under an articulation agreement with another institution as transfer credit;
- Only students who transfer from a Commission for Academic Accreditation (CAA) accredited institution in the UAE or from a foreign institution of higher learning based outside the UAE and accredited in the country of origin are eligible for transfer admission and credits;
- A timely written notification will be provided to the student, prior to registration, of transferability of credit, and how much credit is granted toward the degree program;
- The Academic Support Department (ASD) at AD Poly will provide regular updates of articulation tables and guidelines for accepted scores of nationally and internationally recognized exams that satisfy college requirements;
- Tables (1 & 2) below (Test Score Table) provide a detailed list of accepted challenge exams and scores required to earn credit at AD Poly.

Table 1. Recognition of Prior Learning for national and international certified exams.

Subject at AD Poly	EmSAT Subject	EmSAT Score	SAT Subject	SAT Score	AP Subject	AP Score	IB Subject	IB Score	Course Credit
Chemistry I (CHEM111 and CHEM111P)	----	----	----	----	Chemistry	4	Chemistry (SL)	6	4
							or		
							Chemistry (HL)	5	
Pre-Calculus	EmSAT Math	>1500	Mathematics Level 2	>640	----	----	Mathematic Studies	6	4
Calculus I	----	----	----	----	Calculus AB	4	Mathematic (SL)	6	7
					or		or		
					Calculus BC	3	Mathematic (HL)	5	
Calculus II	----	----	----	----	Calculus BC	4	Further Math (HL)	5	10
Physics I (PHYS-111 and PHYS-111P)	----	----		----	Physics C-Mech	4	Physics - SL	6	4
Physics II (PHYS-112 and PHYS-112P)	----	----	----	----	Physics C-Mech	4	Physics - HL	5	8
					and				
					Physics C-E&M				

References:

EmSAT: http://emsat.moe.gov.ae/emsat/Default.aspx

SAT: https://collegereadiness.collegeboard.org/sat

Bench marking: 1. Virginia Polytechnic Institute and State University, VA, USA.

2. California Polytechnic State University, CA, USA.
3. Rensselaer Polytechnic Institute, NY, USA.

Website: https://bigfuture.collegeboard.org/find-colleges

Table 2. Criteria for English: Test Score Comparisons

EmSAT*	**IELTS*** **International English Language Testing System**	**CEPA** **Common Educational Proficiency Assessment**	**TOEFL** **Test of English as a Foreign Language**	**CEF** **Common European Framework**	**Cambridge**	**PTE** **Pearson Test of English (Academic)**
675	4[3] limited	165[2]	n/a	A1/A2[5]	n/a[6]	<30[7]
950-1075[1]	4.5 limited	170	450 (139 CBT, 51 iBT)[1]	A2/B1	147-153[1]	31-35[1]
1100-1225	5 modest	175	500 (173 CBT, 61 iBT)	B1/B2	154-161	36-41
1250-1375	5.5 modest	180	530 (197 CBT, 71 iBT)	B2	162-168	42-49
1400-1525	6 competent	185	550 (213 CBT, 79-80 iBT)	B2	176-184	50-57
1625[2]	6.5 competent	190	n/a	B2	n/a	58-65[7]
1750	7 good	195	n/a	C1	n/a	65-72
1850	7.5 good	200	n/a	C1	n/a	72-78
2000	8 very good	205	n/a	C1	n/a	78-82
n/a	8.5 very good	210	n/a	C2	n/a	82-86
n/a	9 expert	n/a	n/a	C2	n/a	86-90

***Acceptable entrance to AD Poly (EmSAT-1100; IELTS 5.0), updated 9/2017**

1. Information retrieved from CAA (2017). "Standards for Institutional and Program **Accreditation**."
2. Interpreting CEPA Scores: FAQ - ws1.mohesr.ae. (n.d.). Retrieved September 7, 2016, from http://ws1.mohesr.ae/cepa/Files/Interpreting_CEPA_Scores.pdf
3. TOEFL and IELTS Score Comparison. (n.d.). Retrieved September 7, 2016, from http://www.iau.la/download/TOEFL_IELTS_score_comparison.pdf
4. Compare TOEFL® Scores. (n.d.). Retrieved September 07, 2016, from https://www.ets.org/toefl/institutions/scores/compare/
5. IELTS-Common European Framework. (n.d.). Retrieved September 7, 2016, from http://www.ielts.org
6. Comparing scores on Cambridge English: Advanced (CAE) and IELTS. (n.d.). Retrieved September 7, 2016, from http://www.cambridgeenglish.org/images/28894-cae-comparing-scores.pdf
7. Scores - Pearson. (2014). Retrieved September 07, 2016, from http://pearsonpte.com/test-takers/results/

7.8 Student Enquiries

Enquiries regarding admission status, academic grades, transcripts, timetables or information about examinations can be made at the Student Services Office.

7.9 Campus Hours

In Abu Dhabi all classes start at 8:00 am and continue throughout the working hours of the day until 8 pm. In Al Ain all classes start at 8:00 am and continue throughout the working hours of the day until 4 pm. Class periods are 50 minutes in duration and are separated by breaks. Students should be ready, follow their scheduled classes, and be present in class before a class commences. The normal working day for the administrative-management staff is from 9:00 am until 5:00 pm in Abu Dhabi and 8:00 am until 4:00 pm in Al Ain.

Students are encouraged to stay afterhours on campus to work on class assignments, projects or other activities. All students must have an ID card at all times while on Abu Dhabi Polytechnic grounds. Students should use specially designated area for students during this time. Students are not permitted to use staff desks, computers or telephones without permission. Food must be consumed in the designated food areas. The campus is closed to students on Fridays, Saturdays and public holidays. Abu Dhabi Polytechnic operating hours are shortened during the holy month of Ramadan.

8. Student Administration

The Student Services Office is responsible for admission, enrolment, coursework progress, scheduling, and student records. Students can obtain all relevant forms they need from the Student Services Office.

The Student Services Office is responsible for administering student records and to ensure that records are accurately maintained and students are aware of their responsibilities. For example, students must ensure the Student Services Office is notified of any changes in their contact details. Student records contain a variety of information about students, such as student identification numbers, student contact details, and academic results. Student records are kept to track progress and program requirements. The Abu Dhabi Polytechnic maintains guidelines related to the privacy and confidentiality of student records.

8.1 Student Rights and Responsibilities

Abu Dhabi Polytechnic is committed to an equitable and enriching environment for students which fosters academic achievement and where the interactions amongst students and staff are based on mutual respect, fairness and fulfillment of obligations. Abu Dhabi Polytechnic clearly states the expectations which students may have of the Abu Dhabi Polytechnic and which the Abu Dhabi Polytechnic has of its students.

As stated, the rules and regulations have been put in place to ensure a safe and productive learning environment and community at Abu Dhabi Polytechnic. Abu Dhabi Polytechnic students are required to abide by the Abu Dhabi Polytechnic Code of Honor. By enrolling at Abu Dhabi Polytechnic, students confirm that they have read, understand and agree to abide by the terms and conditions of this code. Students are expected to be responsible and will be held accountable for their actions. Abu Dhabi Polytechnic acknowledges that students have rights and with that comes responsibilities.

Students have the right to:

- have their opinion heard relating to courses and teaching
- have their opinion heard in relation to individual concerns and grievances in a fair and compassionate way
- a transparent process of review and appeal
- participate in university life via the Student Council and other student represented committees and organizations
- be dealt with in a confidential manner
- equal opportunities regardless of any disability
- personal security on the Abu Dhabi Polytechnic campuses
- confidentiality with regards to their views, beliefs, and political associations expressed in the course of instruction, advising, or counseling unless disclosure is authorized by written consent

Students can expect:

- a high quality, engaging and supportive teaching, learning and research environment
- a clear and timely statement about course and programme requirements
- assistance in their orientation and transition to university for advanced degrees
- fair assessment and helpful and timely feedback on their academic work
- changes to programmes and courses, made during the normal period of enrolment, not to disadvantage them
- reasonable access to academic, general and support staff (via email, in person or by telephone)
- reasonable and equitable access to library, laboratory, internet, computing and general course resources
- to be treated with courtesy in their interactions with Abu Dhabi Polytechnic staff
- their personal information to remain confidential and to be released only with their consent and knowledge or when legally required, or when their personal safety or the safety of others is at risk

- reasonable access to the Abu Dhabi Polytechnic's support mechanisms and policies
- to have grievances addressed in a timely and professional manner
- the Abu Dhabi Polytechnic to provide a safe and healthy study environment

Abu Dhabi Polytechnic expects students to:

- work to the best of their ability
- participate actively and positively in teaching, learning, and training activities
- provide constructive feedback on the conduct of these activities
- respect the academic responsibility of the Abu Dhabi Polytechnic to establish and maintain appropriate academic and professional standards in courses and programmes
- comply with programme and course requirements
- treat Abu Dhabi Polytechnic staff with courtesy at all times
- adhere to the highest ethical standards
- not cheat, plagiarize, fabricate or falsify data or infringe copyright
- observe reasonable standards of behavior with respect to all Abu Dhabi Polytechnic activities, thereby refraining from harassment or discrimination against other students and staff

Respect for People: This is considered paramount in Abu Dhabi Polytechnic. Students are expected to respect other people regardless of their gender, race, religion, nationality, or color.

Respect for Property: Equipment and furniture are provided to enhance your learning environment. Any theft of, or damage to Abu Dhabi Polytechnic property, or that of other individuals can result in disciplinary action, up to and including dismissal from Abu Dhabi Polytechnic.

Respect for Academic Honesty: Abu Dhabi Polytechnic is committed to creating a learning environment that is honest and ethical. The essential rules of academic honesty demand that students can only claim credit for their own work. Please refer to the Policy on Academic Misconduct in Section 9. Cheating harms the Abu Dhabi Polytechnic community in many ways; the reputation of Abu Dhabi Polytechnic and the worth of Abu Dhabi Polytechnic qualifications may suffer as a result. Both cheating and plagiarism can occur in a number of situations, such as:

- in a homework assignment
- as part of an individual or group project assignment, students are to report instances in group work by others
- in an informal assessment activity
- in a formal testing situation
- using others' words taken from text-based or internet sources

The consequence of cheating and plagiarizing can result in dismissal from Abu Dhabi Polytechnic.

8.2 Important Abu Dhabi Polytechnic: Abu Dhabi Contact Numbers

- Reception: 02 695 1062
- Student Support Services: 02 695 1041
  02 695 1043

8.3 Important Abu Dhabi Polytechnic: Al Ain Contact Numbers

- Reception: 03 799 6444
- Student Support Services: 03 799 6408
  03 799 6408
  03 799 6479

8.4 Administrative Staff List

Humaid Al Nuaimi	Sr. Manager, Student & Support Services/Registrar
Salem Hussain	Supervisor, Students Services
Khawla Al Shehhi	Executive Management Assistant
Aysha Almemari	Sr. Officer, Administration, Advanced Energy
Amna Alneyadi	Sr. Officer, Administration, Petroleum
Nour Alameri	Sr. Officer, Administration, Academic Support
Asma Jumaa Al Alawi	Sr. Coordinator, Examination
Hind Al Khatib	Coordinator, Admission/ Recruitment, Student Services
Maitha Jassim Bhadri	Coordinator, Outreach/ Career, Student Services
Mohammed Ali Harahshah	Coordinator, IT
Michael Harina	Sr. Officer, IT Technician
Esra Juma	Sr. Officer, Registration, Student Services
Noufa Alameri	Sr. Officer, Students Activities
Yousef Al Azizi	General Assistant, Support Services
Srinivasa Raghavan Murali	Supervisor Support Services
Mohammad Mazin Alhamad	Librarian
Joicy Joy	Nurse
Litty Jacob	Nurse
Halima Saleh Abdulla	Students Monitor

8.5 Website

The Abu Dhabi Polytechnic website is located at http://www.adpoly.ac.ae/. Visit our site for updates or newly adopted academic policies.

8.6 Registration

Registration is the process of enrolling in classes. Abu Dhabi Polytechnic has an on-line registration system in which students may select their courses and section numbers online via the Banner System. Course selections must be approved by an academic adviser or department head in person after being submitted online but prior to being finalized. Students entering their first semester at Abu Dhabi Polytechnic may select from complete first-semester schedules developed for each program.

8.7 Orientation Program

Orientation meetings and activities are arranged for all new students joining Abu Dhabi Polytechnic. Students are oriented regarding the facilities, general guidelines and expectations, and academic policies and procedures.

8.8 Academic Measures

All courses taken by the students are entered into the student's record. All grades attained by the students are taken into account in calculating their cumulative GPA. English is the language of instruction at the Abu Dhabi Polytechnic in all the courses.

9. Assessment Policy

9.1 Philosophy of Assessment

Assessment is the process of forming a judgment about the quality and extent of student achievement or performance, and therefore by inference a judgment about the learning itself. Assessment inevitably shapes the learning that takes place – what students learn and how they learn it – and should reflect closely the purposes and aims of the course of study.

The aims of assessment include:

- Formally certifying student achievements for program progress and external audiences
- Improving and promoting subsequent learning through feedback that is clear, informative, timely and relevant
- Improving the quality of the curriculum (courses and programs)
- Evaluating the effectiveness of the teaching process and facilitating continuing improvement
- Demonstrating accountability to Abu Dhabi Polytechnic, accrediting bodies, employers, and the wider community

Assessment methods may take a variety of forms: the key criterion for choice among methods should be appropriateness to the learning outcomes. Assessment should be criteria based rather than norm referenced, and may include individual or collaborative achievement or both. The requirements for student success should be made clear, and the overall strategy should be to develop in students the ability to evaluate the quality of their own work in order to equip them to function as professionals with a commitment to life-long learning.

Assessment practices within Abu Dhabi Polytechnic are based on the general principles of criteria based assessment. These are that the desired learning outcomes for a course of study are clearly specified; assessment tasks are designed to indicate progress towards the desired learning outcomes; and, the assessment grade is a measure of the extent to which the learning outcomes have been achieved.

The standard of performance that is required for the award of a particular grade is a judgment that is based on the professional expertise of the various staff that contributes to the assessment process and is informed by experience with accepted standards, including, where appropriate, standards in other institutions. There is no pre-determined distribution of grades as the outcome of assessing a group of students.

9.2 Non-Academic Programs- EASA / GCAA Course Assessment

The EASA / GCAA assessment system is based entirely upon EASA Part 66 / GCAA (Engineering Licenses and Syllabus). Students enrolling on an EASA approved program will be briefed of the EASA Pt 66 / GCAA requirements and should be aware of and familiar of the EASA Syllabus at all times. Students will be issued with the relevant extracts of the curriculum manual at the beginning of each module. This is intended to allow students insight into the module learning objectives, methodology of assessment and program structure. Assessment is conducted at the end of each module in the form of a multiple-choice questions exam required of all modules and essay questions required of modules 7, 9, and 10. The essay exam is a short 20 minutes questions formatted to reflect he trainee's understanding of the subject studied. Practical assessment is conducted throughout the practical training phase by direct observation and recoding of performance of assigned tasks.

Multiple choice questions are provided 3 answer choices (EASA / GCAA requirement). However, only one answer shall be the absolutely correct and expected answer. Questions are given 75 seconds to be answered (EASA / GCAA requirement) and students are not permitted to use a calculator or any other mechanical or electronic aids. The pass mark for all EASA / GCAA examinations and assessments is 75%.

EASA / GCAA Assessments cannot be compensated. You should be aware of the following EASA Pt 147 / GCAA rules concerning multi-choice examinations:

Any mock examinations will be conducted under the same rules as a final examination. Whilst the mock is reflective of the scope of the assessment it will not be directly reflective of the content of any Final Module Examination.

Students will not be allowed to keep any examination papers and will not be given any mock examination papers for self-study. Neither will a student be able to view the corrected answer sheets after any examination. These requirements are derived from stringent EASA and GCAA regulations in order to protect the integrity of the examination process.

During examinations students are not able to use any materials outside those which are given, and these must all be returned at the end of the examination.

Again, No calculators are permitted.

The number and type of questions for each module and the time permitted for each examination are determined by Part 66/CAR 66. However, these are a minima and Abu Dhabi Polytechnic has derived its own examination process that is approved by EASA / GCAA and is shown at the end of this section. Students are notified of any changes should they occur, and students should note that changes will be adopted.

9.3 EASA / GCAA Course Re-assessment Policy

Students unsuccessful at any EASA/GCAA MCQ or Essay assessment in a one calendar year are afforded a **maximum of two re-assessments** for each module exam failure. Re-assessment in a module can take place no sooner than:

- 30 days after the last attempt providing the student is retrained in particular areas of weakness. Attendance at any retraining is mandatory and should the student not achieve 90% of the retraining offered then he/she will be considered to have not been retrained.
- 90 days after the last attempt if the student has not been retrained or failed to meet 90% attendance at any retraining offered.
- 12 months after the third attempt at a module examination.

Complete re-assessment of practical tasks (similar to examination) is, in many ways, impractical. To this end any re-assessment will be focused on the student's specific area(s) of failure. All EASA / GCAA re-assessment grades will, with the exception of "Practical Assessment," be recorded as scored. Any re-assessment during Practical will attract a "Bare Pass" - 75% mark.

9.4 EASA / GCAA Certification Requirements

EASA and GCAA permit the issue of two types of certificate; "Examinations Only" and "Full Training Certificate." The former is awarded at the end of the approved EASA / GCAA course where a student has not achieved 95% overall attendance over the whole training program or has not successfully completed all approved examinations.

The Full Training Certificate is awarded to students who passed all modules of training with a minimum of 75% mark, demonstrated at least 95% overall attendance in the program, and have successfully completed all approved modules with a requisite minimum of 90% attendance in each module.

List of Required EASA/GCAA Examination type (CAT A and B) and time allowed for each:

No.	Module Name	CAT A			CAT B1.1			CAT B2		
		MCQ	Essay	Time (Min)	MCQ	Essay	Time (Min)	MCQ	Essay	Time (Min)
1	Mathematics	16	NA	20	32	NA	40	32	NA	40
2	Physics	32	NA	40	52	NA	65	52	NA	65
3	Electrical Fund	20	NA	25	52	NA	65	52	NA	65
4	Electronic Fund	NA	NA	NA	20	NA	25	40	NA	50
5	Digital Tech	16	NA	20	40	NA	50	72	NA	90
6	Materials and Hardware	52	NA	65	72	NA	90	60	NA	75
7	Maintenance Practices	52	2	130	80	2	140	60	2	115
8	Aerodynamics	20	NA	25	20	NA	25	20	NA	25
9	Human Factors	20	1	45	20	1	45	20	1	45
10	Air Legislation	32	2	60	40	2	70	40	2	70
11	Aeroplane Aerodynamics sys.	108	NA	135	140	NA	175	NA	NA	NA
13	Aeroplane Aerodynamics sys.	NA	NA	NA	NA	NA	NA	180	NA	225
14	Propulsion	NA	NA	NA	NA	NA	NA	24	NA	30
15	Gas Turbine	60	NA	75	92	NA	115	NA	NA	NA
17	Propellers	20	NA	25	32	NA	40	NA	NA	NA

Passing grade in all modules and including essay is 75%.

9.5 Submission of Assessment Items – Extensions and Penalties

Students are required to submit assessment items by the due date, as advised in the course syllabus. Assessment items submitted after the due date will be subject to a penalty unless an extension of time for submitting the item is approved by the course instructor.

Requests for Extension

Requests for extension of time to submit an assessment item must be made in writing to the course instructor. Where the request is made on medical grounds, an appropriate medical certificate must be submitted to the Student Services Office.

The request for an extension should be lodged by the due date for the assessment item. A copy of the extension request should be attached to the assessment item when it is submitted.

Penalties for Late Submission

An assessment item submitted after the due date, without an approved extension, will be penalized. The standard penalty is the reduction of the mark allocated to the assessment item by 10% of the maximum mark applicable for the assessment item, for each day or part day that the item is late. Weekends count as one day in determining the penalty. Assessment items submitted more than five days after the due date are awarded zero marks.

The course instructor may vary provisions provided that any penalties to be imposed for late submission are approved by the Academic Affairs Committee in the context of approving the course syllabus and are conveyed to the student as part of the course syllabus.

9.6 Deferred Assessment

Students may apply for deferred assessment if they were prevented from performing an assessment item, such as an examination, paper, presentation, or other assessment activity scheduled for a particular date. The following would generally be considered acceptable grounds to approve a deferred assessment:

- On the grounds of illness
- Accident
- Temporary disability
- Bereavement
- Sporting or cultural commitment at state, national or international representative level

Students applying for a deferred examination for this reason may also apply for an alternate sitting or other compassionate circumstances (for example, death of a family member or close relative, serious illness of a family member or close relative, involvement in an accident where this does not involve injury, significant and unexpected employment problems or pressures, significant relationship problems).

Approval to sit a deferred examination will not be granted where students could reasonably have been expected to avoid the circumstances of missing or performing poorly in an examination. The following would generally be considered unacceptable grounds to approve a deferred examination:

- Misreading an examination timetable
- Submitting applications after the three-day deadline
- Planning holiday arrangements, including for international travel (Booking a plane ticket prior to the end of semester examination period is not considered an adequate reason for a deferred examination.)
- Attending sporting or cultural commitments, other than at state, national, or international representative level

Applications may be rejected if there is reason to believe that a student is seeking to achieve an unfair

advantage through deferred assessment. This judgment may be based on the particular circumstances of the application together with the student's academic record and history of deferred examination applications.

Requests for deferred assessment must be made on the form provided for this purpose and accompanied by appropriate documentary evidence and submitted to the Student Services Office. Requests for deferred assessment for an examination or other assessment items must be lodged with the instructor no later than three working days after the date of the examination or other pertinent date. The Student Services Office will notify the instructor if the justification has been approved.

Where the course instructor grants a student deferred assessment, this normally takes the form of a replacement assessment item or examination, in which case, the replacement assessment item should resemble as closely as possible the original assessment item or examination and should carry the same percentage of total weighting for the course.

In exceptional cases, the Academic Affairs Committee may respond to an application for deferred assessment by giving special consideration through one or more of the actions previously described.

A student who is granted deferred assessment in a course is eligible for the full range of grades available for that course.

Students applying for deferred assessment or special consideration on medical grounds must submit a medical certificate, completed by a registered medical or dental practitioner stating:

- The date on which the practitioner examined the student
- The severity and duration of the complaint
- The practitioner's opinion of the effect of the complaint on the student's ability to undertake the assessment item

A statement that the student was "not fit for duty" or was suffering from "a medical condition" will not be accepted unless the information required above is included.

Students applying for special consideration, extension or deferred assessment on other grounds must submit suitable documentary evidence, such as a bereavement notice, letter from employer, practitioner or professional, statutory declaration, or copy of accident report to the Student Services Office.

Students who feel that their case for special consideration, extension or deferred assessment has been wrongly dismissed by the course instructor, course leader, or Student Services Office, may appeal in writing against that decision to the Academic Review Board. The decision of the Senior Manager Students and Support Services is final.

9.7 Student Grade Appeal Policy

Students are encouraged to discuss with teaching staff their performance in assessment items during a course. Where a student believes that an error has been made or an injustice done with respect to the grade awarded for a course, the student may request a review of the grade. This request must:

- Be made in writing on the appropriate form
- State the grounds for the review request
- Be lodged with the Student Services Office within 7 calendar days of the date on which student grades are posted by Abu Dhabi Polytechnic.

The guidelines for handling an appeal for a change of student’s grade follow a specific procedure to review and recheck the final exam papers and final grade sheet of the appellant, and to make a final decision.

An ad hoc Grade Appeal (GA) Subcommittee will be formed in the appropriate Academic Department. Members of this subcommittee will be comprised of two teaching staff and a department head. This subcommittee is responsible starting at the initial step of the process, the conduct of the review, the verification of documents, the determination of validity of the appeal, and the rendering of the final decision.

The course lecturer, instructor, or teaching staff will respond if requested by the GA Subcommittee and provide the required justifications and documents related to the appeal within the prescribed time.

Procedure:

1. The student initiates an appeal for a change of grade by filling out the Grade Appeal Notice Form available from the Student Service Office and from the AD Poly website. Details of the course, CRN, received grade, and reason for the appeal must be clearly stated in the form. The student can only make an appeal within one week (5 business days) after the final grade is released. No appeal shall be accepted beyond this time.
2. The student submits the notice form to the Student Services Office who forwards it to the appropriate department head. Electronic submissions are allowed and should be submitted from the appellant's official AD Poly e-mail address.
3. The course lecturer/teaching staff is informed and provided a copy of the notice of appeal form.
4. The ad hoc Grade Appeal Subcommittee is convened by the HOP and shall gather documents, review and re-check the relevant papers, verify errors in the final exam papers, deliberate with members on grounds for the appeal, and examine their merits with respect to both parties by the second day of the subsequent semester.
5. If the information is still insufficient the GA Subcommittee will ask the instructor respondent or the appellant to provide additional documents.
6. Members of the GA Subcommittee shall deliberate and discuss about the exhibits or the evidences pertaining to the appeal before making the group's final decision.
7. Both parties are then informed and given a hard-copy of the decision.

9.8 Adding, Dropping, and Withdrawing from Courses

Students register for courses prior to the start of the semester. In order to register, students meet with their academic adviser, select appropriate courses, and both student and adviser sign and submit the study plan. In case of any complications or special circumstances, the student should seek the assistance of their department head.

Within the first week of the academic semester as specified in the Academic Calendar, students may add or drop courses without penalty. Courses dropped within this period of the academic semester will not appear on the student's transcript. Afterwards, only under special circumstances and with appropriate approvals may a student add or withdraw from a course.

Prior to the end of the fifth day of the 3rd week of fall and spring semesters and 2nd week of the summer term, students may only drop courses without penalty. The withdrawal procedure is initiated with a request to the Student Services Office. The withdrawal is non-punitive and the student will be given a grade of "W" (withdraw) on their transcript. A "W" grade does not impact either the GPA for the semester or the cumulative GPA, i.e., these courses are not included in the calculation of the grade point average.

Prior to the end of the first day of the 9th week of fall and spring semesters and 6th week of the summer term, students may withdraw from a course with a financial penalty. The withdrawal procedure is initiated with a request to the Student Services Office. The student will be given a grade of "W" (withdraw) on their transcript. In order to withdraw, the student must meet the following conditions:

- Students who are not on academic probation cannot withdraw if they will have below 12 credit hours. If the withdrawal will drop a student on academic probation below 12 credit hours then they need the AD Poly Director's approval.
- Students must have a valid reason such as poor performance; however, the drop should not unjustifiably delay their program.
- Students who have been absent for 15% of the course will have already received an FA and they may not withdraw from the course.
- Students who want to withdraw because they missed an assessment but had a valid excuse should not withdraw but first seek to have a late assessment without penalty.

After the first day of the 9th week and prior to the end of the 5th day of the 11th week of fall and spring

semesters and after the first day of the 6th week and prior to the end of the 5th day of the 8th week of the summer term, students are allowed to withdraw with an increased penalty. If a student withdraws during this period, the student will be given a grade of "WF" (withdraw and fail). A "WF" grade has the same impact on the GPA as an "F" grade. After the student retakes the course and passes, then the "WF" grade will no longer be included in the calculation of the cumulative GPA.

After the end of the 11th week of fall and spring semester and 8th week of the summer term, students are not allowed to withdraw at all.

Course withdrawal penalties:

- No penalty if the course was dropped prior to the beginning of the semester or by the end of the 5th day of the third week of fall and spring semesters or by the end of the 5th day of the second week of the summer term.
- 50% penalty of the course cost if the course was dropped between the first day of week 4 and the end of the 1st day of week 9 of fall and spring semesters or the first day of week 3 and the end of the 1st day of week 6 of the summer term.
- 100% penalty of the course cost if the course was dropped after the end of the 1st day of week 9 and prior to the end of the 5th day of week 11 of fall and spring semesters or the end of the 1st day of week 6 and prior to the end of the 5th day of week 8 of the summer term.

The course cost is AED 1500/each credit hour. If a student has withdrawn from all courses in a certain semester they are considered as postponing their study.

9.9 Disposal of Assessment Material

Course instructors are required to retain all uncollected assignments, portfolios, and other assessment materials that are not included in the course files for a minimum of four years from the date of issue of results. At the completion of the four-year period, course instructors may destroy all assessment material that are not included in the course files except that material that relates to appeals that have not yet been finally determined.

9.10 Responsibility of Course Instructors

Course instructors are responsible for conveying to students clear advice about the aims and objectives of the course, the assessment requirements, the relationship between the assessment methods and the expected learning outcomes, the criteria against which individual assessment items are judged and their relative weight. Most of this information should be contained in the course syllabus which is distributed to the class during the first week of the semester.

Course instructors are required to provide feedback to students on their performance in assessment items conducted during the semester. They should give guidance to students and comment on work presented for assessment during the semester by written comments or other suitable means. Instructors should be prepared to discuss with students their performance in an examination.

9.11 Responsibilities of the Academic Affairs and Assessment Committees

The Academic Affairs Committee is responsible to the Executive Committee for determining grades from individual course instructors. The Academic Affairs Committee is also responsible for dealing with individual student cases, monitoring results, and providing advice on student achievement with respect to their program.

The Academic Affairs Committee is responsible for determining final grades through scrutinizing grade recommendations from course instructors to ensure comparability of standards and consistency with Abu Dhabi Polytechnic policy; and, consulting relevant course instructors regarding any queries concerning their recommended grades.

The Academic Affairs Committee is also responsible for:

- Determining the classification to be awarded to students who have satisfied the requirements for diploma within the Abu Dhabi Polytechnic
- Approving the award of supplementary assessment
- Determining the outcome of applications from students for special consideration and deferred assessment
- Dealing with allegations of cheating and plagiarism as provided for in the policy on academic misconduct and upon recommendations of the Academic Review Board
- Recommending to the Awards Committee candidates for any academic prizes

The Assessment Committee is responsible for:

- Monitoring the outcome of assessment processes, identifying courses in which the outcomes are unsatisfactory, and providing advice to the course leaders on actions to improve assessment outcomes.
- Providing advice to the Executive Committee on the basis of assessment performance indicators about the need to review program structure and contributions of courses to a program.
- Providing advice to the department heads or course leaders in relation to the review of student progress within programs or courses.

The Academic Affairs Committee may modify the grades recommended by the course instructor. Where such modification is made on the basis of academic judgment, the course instructor will be consulted. The functions of the Academic Affairs Committee may be carried out executively by the chair.

9.12 Supplementary Assessment

The Abu Dhabi Polytechnic Academic Affairs Committee may, at its discretion, grant supplementary assessment to any student with a grade of Fail whose overall performance in the course justifies it. The purpose of supplementary assessment is to provide the students with additional time for private study followed by the opportunity to demonstrate that the criteria for passing the course have been met.

The Abu Dhabi Polytechnic Academic Affairs Committee may, at its discretion, grant supplementary assessment where the student has failed the last course required to complete the requirements of the degree. To be offered a supplementary assessment under this provision, the student must have attempted all assessment items and attended any examination associated with the course and must apply to the Chair of the Abu Dhabi Polytechnic Academic Affairs Committee for the supplementary assessment within two weeks of the release of examination results.

A student will not be awarded a grade higher than “P” meaning "pass" for a course in which supplementary assessment is granted. A P grade replaces the F grade but does not count towards the calculation of the grade point average.

A student is allowed only one attempt at each supplementary assessment item. As a general rule, supplementary examinations are held in the designated supplementary examination periods as advised on Abu Dhabi Polytechnic’s academic calendar. Students who feel that their case for Special Consideration, Extension, or Deferred Assessment has been wrongly dismissed by the course instructor may appeal in writing against that decision to the Abu Dhabi Polytechnic Director or chair of the Academic Affairs Committee. The decision of the Abu Dhabi Polytechnic Director is final.

9.13 Missing an Examination

Students who miss an exam and present a legitimate reason shall be given an “Incomplete” grade. Such students must apply for a deferred exam stating the reason with evidence for missing the exam. The application is reviewed by the department head and recommendation forwarded to the Abu Dhabi Polytechnic Director. If a deferred exam is announced, students shall be requested to take the make-up exam in the supplementary deferred period as announced in the academic calendar or agreed upon with the course instructor. Students who miss an exam and do not present a legitimate reason can be given a score of “zero” for the exam.

9.14 Grading and Results

During the semester, course instructors communicate their evaluations of individual assessment items to students with reference to the criteria against which performance has been assessed. A grade is awarded by the course instructor that signifies the student's overall performance in the course. Students' results in courses are recorded using the grades shown in the table below. The description that accompanies each grade is given as a guideline to assist comparability across Abu Dhabi Polytechnic, but these descriptions must be interpreted within the context of each course.

Letter grades and their value in the calculation of grade point average (GPA).

Letter Grade	Percent Grade	Point Value
A+	95-100	4.0
A	90-94	4.0
A-	87-89	3.7
B+	84-86	3.3
B	80-83	3.0
B-	77-79	2.7
C+	74-76	2.3
C	70-73	2.0
C-	67-69	1.7
D+	63-66	1.3
D	60-62	1.0
F	< 60	0.0
FA (fail due to absence)		0.0
WF (withdraw after deadline)		0.0
P (pass)	depends on assessment	non-impacting
NP (not pass)	depends on assessment	non-impacting
I (incomplete)		non-impacting
W (withdraw)		non-impacting
T (transfer credit)		non-impacting

The cumulative grade point average (cGPA) is calculated by adding the numerical value of each course grade multiplied by its credit hours for accumulated semesters and dividing the total over the total credit hours for all semesters. Courses in which a grade of P, NP, I, W, or T are recorded do not impact the cumulative GPA, i.e., these courses are not included in the calculation of the cumulative GPA.

9.15 Assessments Provided by Third Parties

Assessments provided by third parties (such as by an industrial training provider during on-the-job training) for courses given academic credit are treated like transfer credits that provide academic credit for the course but does not impact the calculation of the cGPA.

9.16 Failed Courses and Remedial Action

Due to the prescribed nature of the curricula of many programs and the critical nature of their occupation, students cannot graduate if they have failed a course required by their program. Students who have failed a course need to take remedial action to pass the course or they will be dismissed from their program. Remedial action can take two forms. First, the student can take supplementary lessons and arrange with their course instructor for reassessment, such as taking examinations, or submitting homework or special projects. Once they pass the reassessment, their grade will change from an F to a D. Second, the student can retake the course at their next opportunity. A student who retakes a course will have their old grade expunged and they will receive the new grade.

10. Policy on Academic Misconduct

Students must conduct their studies at Abu Dhabi Polytechnic honestly, ethically, and in accordance with accepted standards of academic conduct. Any form of academic conduct which is contrary to these standards is academic misconduct, for which Abu Dhabi Polytechnic may penalize a student.

Specifically, it is academic misconduct for a student to:

- Present copied, falsified, or improperly obtained data as if it were the result of laboratory work, field trips, or other investigatory work
- Include in the student's individual work material which is the result of significant assistance from another person if that assistance was unacceptable according to the instructions or guidelines for that work
- Assist another student in the presentation of that student's individual work in a way that is unacceptable according to the instructions or guidelines for that work
- Cheat
- Plagiarize (knowingly presenting the work or property of another person as if it were one's own)

Plagiarism is defined as the act of deliberately presenting another person's work as your own without acknowledgement. A student should therefore ensure that they acknowledge and appropriately reference all sources of information presented in their homework, presentations, or projects. Students are expected to ask their teachers if there are any questions regarding what is or is not considered plagiarism.

Plagiarism is easily detected by electronic plagiarism detection tools. Experienced teachers are ever vigilant to this activity. Both cheating and plagiarism can occur in a number of situations:

- In a homework assignment
- As part of an individual or group project assignment, students are to report instances in group work by others
- In an informal assessment activity
- In a formal testing situation
- Using others' words taken from text-based or internet sources.

The consequence of cheating or plagiarizing can result in dismissal from Abu Dhabi Polytechnic.
Examples of Plagiarism include:

- Word for word copying of sentences or paragraphs from one or more sources which are the work or data of other persons (including books, articles, thesis, unpublished works, working papers, seminar and conference papers, internal reports, lecture notes or tapes) without clearly identifying their origin by appropriate referencing.
- Closely paraphrasing sentences or paragraphs from one or more sources without appropriate acknowledgment in the form of a reference to the original work or works.
- Using another person's ideas, work or research data without appropriate acknowledgment.
- Submitting work which has been produced by someone else on the student's behalf as if it were the work of the student.
- Copying computer files in whole or in part without indicating their origin.
- Submitting work which has been wholly or partially derived from another student's work by a process of mechanical transformation. For example, changing variable names in computer programs.

Program administrators and course instructors are to provide students with advice concerning accepted standards of academic conduct in the area of the program or course. They are to give particular attention to conventions on referencing and bibliography; and, the contribution of other students to assessment items which are meant to be the work of an individual student.

10.1 Procedures

Making a Complaint of Academic Misconduct

An academic staff member who has reason to believe that a student has committed some form of academic misconduct (this includes receiving a report on student misconduct from a laboratory or teaching assistant and/or an examination invigilator) may take one of the following courses of action:

1. Request the student to attend an interview with the academic staff member to discuss the alleged misconduct. On the basis of the interview, the academic staff member may decide to:
   - Take no further action; or
   - Provide the student with a warning together with advice about what is acceptable academic conduct; or
   - Make a formal complaint of academic misconduct to the Academic Review Board by setting out in writing the nature of the alleged misconduct and the evidence in support of the charge.
2. Without an interview, make a formal complaint of academic misconduct to the Academic Review Board by setting out in writing the nature of the alleged misconduct and the evidence in support of the charge.

Dealing with a Complaint of Academic Misconduct

On receiving a complaint of academic misconduct against a student, the Academic Review Board may seek evidence concerning the matter from other sources. The Academic Review Board shall advise the student of the complaint, including a description of the grounds for the complaint and a copy of all the evidence relevant to the matter.

Before determining the action to be taken concerning a complaint of academic misconduct, the Academic Review Board must provide the student with the opportunity to respond to the complaint of academic misconduct. The response may be provided during an interview with the ARB or may be in writing and must be received within fourteen days of the receipt of notification of the complaint.

Having considered the complaint of academic misconduct in the light of the evidence and the student's response, the Academic Review Board may make one of the following recommendations to the Director:

- Dismiss the complaint of academic misconduct. In this case no documentation concerning the complaint shall be placed on file.
- Provide the student with a warning together with advice about what is acceptable academic conduct.
- Where satisfied that academic misconduct has occurred, the Academic Review Board may recommend a penalty as set out in the Penalties section.

In each case, the student shall be informed in writing of the decision of the Director, including the reasons for the decision.

Dealing with Additional Complaints of Academic Misconduct

During the course of consideration of a complaint of academic misconduct, if an additional complaint of academic misconduct is received, that complaint shall be dealt with fully in terms of the preceding section.

Recording of Penalty

Where a penalty of removal or dismissal, as provided for in the Penalties section, is applied, the Director shall advise the Student Services Office for the purpose of recording the decision on the student's academic record. The academic record will bear the annotation “transferred (or dismissed) on (date) for disciplinary reasons.”

Appeal

Where any penalty for academic misconduct is imposed as provided for in Penalties section, a student may appeal to the Director (or an Appeals Committee convened by the Director) under the provisions of the "Student Appeals & Complaints Policy."

The student shall be informed of the right of appeal in the correspondence advising of the imposition of a penalty.

10.2 Policies Relating to the Use of Information Technology

All computers on the Abu Dhabi Polytechnic campus are the sole property of Abu Dhabi Polytechnic and therefore can be monitored by staff. Use of IT facilities and equipment by students is a privilege and not a right. The use of the internet is for academic purposes only and students are to adhere to accepted standards of ethics and behaviour. The use of AD Poly's information technology resources to receive or distribute improper or immoral materials is strictly prohibited. Students in violation of such policies will be subject to disciplinary action with penalties ranging from suspension of computer and network privileges, to suspension or dismissal from the Abu Dhabi Polytechnic.

10.3 Attendance and Punctuality

Abu Dhabi Polytechnic expects students to take full responsibility for their academic work and progress. Success at Abu Dhabi Polytechnic depends largely on regular class attendance. Absence from instruction/lessons has been shown to be a contributing factor to failure or low academic achievement. Punctuality is mandated by employers; it is expected that students adhere to strict attendance policy. Students experiencing personal difficulties and contributing to poor attendance or punctuality should seek Abu Dhabi Polytechnic counselling support. Attendance is calculated on a per-course, per-module, and an overall course basis.

Students with excessive absence are excluded from formal assessment (final examinations). This exclusion results in failure of the unit assessed. Excessive absence is defined as absence that is greater than 15% of the total number of meetings of the course or module. For EASA/GCAA related courses, excessive absence is defined as unexcused absence greater than 10%. The table below shows three different absence stages and the consequences of reaching each of them.

Academic Programs

Per cent	Warning level	Remarks
0%-5%	Written warning	Attendance Notified to Sponsor and Monitored on Daily/Weekly basis
5%-10%	Final written warning	Sponsor Notified for every 1% increase in absence. Possible exclusion from assessment when 10% is reached
≥ 15%	Exclusion from assessment	Sponsor Notified of every unapproved absence up to limit of 15%. Exclusion from assessment and Fail due to Absence (FA) grade.

Students enrolled in EASA/GCAA approved courses should note that minimum attendance requirements are strictly monitored and subject to audit by EASA/GCAA. Students on any approved EASA/GCAA course must demonstrate 95% attendance over the period of the whole course to receive full EASA/GCAA recognition. Individual modules require a minimum of 90% attendance. Modules are EASA/GCAA based and are of varying lengths, depending on complexity and content. Each day consists of a maximum of 7 learning periods totalling 35 periods per week. One period is 50 minutes.

Per cent	Effect
≥ 5% of overall Approved Course	Student will be issued with an EASA/GCAA 'Examinations Only' Certificate. Pt 66 Maintenance Experience requirements become **5 years** instead of 2 years
≥ 10% of Module	Student will be issued with an EASA/GCAA 'Examinations Only' Certificate. Pt 66 Maintenance Experience requirements become **5 years** instead of 2 years. Same as above plus student will not be permitted to sit module examination under AD Poly – Al Ain's Pt 147.

Absences within the above reflected percentages must be covered under mitigating circumstances. Some examples of acceptable mitigating circumstances are shown below.

Reasons for absence must be approved immediately on return to AD Poly. Examples of reasons would include:

- Death of an immediate family member (mother, father, brother, sister, son, daughter or grandparents)
- Other reasons at the AD Poly Director's discretion. The Director reserves the right to require documentation upon request.

Note that where dismissal is recommended by the Abu Dhabi Polytechnic Director, it will only be effective on approval by the IAT Managing Director.

10.4 Lateness for Class

Students who arrive late for class cause considerable disruption to the learning of other students. The consequences of lateness for the student are:

- If a student is more than ten minutes late, they will be recorded as absent from class
- If a student is less than ten minutes late for class, they will be recorded as a 'late' on the attendance sheet. Once the student accumulates three (3) lates, they are recorded as one unexcused absence.

Note, if a student is studying for an EASA/GCAA Program, the attendance requirement is 95%.

10.5 Penalties

On determination that academic misconduct has taken place, the penalty which may be imposed on the student is one or more of the following:

- A reduced or nil result for the assessment item affected by the academic misconduct
- A fail grade for the course in which academic misconduct occurred
- Removal from the program; readmission to the program is at the discretion of the department head based on consideration of the student's case for readmission.
- Dismissal from Abu Dhabi Polytechnic

Where a student has been found guilty of academic misconduct on more than one occasion and has previously been penalized as set out above, the penalty shall normally be removal from the program or dismissal from Abu Dhabi Polytechnic, unless in the opinion of the Academic Review Board there are mitigating circumstances.

10.6 Lateness for an Assessment

Students are expected to be on time for all types of assessments. However, students may, upon discretion of the appropriate AD Poly staff person, be permitted into the examination room during the first ten minutes. Thereafter, there will be no tolerance for further lateness and the student will receive a mark of zero and will have to petition the AD Poly Director to be eligible for a make-up examination. Students enrolled on EASA or GCAA approved modules will not be permitted entry to the exam room once the exam has commenced.

11. Policy on the Submission of Coursework

11.1 Definition of "Coursework"

"Coursework" shall be defined as:

> "any work, in any medium, which is not undertaken in an examination room under supervision, but which is submitted by a student for formal assessment during his/her program of study."

Examples of coursework include, but are not limited to, reports (formal and informal), case studies, presentations, group work, interviews, in-class tests, and role play.

In-class tests formally fall within the definition of coursework, but are governed by separate regulations.

11.2 Authorship and the Use of Previously Submitted Material

Regulations to be followed by Students

Students must cite sources to indicate material that is not their own work. All written coursework must be written by the students themselves and in their own words, except for quotations from published and unpublished sources which shall be clearly indicated and acknowledged as such. Similarly, any non-written coursework must be entirely the student's own work.

11.3 Avoidance of Plagiarism

No student shall submit plagiarized work; see the Policy on Academic Misconduct for the definition of plagiarism.

11.4 Avoidance of Collusion

No student shall submit work based upon collusion, defined by Abu Dhabi Polytechnic as the use by one student, intentional or otherwise, of material produced by one or more other students, without specifying the authorship of that material.

The Normal Avoidance of Material that has been Previously Submitted

A student shall not be permitted to incorporate material that has been submitted by the student or any other person in support of a successful application for a qualification of this or any other education establishment or any other qualification-awarding body, except for the purpose of drawing attention, for reference purposes only, to such material, including calculations or the results of experimental work. Where such material is incorporated, the fact shall be recorded together with the title of the thesis or other work, the date of the award of the qualification and the name of the institution or other qualification-awarding body making the award.

11.5 Guidance to be Provided

All course leaders are expected to provide guidance to students specifying, in the context of their subjects, that:

- quotations from published and unpublished sources must be indicated and acknowledged clearly;
- web-based materials must not be directly downloaded into an assignment and must be referenced fully like any other source material;
- students must not incorporate materials/assignments purchased or acquired from internet sites or commissioned from sources which write assignments for payment (paper-mill sites);
- paraphrasing of material from others must be referenced clearly;
- students should not normally incorporate materials previously submitted at this or any other institution towards the completion of an award, and any such inclusion must have been approved by a member of academic staff, and be referenced fully;
- sources of illustrations, photographs maps and statistics must be acknowledged clearly;
- (unless students have been instructed to produce a group assignment), students must produce work

which is uniquely their own;
- where work is done as part of a group, the submission sheet must include a list of all students who have contributed to this work;
- reference to appropriate sources of information on plagiarism and good practice in the production of assignments.

11.6 Submission Dates and Extensions

Publication of Submission Dates

All course leaders should clearly publish the submission dates for all coursework assignments and the procedures by which coursework must be submitted. The submission dates and procedures should normally be published no later than the first teaching week for the unit.

Granting of Extensions
The granting of extensions is at the discretion of the relevant senior coordinator or nominee.

Any student who believes that they have genuine grounds for submitting coursework later than the published submission date should, before the published submission date, seek an extension from the relevant senior coordinator or nominee. Where a student does not seek an extension until on or after the published submission date, the request will only be granted by the relevant senior coordinator, in addition to there being genuine grounds for submitting the work after the published deadline, there are also genuine grounds to explain the student's failure to seek an extension earlier.

Extended submission deadlines should normally allow for work to be marked before the deadline for the submission of grades.

All course leaders should establish a formal mechanism for recording extensions granted, so that an agreed record exists, and should operate a formal process for recording receipt of coursework.

The senior coordinators should make it clear to students that if they are in genuine difficulties they should discuss an extension if appropriate.

11.7 Conduct of In-Class Tests

Status
In-class tests are formally regarded as coursework assessments, and are administered by teaching staff instead of the assessment office.

Extensions
Students who are unable to complete an in-class test at the scheduled time shall be entitled to seek an extension in accordance with the Policy on Special Assessment Arrangements. In exercising their discretion about whether to grant a request, the relevant senior coordinator or nominee shall be entitled to take into account the practicability of arranging a further sitting of a suitable in-class test before the meeting of the relevant examining body. If setting an alternative class test is not practicable, students may be given an alternative type of assessment to undertake by the extended deadline.

11.8 Special Arrangements for Students with a Disability, Illness, Injury or Adverse Personal Circumstances

Where it has been agreed that a student is entitled to special arrangements for formal examinations, it shall be assumed that, unless the student is informed in writing to the contrary, such arrangements also apply to In-Class Tests.

12. Policy on the Conduct of Exams

12.1 General Regulations

Arrivals and Departures

Arrivals: No student shall be permitted to enter the examination room after the lapse of 15 from the start of the examination. No additional time will be allowed to students who arrive at the examination room after the start of the examination. There will be no late entry for GCAA/EASA exams. All GCAA/EASA and other standardized exams require adherence to strict prompt attendance of scheduled exams.

Departures: No student shall be permitted to leave the examination room either in the first 30 minutes from the start of the examination or in the last 15 minutes of the examination.

Students who complete their work during the last fifteen minutes shall remain quietly seated until the invigilator announces the end of the examination.

Irrespective of their departure time, students must not (a) leave the examination room until all their written work has been handed in or (b) remove from the examination room any answer books (whether used or unused), mathematical tables or other data provided for use or other items of examination stationery except for non-returnable question papers.

12.2 Cheating and Other Examples of Academic Misconduct

Students are forbidden to:

- Take to their desk in the examination room any unauthorized book, manuscript, papers or other articles or any case, bag or other container in which books, manuscripts, papers or other unauthorized articles can be carried
- Make use of any of the types of material referred to above that were introduced into the examination room by either the student or another examinee
- Obtain, or endeavor to obtain, directly or indirectly, assistance in their work
- Give or endeavor to give, directly or indirectly, assistance to any other student
- Impersonate an examination student
- Allow themselves to be impersonated
- Write notes or rough work on any paper other than the answer books or question papers provided

Where an invigilator suspects a student of academic misconduct, the following procedure shall be followed:

(a) The senior invigilator shall be informed. If the senior invigilator shares the suspicion, they shall remove and retain any unauthorized material; and, report the matter to the course leader (or their representative), who shall have power either to exclude the student from the examination room or permit the student to finish the paper.

(b) The student shall be informed before they leave the room that they are not required to admit to a breach of the regulations but they may submit a written statement if they so wish, to be forwarded to the Academic Review Board.

(c) At the conclusion of the examination, the invigilator shall prepare a joint report of all the circumstances, and forward this report to the course leader, who shall prepare a report for consideration by the examiners. Based on the report, the Academic Review Board shall be responsible for recommending to the Director the consequences for the student of the regulatory breach. The consequences may range from the student being awarded a Fail grade, without the right to reassessment, or for the student's studies to be terminated and the student required to leave Abu Dhabi Polytechnic.

In the event that an examiner, when marking examination scripts, suspects a student of academic misconduct, they shall consult the relevant course leader. If the senior coordinator considers that such a breach has occurred, they shall make a full report to the administration and shall warn the student that this report is being made. The senior coordinator shall inform the student that they are not required to admit a breach of the regulations but they may submit a written statement if they so wish, to be forwarded to the Academic Review Board.

12.3 Disruptive Behavior

Students are forbidden to:

- Communicate with each other in the examination room
- Address enquiries to anyone other than an invigilator
- Smoke or consume alcohol in the examination room
- Leave mobile telephones switched on in the examination room
- Place mobile telephones on their desks
- Indulge in any behavior which, in the opinion of the invigilator, may disturb other students
- Indulge in any other form of conduct which may disrupt the smooth progress of an examination

(a) Where an invigilator suspects a student of breaching these regulations the following procedure will be applied:

- The invigilator will normally order the student to discontinue the forbidden behavior. If the student does so, no further action will be taken. If, however, the student, in the same examination, subsequently engages in any of the behaviors listed above. The senior invigilator will order the student to leave the room.
- When the student has left the room, they will be informed by the senior invigilator that a full report will be made to the course leader.
- The senior invigilator will inform the student that they may submit a written statement if they so wish, to be forwarded to course leader.
- At the conclusion of the examination, the invigilator will prepare a joint report of all the circumstances, and forward this report to the course leader, who will treat the matter according to the Policy on Student Discipline.

(b) Notwithstanding clause (a) above, the senior invigilator is empowered to judge that the behavior is sufficiently disruptive to warrant the immediate removal of the student from the examination room. In these circumstances, when the student has left the room, they will be informed by the senior invigilator that a full report will be made to the course leader.

- The senior invigilator will inform the student that they may submit a written statement if they so wish, to be forwarded to the course leader.
- At the conclusion of the examination, the invigilators shall prepare a joint report of all the circumstances, and forward this report to the applicable department head, who will treat the matter according to the Policy on Student Discipline.

12.4 Illness during an Examination

Inability to Complete an Examination

In cases where a student complains of feeling unwell in a scheduled room, leaves the examination, and is unable to return to complete the examination, they will be required to submit a medical certificate to the assessment staff, normally within three working days.

The invigilator should record the circumstances surrounding the student's withdrawal from the examination on the front cover of the examination book, and the internal examiner responsible for marking the script shall inform the course instructor.

The course instructor shall be entitled to determine either that the student should be treated in the same way as a student who was absent from the examination, or that the student should be awarded a mark based on the work that had been completed.

12.5 Open Book Examinations

For all "Open Book" examinations, the relevant department head or representative shall ensure that the students are informed, in writing, of the following:

- The title of the "Open Book" examination paper
- The precise nature of the material which can be taken into the examination
- That the material is for the students' personal use

- That, apart from the students being allowed the use of certain specified material, the examination will be conducted in all other respects in accordance with the normal rules governing the conduct of examinations

12.6 Use of Electronic Calculators in Examinations

EASA and GCAA exams prohibit the use of any type of calculator. Students are permitted to use their own "pocket size" electronic calculators, provided that they are silent in operation, and unless expressly disallowed from using them for specific examinations. Abu Dhabi Polytechnic shall not be responsible for the provision of:

- calculators in the event of a breakdown,
- power for their operation, or
- spare batteries.

12.7 The Role of Academic Staff in the Running of Examinations

Course leaders shall ensure that, for each examination, a member of academic staff (preferably the course instructor) who is knowledgeable about the contents of the examination should arrive in the examination room at least 15 minutes before the scheduled start of the examination and remains for the first 15 minutes to:

- Ensure that the correct examination is being taken, and check the examination for any errors;
- Inform the invigilators of any amendments to be made;
- Ensure that, where required, specialized stationery and supporting papers are provided;
- Answer any queries about the question paper, and, before leaving the examination room, inform an invigilator where they may be contacted in the Abu Dhabi Polytechnic for the duration of the examination, in the event of questions from a student on the examination.

It is desirable that the course instructor be able to be contacted by telephone throughout the duration of the examination.

In a team teaching situation where different instructors contribute to assessment in a course, the course instructor is responsible for ensuring that appropriate moderation processes are in place.

12.8 Credits and the Semester Hour

One credit or semester hour of credit is defined as one lecture, recitation or class exercise fifty minutes per week for one full semester Two or three weekly hours of laboratory, demonstration, etc., are equivalent to one lecture hour. Some courses have designated tutorial hours and these hours scheduled during the semester for students to improve their subject knowledge with the assistance of their teacher. The number in parentheses after a course title listed in the "Course Descriptions" section of this catalog indicates the semester hours of credit of the course.

12.9 Grade Reports

Final Grades
Final grades are available for students to access via Abu Dhabi Polytechnic-SELF-SERVE Banner. Students may also request an official copy of their final grades from the Student Services Office. The official copy can be retrieved in person or by mail to the addresses provided by the student.

Grade Point Average (GPA)
The cumulative grade point average (cGPA) is determined by dividing the total quality points earned by the total GPA hours attempted. All grades received during a student's enrollment, for which quality points are indicated in the "Grading System" table below, are included in the cumulative GPA. Grades for courses transferred from other institutions are excluded.

13. Academic Standing, Progression, and Exclusion

To be in good academic standing, a student undertaking diploma studies must achieve a grade of at least a D in all units taken and have a cumulative grade point average (cGPA) of at least 2.0. Students who do not meet the minimum cGPA requirement will be placed on academic probation for the following semester based on the following criteria.

13.1 Academic Probation

"Academic probation" is the term used by Abu Dhabi Polytechnic for an official warning to the student that they must improve their academic achievement to avoid being dismissed. Students who are placed on academic probation are advised to seek assistance in order to improve their academic performance. Sources of assistance include Abu Dhabi Polytechnic's Learning Resource Centre staff, the Counseling Service, the Tutoring Centre, and the academic staff responsible for the program and courses that the student is undertaking. Students who are on academic probation for multiple semesters may be dismissed from their program by an Academic Review Board. There will be no academic probation during the summer term. Since academic probation is a warning, students are afforded a three-strike system with the following designations:

Academic Probation 1: assigned to a student after their first semester in which their cGPA falls below 2.0 and they were previously in good academic standing or after having completed at least 14 credit hours.

Academic Probation 2: assigned to a student upon receiving a GPA below 2.0 for a semester that was immediately preceded by a semester with a designation of Academic Probation 1. Students with this designation will be referred to an Academic Review Board to determine conditions for the student's continued enrolment in Abu Dhabi Polytechnic.

Academic Probation Removal: Once a student has increased their cGPA above 2.0, the academic probation will be removed.

Failing a Course Three Times: If a student fails a course three times (including F, FA and WF) and the course is required for their program, they will be dismissed from the program. The student may change to a different program that does not include the course.

13.2 Academic Review Board

The Academic Review Board (ARB) is a Level 3 committee which reports to the Academic Affairs Committee and is established by the Director. The Academic Review Board consists of at least four members, two from the academic faculty and two from Student Services and Support Offices. Recommendations of the ARB are provided to the Academic Affairs Committee who in turn provides their recommendations to the Executive Committee for approval and implementation. Students have the right to appeal a decision of the Academic Affairs Committee as stipulated in the Student Appeals & Complaints Policy.

An Academic Review Board has the ability to review a student's academic file including transcripts and incident reports, to interview instructors, and to interview the student. An Academic Review Board may recommend actions by the student to address unsatisfactory student performance, may recommend removal from the student's program, or may recommend dismissal from Abu Dhabi Polytechnic.

13.3 Appeal against Removal or Dismissal

A student who is removed or dismissed may lodge an appeal against such actions. Under the Student Appeals & Complaints Policy, the appeal must be in writing and be lodged with the appropriate department head and must set out the grounds of the appeal, and be accompanied by supporting documentation where relevant. The appeal must be lodged by the date specified in the notification of dismissal in order for the student to continue to study in the next semester in the event of a successful appeal.

The student will be given the opportunity to present their case with the Abu Dhabi Polytechnic Director and

the course leader. The appeal may be lodged after the specified date up to six months from the date of the dismissal notification, in which case, if the appeal is successful, the student will have been prevented from studying for at least one semester.

13.4 Issuing Warnings to Students at Risk

Abu Dhabi Polytechnic may provide a warning to students whose performance in a semester is such that their performance is at a level inappropriate to good academic standing, the student is at risk of being given an academic standing of probation or excluded if their academic performance fails to improve. The record of the warning is not reported in the student's official academic transcript.

An application for readmission or for admission into a new program should be made at least three months prior to the commencement of the semester in which the student seeks to resume study.

Where an application for readmission following dismissal is not approved, the student may lodge an appeal. Under the Student Appeals & Complaints Policy, such an appeal is treated as an appeal against an admission decision.

14. Student Counselling Policy

14.1 Introduction

The Abu Dhabi Polytechnic is committed to supporting and promoting all aspects of student well-being, and the counseling service is one way in which the Abu Dhabi Polytechnic seeks to enable all students to develop their full potential.

14.2 Purpose of Policy

The purpose of this policy is:

- To document the counseling provision at Abu Dhabi Polytechnic for students.
- To provide guidance to students and explain the circumstances and situations where counseling may be appropriate.
- To identify and provide conditions that will facilitate the well-being and personal development of students.
- To provide counseling service as an integral support mechanism for students' learning.
- To enable individual students to be more effective in their lives within and outside Abu Dhabi Polytechnic.
- To help students make optimum use of the choices facing them in their academic, work, social and personal lives through individual counseling and group work with other students.

14.3 The Counseling Process

A student can approach the counselor through any staff member or by themselves.

The counselor approaches the student in a non-threatening way and explains to them the possible benefits from seeing the counselor.

The student should be assured that it is normal to seek help and that counseling is confidential. The counselor shall conduct initial sessions, give information on confidentially.

Initial sessions will be used to agree with the students the recording of statistical data, the keeping of working notes and the return of monitoring and feedback sheets.

Initial sessions will be used to make a counseling contract with the student, to allay students' fears, clarify the student's understanding of counseling, and explain counselor's method of counseling.

All forms associated with the counseling process will be securely kept and computerized and data is accessed only through the counselor and protected by a password known only to the counselor. Counseling sessions will be conducted in a confidential and respectful manner.

Any break in confidence will be minimized by restricting information to only those people who can provide the required help. Students will be clearly informed at the onset of the counseling contract what conditions could lead to confidentiality being broken.

In order to obtain support for students, therefore, there may be a break in confidence in the following exceptional circumstances. The student's consent will be obtained wherever possible (and the issue explored beforehand with the students unless time/circumstances do not permit) examples of such situations are:

- The student gives the counselor good grounds for believing that they will cause serious physical harm to others or themselves.
- The counselor has reason to believe that a student is in possession of or supplying illegal drugs on Abu Dhabi Polytechnic premises.
- A student has a severe alcohol/drug problem which is interfering with their Abu Dhabi Polytechnic work.

14.4 Monitoring

A report of the Counseling Service will be presented to the Abu Dhabi Polytechnic Director annually through the Senior Coordinator of Student Affairs.

14.5 Record Keeping

All counseling reports and interactions between the counselor and student are stored on the counselor's computer. No information is recorded on any central student records. The data will be kept for three years and disposed of in an appropriate method.

15. Academic Support Department

15.1 Introduction

The Academic Support Department (ASD) was established from the beginning in 2011 and has been developed to meet AD Poly's mission of providing high quality academic support services and tutoring that solidifies knowledge and skills to enhance academic performance in Applied Science and Engineering Technology. ASD's mission and vision are based on offering general education and life-long learning academic services in Applied Sciences and Engineering Technology in alignment with Abu Dhabi Economic Vision 2030. The ASD is committed to supporting students' achievements in institutional educational goals and in becoming life-long learners by offering a variety of academic services, tutoring, and learning resources.

The ASD provides students and staff at AD Poly with a variety of services and academic courses. It offers general education curriculum in six main clusters: natural sciences (physics and chemistry), mathematics (precalculus, calculus and advance mathematics), fundamentals in engineering technology, humanities, English and technical communication skills, and skills for life (see figure 1). Moreover, ASD assists students' pursuit of knowledge and perception of Arabic language, Islamic culture, and Emirati national identity. The ASD also provides opportunities for students to develop interpersonal and lifelong skills through a variety of courses and participation in special events.

The compulsory and elective based curriculum has been developed based on the following parameters: program needs offered at AD Poly, Academic Accreditation Commission (CAA) standards, ABET standards, and national and international institutions' (i.e., other polytechnics) curriculum benchmarks. Courses are offered on a credit-hour system. These courses are divided into college compulsory requirements, electives, skills for life, and foundation courses. AD Poly offers 25 credits as college compulsory requirements: 19 out of these 25 credits are offered in the six clusters for all programs except Calculus I which is not mandatory for the Advanced Energy Engineering Technology Program. The 6 credits students can select from a basket consisting of Islamic culture, Emirati Society and Culture, and Arabic Communication Skills. The remaining courses are offered either as program compulsory or elective. Overall, the ASD currently offers 41 courses totaling 109 credits that cover the main six clusters mentioned above. These courses are not limited for the first year, but have been integrated into each programs' study plan.

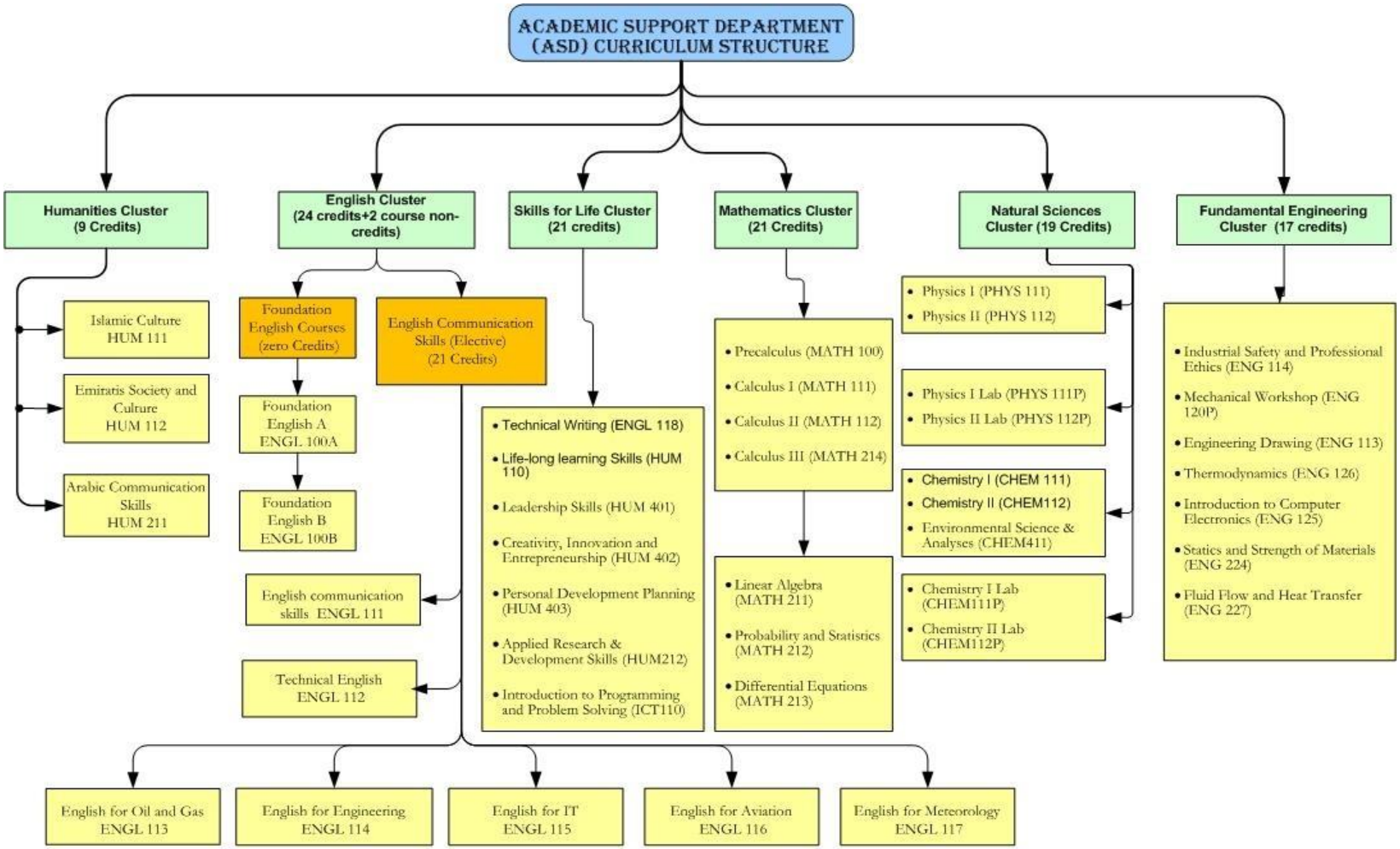


Figure 1: Curriculum clusters at ASD.

15.2 General Education

The Academic Support Department (ASD) provides students and staff at Abu Dhabi Polytechnic with variety of services and academic courses. It offers the general education in six main clusters: natural sciences (physics and chemistry), mathematics (precalculus, calculus and advance mathematics), general engineering technology courses, humanities, English and technical communication skills, and silks for life. It also helps students to expand their knowledge and perception of Arabic language, Islamic culture and emirates national identity. In addition, the ASD offers the opportunity for students to develop interpersonal and lifelong skills through a variety of courses and participating in national and other events.

15.3 Program Mission

The mission of the academic support department (ASD) is to provide high quality academic support services and tutoring that solidify knowledge, skills and enhance academic performance for science and engineering technology students at Abu Dhabi Polytechnic. The ASD is committed to support students to achieve institutional educational goals and become a life-long-learners through offering variety of academic services, tutoring and learning resources.

15.4 Program Objectives (POs/PEOs)

The ASD endeavors to meet program objectives that encourage multifaceted learning in alignment with AD Poly's mission. These objectives are as follows:

- To offer comprehensive general education and multidisciplinary tutoring in applied science, mathematics, engineering technology, communication and innovative skills
- To engage in ongoing students' outcome assessments for purposes of improving other programs and services to ensure optimal education opportunities within its various support initiatives
- To create learning environments and experiences based on innovation and creativity that produce competency in the use of resources and in research methodologies to promote life-long learning
- To recruit distinguished students and recognize their prior learning capabilities

15.5 Program Learning Outcomes (PLOs/SLOs)

The following list summarizes the Learning Outcomes for ASD which are similar to ABET SLOs (a-k).

- At the end of their studies, students will have an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities (LO1);
- an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies (LO2);
- an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes (LO3);
- an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives (LO4);
- an ability to function effectively as a member or leader on a technical team (LO5);
- an ability to identify, analyze, and solve broadly-defined engineering technology problems (LO6)'
- an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature (LO7);
- an understanding of the need for and an ability to engage in self-directed continuing professional development (LO8);
- an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity (LO9);
- a knowledge of the impact of engineering technology solutions in a societal and global context (LO10); and
- a commitment to quality, timeliness, and continuous improvement (LO11).

15.6 Curriculum

Our general education and life-long learning curriculum is offered by the ASD through the list of courses shown in Table 1. The courses are divided into four main categories: 1) compulsory courses, 2) humanities and social sciences, 3) general education and 4) electives.

Table 1. ASD Course Offerings (109 credits)

ADPoly General Requirements (compulsory)				19 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH100	Precalculus			4
MATH111	Calculus I	MATH100		3
ICT110	Introduction to Programming & Problem Solving			3
ENGL111	English Communication Skills			3
ENGL112	Technical English	ENGL111		3
HUM402	Creativity, Innovation and Entrepreneurship			3

Humanities and Social Science Requirements Basket (compulsory 6 credits)				9 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
HUM111	Islamic Culture			3
HUM112	Emirates Society & Culture			3
HUM211	Arabic Communication Skills			3

ADPoly General Requirements (other depending on program study plan)				69 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
PHYS112	Physics II	PHYS111, MATH100	MATH111	3
PHYS112P	Physics II Lab		PHYS112	1
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
MATH112	Calculus II	MATH111		3
MATH211	Linear Algebra	MATH100		3

MATH212	Probability and statistics	MATH111		3
MATH213	Differential Equations	MATH112		3
MATH214	Calculus III	MATH112		3
ENGL113	English for Oil and Gas	ENGL112		3
ENGL114	English for Engineering	ENGL112		3
ENGL115	English for IT	ENGL112		3
ENGL116	English for Aviation	ENGL112		3
ENGL117	English for Meteorology	ENGL112		3
ENGL118	Technical Writing	ENGL112		3
HUM110	Lifelong Learning Skills			3
ENG113	Engineering Drawing			2
ENG114	Industrial Safety and Professional Ethics			2
ENG120P	Mechanical Workshop			1
ENG125	Introduction to Computer Electronics	ICT110		3
ENG126	Thermodynamics	MATH111, PHYS111, CHEM112		3
ENG224	Statics & Strength of Materials	MATH111, PHYS112		3
ENG227	Fluid Flow & Heat Transfer	ENG126, MATH111		3

Electives (depending on program study plan)				**12 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
HUM212	Applied Research and Development Skills			3
HUM401	Leadership Skills			3
HUM403	Personal Development Planning			2
CHEM411	Environmental Science and Analyses	CHEM111		3

15.7 Proposed Study Plan for all Programs (GRs Plan)

There are several general education courses proposed for freshman year (year 1). This general plan will vary from one program to program; students should refer to the study plan provided by their program.

1st Year (Freshman)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	MATH100	Precalculus	4	MPE
	ENGL111	English Communication Skills	3	IELTS =5.5 or EmSAT=1100
	ICT110	Introduction to Programming& Problem Solving	3	
	HUM111	Islamic Culture	3	
	ENG113	Industrial Safety & Prof. Ethics	2	
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	CHEM111	Chemistry I	3	
	CHEM111P	Chemistry Lab I	1	
	PHYS111	Physics I	3	
	PHYS111P	Physics I Lab	1	
	MATH111	Calculus I	3	MATH100, MPE≥70%
	ENGL112	Technical English	3	ENGL111
	ENG120P	Mechanical Workshop	1	
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	PHYS112	Physics II	3	PHYS111
	PHYS112P	Physics II Lab	1	PHYS111P
	ENGL11X	English for each specialization	3	ENGL112
	MATH112	Calculus II	3	MATH111
		Total Credit Hours	**10**	

15.8 Academic Support Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Mufeed Batarseh	Senior Faculty, Department Head	Ph.D.	Technische Universität Carolo-Wilhelmina zu Braunschweig
Bassem Saassouh	Senior Lecturer	Ph.D.	University of Technology of Troyes
Emad Imreizeeq	Senior Lecturer	Ph.D.	University of Twente
Osama Hassan	Senior Lecturer	Ph.D.	University of New South Wales
Peter Lawson	Senior Lecturer	Ph.D.	University of Salford
Yasser Farhat	Senior Lecturer	Ph.D.	Laval University
Sami Dadi	Senior Lecturer	Ph.D.	De Montfort University
Sanaa El Yassami	Senior Lecturer	Ph.D.	Mohammed V University at Souissi
Shawkat Gasaymeh	Senior Lecturer	Ph.D.	University Kebangsaan
Thomas Carpy	Senior Lecturer	Ph.D.	Dublin City University
Venkata Siva Sagiraju	Senior Lecturer	Ph.D.	Andhra University
Jaydaa Seyam	Lecturer	Ph.D.	University of Sharjah
Ayman Al Samarae	Lecturer	Ph.D.	University of Sharjah
Vinod Nair	Senior Lecturer	Master	Kanpur University
Badiha Assafiri	Lecturer	Master	University of Tasmania
Bashar Abushunnar	Lecturer	Master	The British University in Dubai
Carol Williams	Lecturer	Master	Northwestern University
Diana Al Haffar	Lecturer	Master	University of Leicester
Jennifer Benaggoun	Lecturer	Master	Portland State University
Mushtaq Ikramullah	Adjunct Lecturer	Master	Arizona State University
Mwaffag Husein Sharadga	Lecturer	Master	United Arab Emirates University
Nadine El Khalil	Lecturer	Master	American University of Beirut
Pradeep Nair	Lecturer	MBA	Mahathma Gandhi University
Salaheddin Abuyahya	Lecturer	Master	Jordan University of Science & Technology
Samantha Jayne Ryan	Lecturer	Master	University of Central Lancashire
Suhaib Hamid El Rasheed	Lecturer	Master	Norwegian Univ of Science and Technology
Samantha Ryan	Lecturer	MA TESOL and Applied Linguistic	University of Central Lancashire, UK
Hussam Fraij	Professional Technical Lecturer	Bachelor	Applied Science University
Youssef Laz	Professional Technical Lecturer	Bachelor	Beirut Arab University
Amer Hussein	Lecturer	Master	Indiana Univ-Purdue Univ-Indianapolis
Aya Abdelhamid	Teaching Assistant	Master	UAE University
Hana Abusabiekeh	Teaching Assistant	Bachelor	Hashemite University
Jian Shen	Teaching Assistant	Bachelor	Korea Tech
Mohammad Al Khatib	Teaching Assistant	Master	The University of Texas at El Paso
Nuha F.H. Attia	Teaching Assistant	Master	Sharjah University
Ala'a Al Haik	Lab Technologist	Bachelor	United Arab Emirates University
Firas Al Rawashdeh	Lab Technologist	Bachelor	Yarmouk University

16. Description of Programs Offered at Al Ain Campus

16.1 Career-Based Curriculum

Abu Dhabi Polytechnic offers a structured academic and training path to a career by providing students with an education that cultivates multiple awards. Abu Dhabi Polytechnic graduates earn academic awards for their achievements as well as professional licenses. Academic awards provide students a continued education pathway, while a professional license gives the tools for practicing what they have learned in real world situations. Third-year students enrolled in engineering or maintenance higher diploma programs have the choice to select from different specializations: avionics, aeromechanical, air traffic management, etc.

16.2 The Aviation Programs Offered at Al Ain Campus

Abu Dhabi Polytechnic offers a structured academic and training path to a career by providing students with an education that cultivates multiple awards. Al Ain aviation graduates earn academic awards for their achievements as well as professional licenses. Academic awards provide students a continued education pathway, while a professional license gives the tools for practicing what they have learned in real world situations. Students enrolled in engineering or maintenance higher diploma programs and 3rd year students have the choice to select from different specializations, including avionics or aeromechanical.

16.3 Academic Pathway for the Aviation Programs

The aviation programs' focus is on aviation engineering and maintenance technologies. The programs prepare students to earn academic and professional licensing qualifications. Generally, Students enrolled in the different AD Poly programs have similar educational and training experiences.

Students enrolled in the Aircraft Maintenance program complete the basic training requirement for the GCAA/EASA category "A1.1" license. In addition, the student earns a diploma in "Aircraft Maintenance." Both the qualification for the license and the diploma are completed in two years. After the two years, a student can continue for one more year and earn a Higher Diploma in "Aircraft Maintenance." The license can be earned after completing a one-year mandatory industrial experience.

Students enrolled in Aircraft Engineering Technology qualify, after completing a three years program, to the coveted GCAA/EASA category "B1.1/B2" licenses. The three years include completion of all academic and basic training requirements where students also earn a higher diploma in "Aircraft Engineering Technology." The license can be earned after completing mandatory two-years of industrial experience.

Students enrolled in the Air traffic Management degree program qualify, after completing a two years program, to become an assistant controller, and after completing the three years program, to be a controller. The two years program also earns the graduate a diploma in "Air-traffic management", and the three years earns the graduate a higher diploma in "Air-Traffic Management."

Academic advisors monitor students' progress at AD Poly. Advisors are assigned a group of students and they meet them once a semester to discuss registration and other relevant academic issues. The advisor guides the student through the available pathways and monitors his progress closely until graduation.

AD Poly is a registered training provider under the National Qualification Authority (NQA). AD Poly provides training for three NQA levels (Levels 5, 6, and 7) leading to applied Diploma, and Applied Advanced Diploma and Applied Bachelor degree levels.

17. Aircraft Maintenance Diploma and Higher Diploma

17.1 Introduction

This is a two-year (Diploma) and a three-year (Higher Diploma) program that comprises aviation fundamentals as an integral part of a professional license leading to certification as Maintenance Certifying Mechanic. These programs adhere to the European Aviation Safety Agency's (EASA) part 66 rules and regulations and the General Civil Aviation Authority (GCAA) CAR 66 rules and regulations in preparing "Category A" Line Maintenance Mechanic courses. Students in these programs can earn national and the international licenses upon successful completion of the course requirements as well as earning the prospective academic Diploma and Higher Diploma qualifications. The Higher Diploma of this program comprises advanced topics in aviation maintenance. However, it does not lead to other certification or licenses. The Higher diploma course branches into the two main areas of EASA's Part 66, Cat B1.1 and Cat B2. This program also includes a mandatory one-term On-the-Job-Training as an essential part of the students' education and later licensing. Program duration depends on the needs of the student and sponsoring agency.

17.2 Diploma/Higher Diploma and licenses

The Diploma program in Aircraft Maintenance is a two-year program leading to an EASA and/or a GCAA Category A1 license. The licenses, issued by the indicated authority, require a one-year aircraft maintenance experience of trainees to become eligible to apply for a Category "A1.1" "Basic aircraft maintenance license." The license enables graduates to be ready to work in civil aviation upon graduating in any approved aircraft maintenance facility, worldwide.

Students completing the diploma program in Aircraft Maintenance have the option to further their education with an additional year of advanced studies and training. The advanced training embeds major elements of EASA's and/or GCAA's CAT "B1.1" Aircraft Maintenance License under the associated Part 147 and CAR 147. Students in this program are awarded the Higher Diploma only. The license requirement for this programs' training will be a minimum of five years of aircraft maintenance experience.

17.3 Program Accreditation and Delivery

The Abu Dhabi Polytechnic – Al Ain aviation program is an approved program under the European Aviation Safety Agency's (EASA) Part 147 and the General Civil Aviation Authority's (GCAA) CAR 147 to provide the theoretical and practical training, examination, and assessment required to support the course(s) specified in Maintenance Training Organization Exposition (MTOE) Part 1.9 and Part 2.1. All training is conducted in accordance with PART 66 requirements.

The diploma and the higher diploma programs have initial accredited from the Ministry of Education. The CAT A1.1 licenses are approved by the EASA and GCAA.

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 /3 years (diploma/higher diploma)	English	Fall, Winter and Summer	Al Ain

17.4 Program Mission

The Aircraft Maintenance program (AM) addresses the primary need for aircraft maintenance in an expanding commercial aviation market. There has been an increasing demand for commercial aviation worldwide, particularly in the UAE, mandated by airline companies' keen interest in increasing their fleets of aircrafts and registering an unprecedented growth in this sector of transportation. The airlines' fleets require a considerable amount of human resources that are versed in this high-tech industry to manage its growth.

AD Poly's AM program was developed to provide the UAE's needed national expertise with basic aircraft engineering technologies. AD Poly's AM programs provide internationally (approved by the European Aviation Safety Agency-EASA) and nationally approved (approved by the General Civil Aviation Authority of the UAE) Ab/Initio training in basic aircraft maintenance technologies. These approved programs lead to industry required licensing. Additionally, the AM program is a Ministry of Education's accredited two years Diploma and three-year Higher Diploma in Aircraft Maintenance. The accredited program embeds the requirements of EASA's/GCAA's Ab/Initio training under part 66/CAR 66 Category A1.

Graduates are eligible to apply for EASA's and GCAA's category A "Maintenance Certifying Mechanic License" after completing the Ab/Initio training requirements along with a one year of relevant industrial experience. This license is a key requirement for working in civil aviation on commercial aircrafts at any recognized or approved maintenance facility, worldwide.

17.5 Program Objectives (POs/PEOs)

The Aircraft Maintenance program educational objectives (PEO) are derived from Abu Dhabi Polytechnic vision and mission. The PEOs of the program listed below reflect the vision of ADPoly:

- PEO1: Provide a broad-based curriculum in Aircraft Maintenance that generates graduates having competency in the maintenance, repair and overhaul of aircraft, its components and systems.
- PEO2: Provide students with laboratory and on-the-job training/apprenticeship experiences associated with the maintenance, repair and overhaul of aircraft and its components.
- PEO3: Provide students with the basic knowledge and skills necessary to pursue technical and professional careers in Aviation Maintenance Industry.
- PEO4: Provide students with leadership and membership opportunities associated with appropriate professional organizations.
- PEO5: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge of related contemporary issues.
- PEO6: Prepare students for continuous personal and professional development

17.6 Program Learning Outcomes (PLOs/SLOs)

The Program learning outcomes of the Aircraft Maintenance program provide a measure of the program is meeting its educational objectives. The expected Program Learning Outcomes of the AM program are:

- PLO1: Apply appropriate mastery of the knowledge techniques and skills, and adapt to emerging applications of mathematics, science, modern technology, aircraft servicing, inspection, repair, maintenance and troubleshooting.
- PLO2: Perform and interpret experiments and practical tasks, and apply experimental results to improve inspection and maintenance processes.
- PLO3: Operate a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, health and safety, manufacturability, and sustainability.

- PLO4: identify, analyze, solve technical problems, and use the techniques, skills, and modern engineering tools necessary for engineering practice and occupational competency.
- PLO5: Work in accordance with Aircraft Maintenance Manuals, Service Bulletins and Airworthiness Data issued by manufacturers and regulatory authorities that include Line Maintenance, Base Maintenance and Workshops.
- PLO6: Read and write technical documents and apply safety principles specific to the aviation industry.
- PLO7: Maintain ethical, communication and technical service skills necessary for careers in all areas of the Aviation Maintenance industry and be aware with the role of the individual in building the society through scientific study and characteristics of the community.
- PLO8: Install aircraft engines, parts, components and structures as part of routine and unscheduled maintenance, and perform run-up, more and tie-down an aircraft.
- PLO9: Perform service, maintenance, repair and modification procedures on aircraft systems, structures, instruments, and related components to maintain aircraft safety and airworthiness.
- PLO10: Maintain detailed inspection, repair, maintenance, and certification records and reports to meet UAE aviation regulations and logbook requirements.
- PLO11: Apply written, oral, and graphical communication in both technical and non-technical environments, and demonstrate a commitment to quality, timeliness, and continuous improvement.
- PLO12: Be involved in life-long learning, including type training and other specialty training.

17.7 Program Entry Requirements

Diploma:

- English Proficiency: IELTS 5.0/EmSAT 1100 or equivalent
- High School Certificate

Higher Diploma:

- Completion of Diploma Program or equivalent

17.8 Curriculum

Degree Requirements	Total Credit Hours: 124-128 Credit Hours
ADPoly General Requirements	23
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	55
Program Minor Requirements	37 (Aeromechanical track) 33 (Avionics track)

ADPoly General Requirements				23 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH100	Precalculus			4
ICT110	Introduction to Programing & Problem Solving			3
PHYS 111	Physics I		PHYS 111P	3
PHYS 111P	Physics I Lab		PHYS111	1
ENGL 111	English Communication Skills			3
ENGL 112	Technical English	ENGL111		3
ENGL 116	English for Aviation	ENGL112		3
AME 101	W/S Pracs/Orientation			3

Humanities and Social Science Requirements			12 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM 110	Lifelong Learning Skills		3
HUM 111	Islamic Culture		3
HUM 112	Emirates Society & Culture		3
HUM 402	Creativity, Innovation and Entrepreneurship		3

Program Core Area			55 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AME 113	Maintenance Practice I (7 A)		3
AME 114	Basic Materials & Hardware (6 A)	PHYS 111	3
AME 115	Basic Aerodynamics (8 A)	PHYS 111	2
AME 116	Aircraft Structures & Systems I (11 A)	AME 115	3
AME 117	Maintenance Practice II (7 A)	AME 113	3
AME 121	Maintenance Practice III (7 A)	AME 113	3
AME 124	Maintenance Practice IV (7 A)	AME 113	3
AME 221	Aircraft Structures & Systems II (11 A)	AVN 211 AVN 112	4
AME 223	Turbine Engines (15 A)		3
AME 225	Propellers (17 A)	AME 115 AME 223	2
AME 340	On-Job-Training/Internship		3
AVN 210	Electrical Engineering I (3 B)	MATH 100	3
AVN 210P	Electrical Engineering I Lab		1
AVN 112	Electronics with Lab	AVN 110	3
AVN 123	Fund. Digit. Tech. (5 A)	AVN 211 AVN 112	3
AVN 211	Electrical Engineering II (3 B)	AVN 110	3
AVN 211P	Electrical Engineering II Lab	AVN 110P	1
AVSC 210	Human Factors (9 B)		3
AVSC 220	Aviation Legislation – EASA (10 B)		3
AVSC 225	Aviation Legislation – GCAA		3

Program Area of Concentration (Aeromechanical Track)			37 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AME 211	Materials & Hardware I (6 B1 for AM)	AME 114	3
AME 214	Aerodynamics (8 B1 for AM)	PHYS 111	3
AME 215	Maintenance Practice I (7 B1 for AM)	AME 113 AME 117	3
AME 217	Maintenance Practice II (7 B1 for AM)	AME 215	3
AME 222	Materials & Hardware II (6 B1 for AM)	AME 211	3
AME 230	Aircraft Structures & Systems I (11 B1 for AM)	AME 116	3
AME 234	Aircraft Structures & Systems II (11 B1 for AM)	AME 221	3
AME 324	Turbine Engines (15 B1 for AM)	AME 221	4
AME 336	Propellers (17 B1)	AME 225	3
AVN 311	Electronic Comm. Tech	AVN 112	3
AVN 321	Digital Techniques I (5B1 for AM)	AVN 311 AVN 123	3
AVSC 340	Technology Project Management		3

Program Area of Concentration (Avionics Track)			33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AME 211	Materials & Hardware I (6 B1)	AME 114	3
AME 214	Aerodynamics (8 B1)	PHYS 111	3
AME 215	Maintenance Practices I (7 B1 for AM)	AME 113 AME 117	3
AME 217	Maintenance Practices II (7 B1 for AM)	AME 215	3
AME 222	Materials & Hardware II (6 B1)	AME 211	3
AVN 326	Propulsion & FADEC (14 B2)	AVN 314 AVN 237	3
AVN 327	Avionics Systems I (13 B2 for AM)	AME 116 AVN 112	3
AVN 333	Avionics Systems II (13 B2 for AM)	AVN 112 AVN 327	3
AVN 311	Electronic Communications technology	AVN 112	3
AVN 321	Digital Techniques I (5B1)	AVN 311 AVN 123	3
AVSC 340	Technology Project Management		3

17.9 Study Plan

1st Year (Freshman)				
	Course Code	**Course Title**	**Co/Prerequisite(s)**	**Credit Hours**
Semester 1	AME 101	W/S Pracs/Orientation		3
	ENGL 111	English Communication Skills		3
	HUM 110	Lifelong Learning Skills		3
	ICT 110	Introduction to Programing & Problem Solving		3
	MATH 100	Pre-calculus		4
	PHYS 111	Physics I	PHYS 111	3
	PHYS 111P	Physics I Lab		1
		Total Credit Hours	**20**	
	Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
Semester 2	AME 113	Main. Practice I (7 A)		3
	AME 114	Basic Materials & Hardware (6 A)	PHYS 111	3
	AVN 210	Electrical Engineering I (3 B)	MATH 100	3
	AVN 210P	Electrical Engineering I Lab		1
	ENGL 112	Technical English	ENGL111	3
	HUM 111	Islamic Culture		3
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
Semester 3	AVN 211	Electrical Engineering II (3 B)	AVN 210	3
	AVN 211P	Electrical Engineering II Lab	AVN 210P	1
	ENGL 116	English for Aviation	ENGL112	3
		Total Credit Hours	**7**	

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Co/Prerequisite(s)**	**Credit Hours**
Semester 1	AME 115	Basic Aerodynamics (8 A)	PHY 111	2
	AME 116	Air. Struct. & Systems I (11 A)	AME 115	3
	AME 117	Main. Practice II (7 A)	AME 113	3
	AME 223	Turbine Engines (15 A)		3
	AVN 112	Electronics with Lab	AVN 210	3
	AVSC 210	Human Factors (9 B)		3
		Total Credit Hours	**17**	
	Course Code	**Course Title**	**Prerequisite(s)**	**Credits**
Semester 2	AME 121	Main. Practice III (7 A)	AME 113	3
	AME 124	Main. Practice IV (7 A)	AME 113	3
	AME 221	Air. Struct. & Systems II (11 A)	AVN 211 AVN 112	4
	AME 225	Propellers (17 A)	AME 115 AME 223	2
	AVN 123	Fund. Digit. Techniques. (5 A)	AVN 211 AVN 112	3
	AVSC 220	Aviation Legislation – EASA (10 B)		3
		Total Credit Hours	**18**	
Summer 3	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AME 240	OJT/Internship		3
		Total Credit Hours	**3**	

3rd Year (Aeromechanical Track)				
Semester 1	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AME 211	Materials & Hardware I (6 B1)	AME 114	3
	AME 214	Aerodynamics (8 B1)	PHYS 111	3
	AME 215	Maint. Prac. I (7 B1)	AME 113 AME 117	3
	AME 230	Air. Struct. & Sys. I (11 B1)	AME 116	3
	AVN 311	Electronic Comm. Tech	AVN 112	3
	AVN 321	Digital Techniques I (5B1)	AVN 311 AVN 123	3
		Total Credit Hours	**18**	
Semester 2	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AME 217	Maint. Prac. II (7 B1)	AME 215	3
	AME 222	Materials & Hardware II (6 B1)	AME 211	3
	AME 234	Air. Struct. & Sys. II (11 B1)	AME 221	3
	AME 324	Turbine Engines (15 B1)	AME 221	4
	AME 336	Propellers (17 B1)	AME 225	3
	HUM 112	Emirates Society & Culture		3
		Total Credit Hours	**19**	
Semester 3	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AVSC 340	Technology Project Management		3
	AVSC 225	Aviation Legislation – GCAA		3
	HUM 402	Creativity, Innovation and Entrepreneurship		3
		Total Credit Hours	**9**	

3rd Year (Avionics Track)				
Semester 1	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AME 211	Materials & Hardware I (6 B1)	AME 114	3
	AME 214	Aerodynamics (8 B1)	PHYS 111	3
	AME 215	Maint. Prac. I (7 B1)	AME 113 AME 117	3
	AVN 327	Avionics Systems 1	AME 116 AVN 112	3
	AVN 311	Electronic Comm. Tech	AVN 112	3
	AVN 321	Digital Techniques I (5B1)	AVN 311 AVN 123	3
Total Credit Hours:			**18**	
Semester 2	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AME 217	Maint. Prac. II (7 B1)	AME 215	3
	AME 222	Materials & Hardware II (6 B1)	AME 211	3
	AME 234	Air. Struct. & Sys. II (11 B1)	AME 221	3
	AVN 326	Props and FADEC	AVN 314 AVN 237	3
	AVN 333	Avionics Systems II	AVN 112 AVN 327	3
	HUM 112	Emirates Society & Culture		3
Total Credit Hours:			**18**	
Semester 3	**Course Code**	**Course Title**	**Prerequisite(s)**	**Credits**
	AVSC 340	Technology Project Management		3
	AVSC 225	Aviation Legislation – GCAA		3
	HUM 402	Creativity, Innovation and Entrepreneurship		3
Total Credit Hours			**9**	

18. Aircraft Engineering Technology Higher Diploma Program

18.1 Introduction

This three-year program embeds basic training of EASA CAT B1.1-Aeromechanical technologies or the EASA CAT B2-Avionics License into an academic Higher Diploma program in Aircraft Engineering Technology. After completing the basic training for the EASA CAT B license, two years of industrial experience is required to be eligible to apply for an EASA CAT 'B' "Aircraft Maintenance license". This license is required of all practicing maintenance civil aviation professionals working on commercial aircrafts at any approved maintenance facility worldwide. The Ministry of Education of the U.A.E. INITIALLY approved the academic program in 2011.

18.2 Higher Diploma

Students completing the diploma program in AET have the option to further their education with an additional one year of advanced studies and training. The advanced training embeds all remaining elements of EASA's and/or GCAA's CAT "B1.1 or B2" Aircraft Certifying Technician Licence under the associated Part 147 and CAR 147 regulations. Students in this program are awarded the Higher Diploma and are eligible to apply for the afore mentioned license after two years of relevant aircraft maintenance experience.

The Program is designed to provide an academic award for learning in the specialist subject area of aircraft maintenance engineering that was hitherto not recognised, and thereby encourages more students to consider a career in the aircraft maintenance industry. This program is intended to enhance the career opportunities and the professional standing of aircraft maintenance engineers, and provide a foundation for lifelong learning in the Program. This program enables EASA / GCAA Part 147 approved organisations to deliver a course that satisfies both the academic requirements of higher education and the knowledge requirements of the EASA / GCAA Part 66 category B2 licence, thereby providing students with the opportunity to obtain both an academic award and a vocational qualification from a single course of study.

Satisfactory completion of the Higher Diploma in Aircraft Engineering Technologies provides for the possibility of further higher studies. Successful completion of an EASA / GCAA approved category B1.1 or B2 licence course provides a solid foundation for a career in aircraft maintenance engineering. Once the work experience requirement has been satisfied and a B licence obtained, there is the opportunity to complete aircraft type courses, gain approvals, and start certifying work on aircraft. Further experience provides the opportunity to apply for a Category C licence and to take on team leader and management roles.

18.3 Program Accreditation and Delivery

This program is nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Al AIn

18.4 Program Mission

The Aircraft Engineering Technology (AET) program addresses the primary need for aircraft engineering technologies in an expanding commercial aviation market. There has been an increasing demand for commercial aviation worldwide and particularly in the UAE mandated by airline companies' keen interest in increasing their fleets of aircrafts and registering an unprecedented growth in this sector of transportation. The airline's fleets require a considerable amount of human resources that are versed in this high-tech industry to manage its growth.

18.5 Program Objectives (POs/PEOs)

- PEO1: Provide a broad-based curriculum in Aircraft Engineering Technology that generates graduates competent in the following: aeronautics, airframe and power-plant, aircraft instruments, communication and navigation systems, aircraft manufacturing techniques and operation, component repair and replacement, advanced maintenance and troubleshooting.
- PEO2: Provide students with laboratory and on-the-job training and apprenticeship experiences associated with aircraft engineering technology, construction, operation, maintenance, repair and overhaul of aircraft systems and components.
- PEO3: Provide students with the basic knowledge and skills necessary to pursue technical and professional careers in aviation industry.
- PEO4: Provide students with leadership and membership opportunities associated with appropriate professional organizations.
- PEO5: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge of related contemporary issues.

18.6 Program Learning Outcomes (PLOs/SLOs)

- PLO1: Apply appropriate mastery of the knowledge techniques and skills, and adapt to emerging applications of mathematics, science, humanities modern technology, aircraft structures, systems, aerodynamics, power-plants, instruments, avionics, inspection and maintenance.
- PLO2: Perform, conduct, analyze and interpret experiments and practical tasks, and apply experimental results to improve operational and maintenance processes.
- PLO3: Operate a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, health and safety, manufacturability, and sustainability.
- PLO4: Identify, analyze, and solve technical problems, and use the techniques, skills, and modern engineering tools necessary for engineering practice and occupational competency.
- PLO5: Develop effective core skills: effective communication, numeracy, information and communication technology, problem solving and working with others in multidisciplinary team.
- PLO6: Work in accordance with Aircraft Maintenance Manuals, Service Bulletins and Airworthiness Data issued by manufacturers and regulatory authorities.
- PLO7: Read and write technical documents and apply safety principles specific to the aviation industry
- PLO8: Install aircraft engines, parts, components and structures as part of routine and unscheduled maintenance
- PLO9: Perform service, maintenance, repair and modification procedures on aircraft systems, structures, instruments, and related components to maintain aircraft safety and airworthiness.
- PLO10: Maintain detailed inspection, repair, maintenance, and certification records and reports to meet UAE aviation regulations and logbook requirements.
- PLO11: Apply written, oral, and graphical communication in both technical and non-technical environments, and demonstrate a commitment to national community, quality, continuous improvement and life-long learning.

18.7 Program Entry Requirements

Higher Diploma:

- IELTS 5.0 or Equivalent EmSat
- Completion of Grade 12
- 70% average-minimum

18.8 Curriculum

Degree Requirements	Total Credit Hours: 128 Credit Hours
ADPoly General Requirements	27
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	65
Program Minor Requirements	24

ADPoly General Requirements				27 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
MATH 100	Precalculus	Admissions		4
MATH 111	Calculus I	MATH 100		3
PHYS 111	Physics I			3
PHYS 111P	Physics I Lab			1
PHYS 103	Aviation Physics		PHYS111	4
ICT 110	Intro to Programming & Problem Solving			3
ENGL 111	English Communication Skills			3
ENGL 112	Technical English			3
ENGL 116	English for Aviation			3

Humanities and Social Science Requirements			12 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM 110	Lifelong Learning Skills		3
HUM 111	Islamic Culture		3
HUM 112	Emirates Society and Culture		3
HUM 402	Creativity/Innovation and Entrepreneurship		3

Program Major Requirements (compulsory)			65 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AVN 110	Electrical Engineering I	MATH 100	3
AVN 110P	Electrical Engineering I Lab		1
AVN 211	Electrical Engineernig II	AVN 110	3
AVN 211P	Electrical Engineering II lab	AVN 110P	1
AVN 219	Electrincis I	AVN 110	3
AVN 229	Digital Techniques I	AVN 219	3
AVSC 210	Human Factors		3
AME 212	Advanced Materials and Hardware		3
AME 214	Advanced Aerodynamics	PHYS 111	3
AME 214P	Advanced Aerodynamics Lab	PHYS 111	1
AME 218	Advanced Maintenance Practices I		3
AME 218P	Advanced Maintenance Practices I Lab		2
AME 227	Advanced Maintenance Practices II	AME 212	4
AME 228	Advanced Maintenance Practices III	AME 212	3
AME 318P	Advanced Maintenance Practices III lab	AME 212	1
AME 237	Advanced Maintenance Practices IV	AME 212	3
AME 237P	Advanced Maintenance Practices IV lab		2
AME 238	Advanced Maintenance Practices V	AME 212	3
AME 238P	Advanced Maintenance Practices V lab		2
AME 226	Advanced Materials and Hardware II	PHYS 111	3
AVSC 220	Aviation Legislation-EASA		3
AVSC 225	Aviation Legislation-GCAA		3
AVN 236	Digital Techniques II	AVN 229	3
AVN 110	Electrical Engineering I	MATH 100	3
AVN 110P	Electrical Engineering I Lab		1
AVN 211	Electrical Engineernig II	AVN 110	3
AVN 211P	Electrical Engineering II lab	AVN 110P	1
AVN 219	Electrincis I	AVN 110	3

AVN 229	Digital Techniques I	AVN 219	3
AVSC 210	Human Factors		3
AME 212	Advanced Materials and Hardware		3
AME 214	Advanced Aerodynamics	PHYS 111	3
AME 214P	Advanced Aerodynamics Lab	PHYS 111	1
AME 218	Advanced Maintenance Practices I		3
AME 218P	Advanced Maintenance Practices I Lab		2
AME 227	Advanced Maintenance Practices II	AME 212	4
AME 228	Advanced Maintenance Practices III	AME 212	3
AME 318P	Advanced Maintenance Practices III lab	AME 212	1
AME 237	Advanced Maintenance Practices IV	AME 212	3
AME 237P	Advanced Maintenance Practices IV lab		2
AME 238	Advanced Maintenance Practices V	AME 212	3
AME 238P	Advanced Maintenance Practices V lab		2
AME 226	Advanced Materials and Hardware II	PHYS 111	3
AVSC 220	Aviation Legislation-EASA		3
AVSC 225	Aviation Legislation-GCAA		3
AVN 236	Digital Techniques II	AVN 229	3
AVSC 260	Engineering Project		3
AME 340	On the Job Training/Internship		3

Program Minor Requirements-Aeromechanical			24 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AME 310	Turbine Engines I	AME 214	3
AME 315	Propellers	AME 214	3
AME 314	Aircraft Structures and Systems I	AME 214	3
AME 316	Aircraft Structures and Systems II	AME 214	3
AME 317	Aircraft Structures and Systems III	PHYS 103	3
AME 317P	Aircraft Structures and Systems III Lab		1
AME 323	Aircraft Structures and Systems IV	AVN 211	3
AME 323P	Aircraft Structures and Systems IV Lab	AVN 211	1
AME 325	Turbine Engines II	AME 310	3
AME 325P	Turbine Engines II Lab	AME 310	1

Program Minor Requirements-Avionics			24 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AVN 237	Electronics II	AVN 219	3
AVN 317	Digital Techniques III	AVN 236	3
AVN 317P	Digital Techniques III Lab	AVN 236	1
AVN 314	Avionics Systems I	AVN 237	3
AVN 315	Avionics Systems II	AVN 314	3
AVN 316	Avionics Systems III	AVN 237	4
AVN 324	Avionics Systems IV	AVN 314	4
AME 326	Propellers and FADEC	AVN 314	3

18.9 Study Plan

1st Year (Freshman)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	MATH 100	Precalculus	4	
	PHYS 111	Physics I	3	
	PHYS 111P	Physics I Lab.	1	
	ICT 110	Introd. to Progr. & Probl. Solving	3	
	ENGL 111	English Comm. Skills	3	
	HUM 110	Life-Long Learning Skills	3	
		Total Credit Hours	**17**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	MATH 111	Calculus I	3	MATH 100
	PHYS 103	Aviation Physics	4	PHYS 111
	AVN 110	Electrical Engineering I (3 B)	3	Math 100
	AVN 110P	Electrical Engineering I Lab. (3 B)	1	
	ENGL 112	Technical English	3	
	AVSC 210	Human Factors (9 B)	3	
		Total Credit Hours	**17**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ENGL 116	English for Aviation	3	ENGL 111
	AVN 211	Electrical Engineering II (3 B)	3	AVN 110
	AVN 211P	Electrical Engineering II (3 B) Lab.	1	AVN 110P
	HUM 402	Creativity Innovation and Entrepreneurship	3	
		Total Credit Hours	**10**	

2nd Year (Sophomore)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	HUM 111	Islamic Culture	3	
	AME 212	Adv. Materials & Hardware I (6 B1)	3	PHYS 111
	AME 214	Adv. Aerodynamics (8 B1)	3	PHYS 111
	AME 214P	Adv. Aerodynamics Lab. (8 B1)	1	PHYS 111
	AVN 219	Electronics I (4 B)	3	AVN 210
	AME 218	Adv. Maint. Prac. I (7 B1)	3	
	AME 218P	Adv. Maint. Prac. I Lab. (7 B1)	2	
		Total Credit Hours	**18**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME 226	Adv. Materials & Hardware II (6 B1)	3	AME 212
	AME 227	Adv. Maint. Prac. II (7 B1)	4	AME 212
	AME 228	Adv. Maint. Prac. III (7 B1)	3	AME 212
	AME 228P	Adv. Maint. Prac. III Lab. (7 B1)	1	AME 212
	AME 314	Air. Struc. & Sys. I (11 B1)	3	AME 214
	AVN 229	Digital Techniques I (5 B)	3	AVN 219
		Total Credit Hours	**17**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVN 236	Digital Techniques II (5 B)	3	AVN 229
	AME 237	Adv. Maint. Prac. IV (7 B1)	3	AME 212
	AME 237P	Adv. Maint. Prac. IV Lab. (7 B1)	2	AME 212
		Total Credit Hours	**8**	

3rd Year (Junior)-Aeromechanical Track				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME 238	Adv. Maint. Pract. V (7 B1)	3	AME 212
	AME 238P	Adv. Maint. Pract. V Lab. (7 B1)	2	AME 212
	AME 310	Turbine Engines I (15 B1)	3	AME 214
	AME 316	Air. Struc. & Sys. II (11 B1)	3	AME 214
	AME 315	Propellers (17 B1)	3	AME 214
	AVSC 220	Aviation Legislation-EASA (10 B)	3	
		Total Credit Hours	**17**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME 317	Air. Struc. & Sys. III (11 B1)	3	PHYS 103
	AME 317P	Air. Struc. & Sys. III Lab. (11 B1)	1	PHYS 103
	AME 323	Air. Struc. & Sys. IV (11 B1)	3	AVN 211
	AME 323P	Air. Struc. & Sys. IV Lab. (11 B1)	1	AVN 211
	AME 325	Turbine Engines II (15 B1)	3	AME 310
	AME 325P	Turbine Engines II Lab. (15 B1)	1	AME 310
	AVSC 225	Aviation Legislation-GCAA	3	
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVSC 260	Engineering Project	3	
	AME 340	OJT / Internship	3	
	HUM 112	Emirates Society & Culture	3	
		Total Credit Hours	**9**	

3rd Year (Junior)-Avionics Track				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	AME 238	Adv. Maint. Pract. V (7 B1)	3	AME 212
	AME 238P	Adv. Maint. Pract.V Lab. (7 B1)	2	AME 212
	AVN 237	Electronics II (4 B)	3	AVN 219
	AVN 315	Avionics Sys. II (13 B2)	3	AVN 314
	AVN 317	Digital Techniques III (5 B)	3	AVN 236
	AVN 317P	Digital Techniques III Lab. (5 B)	1	AVN 236
		Total Credit Hours	**17**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVN 316	Avionics Sys. III (13 B2)	4	AVN 314
	AVN 324	Avionics Sys. IV (13 B2)	4	AVN 314
	AVN 326	Prop. & FADEC (14 B2)	3	AVN 314
	AVSC 220	Aviation Legislation-EASA (10 B1)	3	
	AVSC 225	Aviation Legislation-GCAA	3	
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVSC 260	Engineering Project	3	
	AME 340	OJT / Internship	3	
	HUM 112	Emirates Society & Culture	3	
		Total Credit Hours	**9**	

19. Certificate in Aircraft Maintenance (GSE)

This is a one-year program leading to a Certificate in Aircraft Maintenance (Ground Support Equipment) issued by the Ministry of Education (MOE), U.A.E. This certificate leads to an entry level support position at airports to undertake aviation related maintenance job pertaining to the ground support equipment.

Features of the Program

The program is a full-time program and is offered over a period of one year. The program follows the same course as the Diploma and Higher Diploma programs for the first semester. However, for students who find it difficult to continue the academic path, this program gives them the opportunity to forge a less challenging aviation maintenance career.

Educational Aims of the Program

The aims of the Program are to:

- Provide students with more vocational rather than academic qualifications,
- Prepare students for employment as Ground Support staff in an aircraft maintenance environment
- prepare students for continuous personal and professional development

Program Structure

The course is delivered full-time over one academic year. Full details of module sequence, course duration and start and finish dates are issued at the commencement of each course.

Certificate/Ground Support Equipment Course

The assessment strategy is designed to assess the theoretical and practical aspects of the course and the workshop and work-based learning that are acquired by the students during the course of study. The method of assessment is related to the learning outcome being assessed. There will be progressive assessments which are a requirement to be fulfilled as dictated by the MOE. These are based upon assessments done in assignments, intermediate tests, final examinations and class performance. An element of record keeping is also induced into the course assessment strategy. Thus, the upkeep of a portfolio of records of research, assignments and other tasks given, helps the students inculcate the good practice of record keeping which is very common and vital in the aviation industry. The assessment grading scheme is outlined below. Compulsory completion of Logbooks will form part of the EASA / GCAA practical assessment plan.

20. Air Traffic Management (ATM)

20.1 Introduction

The Middle East has seen phenomenal growth of air traffic over the past years and all predictions are talking about further increase in the Middle East area over the years to come. This is causing significant pressure on the region's air traffic control operations and is especially putting pressure on regional authorities to increase the capacity and efficiency of air traffic operations. To cope with the growth, air traffic control operators and authorities have to train and employ more and more Air Traffic Controllers for the civil airports as well as for the military airports in UAE.

20.2 Diploma/Higher Diploma/Applied Bachelor

The program is offered as a Diploma and Higher Diploma degrees in Air Traffic Management. The Diploma is covered in a two years full-time and the Higher Diploma is covered in an additional third top-up year. This program aims to provide students with the skills necessary to pursue careers in ATM/ATC as qualified controllers or controller assistant.

20.3 Program Accreditation and Delivery

This program is nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education. The program follows the guidelines of ICAO for ATC training and provides licenses at the assistant controller and controller levels.

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 /3 years (diploma/higher diploma)	English	Fall, Winter and Summer	Al Ain

20.4 Program Mission

The Air Traffic Management program at ADPOLY-Al Ain delivers fundamental air traffic controller knowledge and competency through a mix of realistic lab simulations, classroom instruction, and computer-based learning. Abu Dhabi Polytechnic-Al Ain Campus offers educational and training programs in the field of Aviation. GAL (Global Aerospace Logistics) is an Abu Dhabi Polytechnic partner offering programs of study leading to qualifications in air traffic control. The Air Traffic Management program is a two to three years program comprising of a Basic Instruction and an International Civil Aviation Organization (ICAO) standard training leading to academic qualifications and Air Traffic Controller certification (ATCC). Graduates will leave ADPOLY-Al Ain with a Higher Diploma in ATM and a possibility of GCAA approved rating as Air Traffic Controllers.

20.5 Program Objectives (POs/PEOs)

- PEO1: Provide a broad-based curriculum in Air Traffic Management that generates graduates having competency in basic aeronautics, meteorology, navigation, air law, professional environment, human factors, air traffic operations and airport operations and air traffic management.
- PEO2: Provide students with a combination of academic study and work based learning which will equip students with the knowledge and practical skills necessary for them to obtain a GCAA approved Air Traffic Control Rating and become Air Traffic Controllers.
- PEO3: Provide students with leadership and membership opportunities associated with appropriate professional organizations.
- PEO4: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge of related contemporary issues.

20.6 Program Learning Outcomes (PLOs/SLOs)

- SLO1: Apply appropriate mastery of the knowledge, skills, and adapt to emerging applications of mathematics, science, humanities, information technology, and aviation science in the field of air traffic control.
- SLO2: Demonstrate knowledge, skills and competency required to apply basic tower operations as per regulations;
- SLO3: Demonstrate knowledge, skills and competency required to apply basic radar operations as per regulations;
- SLO4: Demonstrate knowledge, skills and competency required to perform as an assistance in ATC operation;
- SLO5: Demonstrate knowledge, skills and competency required to apply emerging techniques and procedures for managing ATC facilities and airspace as per regulations;
- SLO6: Work in a diverse team setting, exhibit ethical responsibility and demonstrate responsibility and professionalism;
- SLO 7: Demonstrate proper actions in air traffic aerodrome and radar environment emergency situation;
- SLO 8: Demonstrate knowledge, skills and competency required to control the flow of air traffic in an efficient and safe manner, and ensure quality assurance as per regulations in an integrated setting;
- SLO 9: Apply effective communication skills, and demonstrate a commitment to the community, and demonstrate continuous professional development and life-long learning.

20.7 Program Entry Requirements

Higher Diploma:

- IELTS 5.0 or equivalent
- 12th grade with 70% average as a min

Diploma:

- Same as above

20.8 Curriculum

Degree Requirements	Total Credit Hours: 129 Credit Hours
ADPoly General Requirements	24
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	69
Program Minor Requirements	24

ADPoly General Requirements				30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
Math 100	Pre-calculus			4
PHYS 111	Physics I			3
PHYS 111P	Physics I Lab			1
ICT 110	Intro to Programming & Problem Solving			3
ENGL 111	English Communication Skills			3
ENGL 112	Technical English	ENGL 111		3
ENGL 116	English for Aviation	ENGL 111	ENGL 112	3
HUM 402	Creativity/Innovation and Entrepreneurship	Senior Status		3
AME 101	W/S Practice/Orientation			3
AVSC 240	Eng. Business Management			3

Humanities and Social Science Requirements			06 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM-111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
			3

Program Major Requirements (compulsory)			55 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AVN 110	Electrical Engineering I	MATH 100	3
AVN 110P	Electrical Engineering I Lab		1
ATM 101	Pilot-Ground School		3

AME 115	Basic Aerodynamics	PHYS 111	2
ATM 201	Aviation Law		4
ATM 202	Meteorology		4
ATM 203	Navigation		3
ATM 204	Equipment and Systems		4
ATM 205	Aircarft	ATM 204	3
ATM 206	Air Traffic Mangement	ATM 201	4
ATM 207	RTF and Phraseology Lab		2
ATM 208	Human Factors		4
ATM 209	Professional Environment		3
ATM 210	Quality Assurance		2
ATM 220	Project I		5
ATM 320	Project II		8
ATM 230	ACTA OJT		6
ATM 330	ATCO OJT		9

Program Minor Requirements			**55 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ATM 301	Air Traffic Management	ATM 230	3
ATM 301P	Air Traffic Management lab		3
ATM 302	Advanced Equipment and Systems	ATM 230	4
ATM 303	Unusual Degraded Emergency	ATM 205/206	3
ATM 304	Aerodromes advanced aviation law	ATM 230	2
ATM 305	Advanced Navigation and Aircraft	ATM 230	2
ATM 306	Air Traffic Management (ATMT)	ATM 230	2
ATM 306P	ATM (ATMT) LAB		3
ATM 307	Unusual Degraded Emergency	ATM 206	3

20.9 Study Plan

1st Year (Freshman)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	MATH 100	Precalculus	4	
	PHYS 111	Physics I	3	
	PHYS 111P	Physics I Lab	1	
	ICT 110	Introd. to Progr. & Probl. Solving	3	
	ENGL 111	English Communication Skills	3	
	AME 101	W/S Pracs / Orientation	3	
		Total Credit Hours	**17**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	AVN 110	Electrical Engineering I	3	PHYS 111
	AVN 110 P	Electrical Engineering I Lab	1	
	HUM 111	Islamic Culture	3	
	ENGL 112	Technical English	3	
	HUM 112	Emirates Society and Culture	3	
	ATM 101	Ground School	3	
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	ENGL 116	English for Aviation	3	
	AME 115	Basic Aerodynamics	2	**PHYS 111**
	HUM 402	Creativity, Innovation & Entrepreneurship	3	
		Total Credit Hours	**8**	

2nd Year (Sophomore)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 201	Aviation Law (LAW)	4	
	ATM 202	Meteorology (MET)	4	
	ATM 203	Navigation (NAVB)	3	
	ATM 204	Equipment & Systems (EQPSB)	4	
	ATM 205	Aircraft (ACFTB)	3	ATM 204
		Total Credit Hours	**18**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 206	Air Traffic Management (ATMB)	4	ATM 201
	ATM 207	RTF & Phraseology Lab	2	
	ATM 208	Human Factors (HUM)	4	
	ATM 209	Professional Environment (PEN)	3	
	ATM 210	Quality Assurance (QA)	2	
	ATM 220	Project I	3	
		Total Credit Hours	**18**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 230	ACTA OJT	6	
		Total Credit Hours	**6**	

3rd Year (Junior)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 301	Air Traffic Management (ATMR)	3	ATM 230
	ATM 301P	Air Traffic Management (ATMR) Lab	3	
	ATM 302	Adv. Equipment & Systems (EQPS)	4	ATM 230
	ATM 303	Unusual/Degraded/Emergency (UDEST)	3	ATM 205/206
	ATM 304	Aerodromes & Adv. Aviation Law (AGA LAW)	2	ATM 230
	ATM 305	Adv. Navigation & Aircraft (NAV ACFT)	2	ATM 230
		Total Credit Hours	**17**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 306	Air Traffic Management (ATMT)	2	ATM 230
	ATM 306 P	Air Traffic Management (ATMT) Lab	3	
	ATM 307	Unusual/Degraded/Emergency (UDESR)	3	ATM 206
	AVSC 240	Eng. Business Management	3	
	ATM 320	Project II	3	
		Total Credit Hours	**14**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ATM 330	ATCO OJT	6	
		Total Credit Hours	**6**	

21. Training Facilities Related to Aviation Programs

Abu Dhabi Polytechnic has two campuses. Al Ain Campus is the main campus for Aviation training and Abu Dhabi is a second site.

The Al Ain Campus teaching/training accommodation is situated near the Al Ain International Airport at Al Ain. The training site is well equipped with facilities suitable to support Aircraft Engineering teaching and training and is presented entirely at the Al Ain Training facility.

The Abu Dhabi Campus teaching accommodation is in a shared facility with the Institute of Applied Technology and is situated near Mohammed Bin Zayed City. The site is well equipped with facilities suitable to support Aircraft Engineering teaching. Currently, only theoretical teaching is possible at the Abu Dhabi site with the practical aspects of the courses delivered at the Al Ain Campus.

The Al Ain Training Facility comprises a large two-story building with conjoining hangar and workshop facilities. The ground floor of the main training complex contains a reception, wings for Senior Management and Training Facility Directorate, copy center and an Internet suite, which provides students with access to computers that offer access to on-line books, journals and various subscription websites. The dedicated library which is also situated on the Ground floor has a comprehensive selection of books, magazines, and journals covering all aspects of aviation engineering and general aviation interests and provides a quiet area in which students can work uninterrupted. One wing is given over to a Canteen/Restaurant that offers students and staff meals during break times.

The second floor of the Training Facility has 18 dedicated training classrooms that can comfortably accommodate up to 28 students in each room. The classrooms are all equipped with computer facilities, video projection systems and ‘smart boards’. All rooms possess ‘daylight’ standard lighting and air-conditioning. In addition to the classrooms, each wing has office facilities for teaching staff.

Conjoined to the main teaching facility is Training Facility’s engineering hangar and workshops area. These are equipped with all of the tooling and equipment necessary to perform basic hand-skill training. A dedicated store facility is also provided that allows students access to consumable stores as well as specialist tooling. Hand skill workshops too, contain a wide selection of typical workshop machinery ranging from simple pedestal drills, through lathes etc.

The fully equipped aircraft training hangar measures approximately 2,800 square meters. The training hangar contains:

1. Dornier 228 Turbo-Prop
2. Falcon 20
3. Bell Jet Ranger Helicopter
4. Supporting Ground Power Units and Ground Equipment
5. Aermacchi MB 326
6. Appropriate for training are the following fully equipped laboratories:
   - Mechanical workshop
   - Turbine labs-HP Engine assembly lab
   - Propellers and Hydraulic workshop
   - Aerodynamic and gear shop
   - Sheet metal workshop
   - Non-metallic structures-GRP and wood/fabric workshop
   - Avionics systems lab
   - Motor and Generator lab
   - Electrical Wiring and Installation lab

- Battery workshop
- Electrical & Electronics lab
- Welding and Aircraft Training Aids workshop
- Aircraft propulsion lab
- Virtual Engine Simulator lab
- Main stores
- Physics lab
- Chemistry lab

The publications, tooling and equipment available to support the aircrafts provide a realistic work environment for the students to gain their 'first' experience of working on aircraft.

The Abu Dhabi Training Facility in Abu Dhabi comprises a large four-story building with laboratories. The ground floor of the main training complex contains an entrance area with 4 classrooms and 4 laboratories for Chemistry and Physics. All laboratories are equipped with experiment tools and smart boards and have Instructors rooms. The classrooms will accommodate up to 28 students and are equipped with desks, chairs, computer facilities, video projection systems and 'smart boards'. All rooms possess 'daylight' standard lighting and air-conditioning. In addition to the classrooms, each wing has office facilities for the teaching staff. The ground floor also houses a refectory for student use.

The first floor of the main training complex contains an Administrative area for management and support staff with 8 classrooms and two IT/Electronics rooms. The classrooms will accommodate up to 28 students and are all equipped with desks, chairs, computer facilities, video projection systems and 'smart boards'. All rooms possess 'daylight' standard lighting and air-conditioning. In addition to the classrooms, each wing has office facilities for the teaching staff.

The second floor contains nine classrooms and two IT/Electronics rooms that can take up to 28 students. All rooms are equipped with desks, chairs, computer facilities, video projection systems and 'smart boards'. All rooms possess 'daylight' standard lighting and air-conditioning. The library entrance is also situated on this floor.

The third floor has further classrooms and access can be gained to the second floor of the library.

22. Aircraft Engineering/Maintenance Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Beshara Ibrahim Sholy	Senior Faculty	PhD	Saint Louis University
Murad Al-Shibli	Senior Faculty	PhD	Concordia University
Ezzat Mohamed Bakhiet Elaggan	Senior Faculty	PhD	National Institute of Applied Science
Mostafa Abdelazim Khalil	Senior Faculty	PhD	National Institute of Applied Science
Thomas Otto Neumann	Faculty		
Ahmed Shahin	Lecturer	BSc	King Abdul Aziz University
Conrado Jr. Bolofer Ibay	Lecturer	BSc	PATTS College of Aeronautics
Diana Mohamed Al Haffar	Lecturer	MSc	University of Leicester
Gary Mark De Klerk	Lecturer		
Joselito Trinidad Serafico	Lecturer	BSc	PATTS College of Aeronautics
Mohammed Qassim Alkhatib	lecturer	MSc	University of Texas at El Paso
Prasanna K. Kunnumbil	Lecturer	MBA	Indira Gandhi National University, New Delhi
Saeed Mohammed Saeed	Lecturer	BA	Saint Louis University
Samantha Jayne Ryan	Lecturer	MA	University of Central Lancashire
Shahida Maqsood	Lecturer	MSc	Quaid-i-Azam university Islamabad
Tony Day	Lecturer	BEng	Kingston Polytechnic
Vinodkumar Velayudhan Nair	Lecturer	MA	Maharaja Sayajirao University of Baroda
Yahya Chahbar	Lecturer	MBA	Academy Air Base & Air Base
Youssef Taiser Laz	Lecturer	BSc	Beirut Arab University
Ashley Roy Davies	Senior Lecturer	BA	The Open University
Brian Peter Willey	Senior Lecturer		
Grant Stephen Patterson	Senior Lecturer		
Khalid Moh'd Al Shoubaki	Senior Lecturer	MBA	UAE, GCAA/Coventry UK
Murad Khalifa Khalaf	Senior Lecturer	PhD	University of Pittsburgh
Peter John Dawson	Senior Lecturer		
Pradeep Krishnan Nair	Senior Lecturer	MBA	Mahatma Gandhi

Faculty Name	Position	Highest Degree	Conferring Institution
Shawkat Salameh Gasaymeh	Senior Lecturer	PhD	National University of Malaysia
Venkata Siva Sagiraju	Senior Lecturer	PhD	Andhra University
Hisham Ibrahim Hammash	Learning Resource Center	BA	Bachelor of English Literature
Jamila Abd Rabu Al Breiki	Teaching Assistant	BSc	UAE University
Muhaira Saeed Aleghfeli	Teaching Assistant	BSc	MASDAR
Noura Nayef Almansoori	Teaching Assistant	BSc	UAE University
Ali Khalid	Lab Technologist	Msc	University of Sheffield
Jasper Abiada Caparangca	Lab Technologist	BSc	MLQU / Airlink International Aviation College
Rodni Munoz Arcayera	Lab Technologist	BSc	
Ahmed Said El Ghonimy	Lab Technologist	BSc	Institute of Aviation Engineering and Technology
Alan Koshy	Lab Technologist	BEng	University of Highlands and Islands
Anjani Kumar Singh	Lab Technologist	BEng	Indian Air Force & Director General of Civil Aviation
Nainesh Rasiklal Shah	Lab Technologist		
Navroji Padmanabhan Parakkot	Lab Technologist		
Piran Fateh Mohammed	Lab Technologist	BA	Peshawar University, Aeronautical School Karachi
Ramon Brillante Balang	Lab Technologist	BSc	University of the East
Robin Rajan	Lab Technologist	BSc	Singhania University & Hindustan Aviation Academy
Samuel Samnte Mora	Lab Technologist	BSc	Airlink international Aviation College
Sibin Alex	Lab Technologist	BEng	University of Highlands and Islands, Scotland United Kingdom
Wilson Ordonez	Lab Technologist	BSc	PATTS College of Aeronautics

23. Description of Programs offered at Abu Dhabi Campus

The academic programs at Abu Dhabi Polytechnic Abu Dhabi Campus consist of the following programs:

- Higher Diploma in Nuclear Technology
- Diploma, Higher Diploma, and Applied Bachelor in Electromechanical Engineering Technology
- Higher Diploma and Applied Bachelor in Information Security Engineering Technology
- Higher Diploma and Applied Bachelor in Petroleum Engineering Technology
- Diploma, Higher Diploma, and Bachelor of Science in Meteorology

These programs aim to provide the necessary balance of knowledge and practical skills to prepare students for a career in high tech industries. Graduates from the program will be able to:

- Assume technical positions to apply current technologies
- Make technical judgments
- Assist professional engineers to transfer and to develop new technologies
- Communicate clearly both in writing and orally in supervisory positions

To achieve these aims, the Abu Dhabi Polytechnic academic programs consist of a balance (consistent with international technical standards) of lectures, tutorials, and laboratory work, and On-the-Job Training (OJT) and On-the-Job Performance (OJP) at related industrial centers. The curriculum includes general and specialized studies. Specializations vary depending on program as given below.

The Higher Diploma in Nuclear Technology (HDNT) includes the following three specializations:

- Nuclear power plant operation
- Chemistry
- Radiation protection

The Higher Diploma in Electromechanical Engineering Technology (HDET) includes the following four specializations;

- Mechatronics
- Mechanical
- Electrical
- Instrumentation and control

The Higher Diploma and Applied Bachelor of Information Security Engineering Technology (ISET) program includes the following three specializations:

- Software Security
- Network and cyber security
- Systems/servers security administration

The Petroleum Engineering Technology program awards Higher Diploma and Applied Bachelor and includes the following two specializations:

- Oil and gas process engineering technology
- Petroleum engineering technology

The Meteorology Program will graduate Diploma, Higher Diploma and Bachelor of Science in Meteorology.

24. Higher Diploma in Nuclear Technology

24.1 Introduction

The Advanced Energy Engineering Technology Division offers the Higher Diploma in Nuclear Technology (HDNT).

The HDNT program provides career-based technical education and training for the commercial nuclear power industry in the UAE. Students who successfully complete the program are prepared to enter the workforce as nuclear power plant technician, maintenance, and nonlicensed operations personnel. The HDNT is unique in that it is integrated with the training program of the Nawah Energy Company and meets industrial standards based on Nawah's Systematic Approach to Training. Nuclear-based curriculum is taken from the industrial standard (ACAD 08-006 Nuclear Uniform Curriculum, April 2011) and National Qualification Authority (NQA) Vocational Education and Training Awards Council (VETAC) Qualification and National Occupational Skills Standards (NOSS) as submitted by the ENEC Q+NOSS Operators and Technicians Project (August 2014) and afterwards by Nawah. The nuclear-based curriculum satisfies the knowledge and skills components of the VETAC qualifications which when combined with the application components conducted through on-the-job training leads to industry-granted Job Qualification Certificates. Nawah is involved in admissions, financial support, and progression of all students in the HDNT program and Nawah keeps industrial training records (which were achieved during the HDNT program) in accordance with their regulatory and corporate requirements.

24.2 Diploma/Higher Diploma/Applied Bachelor

The Advanced Energy Engineering Technology Division offers the Higher Diploma in Nuclear Technology (HDNT).

24.3 Program Accreditation and Delivery

The HDNT initial accreditation application was submitted in February 2011 and granted in February 2012. The HDNT final accreditation application was submitted in October 2015 and the CAA External Review Team visited AD Poly in February 2016. The completion of the HDNT final accreditation application was delayed due to the restructuring of the AD Poly academic year and the transition of the HDNT On-the-Job Training to the Barakah Nuclear Power Plant.

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

24.4 Program Mission

The mission of the HDNT program is to graduate technologists with an accredited academic degree of Higher Diploma in Nuclear Technology and industrial qualifications recognizing skills and competencies as a result of on-the-job training at the Barakah Nuclear Power Plant.

24.5 Program Objectives (POs/PEOs)

The HDNT curriculum Program Educational Objectives (PEOs) were designed to assure graduates succeed in the early years of their career and to prepare graduates for their lifelong journey as nuclear technologists, professionals, leaders, and global citizens by:

- Providing graduates with the knowledge, skills, and competencies required for the technical operation workforce at a commercial nuclear power plant in the UAE.
- Preparing graduates for a career in the nuclear profession such that they understand the nature of their industry and advancement pathways.
- Imparting to graduates communication, teamwork, and leadership skills in a technology-connected, supportive environment.
- Instilling graduates with an appreciation for professional and ethical responsibility and the value of the pursuit of knowledge for personal long-term development.

24.6 Program Learning Outcomes (PLOs/SLOs)

Graduates from the HDNT program will have the following learned capabilities:

- an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
- an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
- an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
- an ability to function effectively as a member or leader on a technical team;
- an ability to identify, analyze, and solve broadly-defined engineering technology problems;
- an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- an understanding of the need for and an ability to engage in self-directed continuing professional development;
- an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
- a knowledge of the impact of engineering technology solutions in a societal and global context; and
- a commitment to quality, timeliness, and continuous improvement.

24.7 Program Entry Requirements

Higher Diploma:

- UAE citizenship
- Maximum age of 22 years old
- High school diploma and an average achievement of at least 80%
- IELTS of 5.5
- Signed sponsorship contract with the Nawah Energy Company

24.8 Curriculum

Degree Requirements	Total Credit Hours: 110 Credit Hours
AD Poly General Requirements	29
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	75
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				29 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
MATH100	Precalculus			4
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab			1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
ENGL111	English Communication Skills			3
ENGL112	Technical English	ENGL111		3
ENGL118	Technical Writing	ENGL112		3
ENG113	Engineering Drawing			2
ENG114	Industrial Safety & Professional Ethics			2
ENG120P	Mechanical Workshop			1

Humanities and Social Science Requirements			06 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM-111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM-211	Arabic Communication Skills		3

Program Major Requirements (compulsory)			75 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
AES731	Electrical Technology I for Nuclear Plant Ops	MATH100	2
AES731P	Electrical Technology I Lab		1
AES761	Applied Technical Chemistry	CHEM111	3
AES761P	Applied Technical Chemistry Lab		1
AES711	Introduction to Nuclear Technology	PHYS111	3
AES711P	Introduction to Nuclear Technology Lab		1
AES712	Nuclear Reactor Technology	AES711	4
AES722	Mechanical Technology I for NNP Operators	PHYS111	3
AES722P	Mechanical Technology I Lab		1
AES723	Mechanical Technology II for NNP Operators	AES722	2
AES732	Electrical Technology II for Nuclear Plant Ops	AES731	3
AES732P	Electrical Technology II Lab		1
AES741	Thermal Hydraulics for Nuclear Plant Ops	PHYS111	2
AES741P	Thermal Hydraulics for Nuclear Plant Ops Lab		1
AES751	Instrumentation and Control Technology	AES731	3
AES751P	Instrumentation and Control Technology Lab		1
AES771	OJT 1 NPP Familiarization and Systems	HOP approval	7
AES772	OJT 2 NPP Operation	HOP approval	3
AES773	OJT 3 Specialization Training Part A	HOP approval	12
AES774	OJT 3 Specialization Training Part B	AES773	4
AES786	Materials Science for Nuclear Plant Operators	AES711	2
AES786P	Materials Science for NPP Operators Lab		1
AES781	Nuclear Safety and Regulations	AES712	3
AES782	Rad Measurement and Protection	AES711 & AES751	3
AES782P	Rad Measurement and Protection Lab		1
AES784	Work-Based Learning	HOP approval	3
AES787	Graduation Project I	HOP approval	2
AES788	Graduation Project II	AES787	2

24.9 Study Plan

1st Year (Freshman)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	CHEM111	Chemistry I	3	
	CHEM111P	Chemistry I Lab	1	
	ENG114	Industrial Safety and Professional Ethics	2	
	ENG113	Engineering Drawing	2	
	ENGL111	English	3	
	ICT110	Intro to Programming & Problem Solving	3	
	MATH100	Precalculus	4	
		Total Credit Hours	**18**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AES731	Electrical Technology I for Nuclear Plant Ops	2	MATH100
	AES731P	Electrical Technology I Lab	1	
	AES761	Applied Technical Chemistry	3	CHEM111 & CHEM111P
	AES761P	Applied Technical Chemistry Lab	1	
	ENG120P	Mechanical Workshop	1	
	ENGL112	Technical English	3	ENGL111
	HUMXXX	Humanities Elective 1	3	
	PHYS111	Physics I	3	MATH100
	PHYS111P	Physics I Lab	1	
		Total Credit Hours	**18**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AES711	Introduction to Nuclear Technology	3	PHYS111 & PHYS111P
	AES711P	Introduction to Nuclear Technology Lab	1	
	AES722	Mechanical Technology I for NPP Operators	3	PHYS111 & PHYS111P
	AES722P	Mechanical Technology I for NPP Operators Lab	1	
		Total Credit Hours	**8**	

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	AES723	Mechanical Technology II for NPP Operators	2	AES722 & AES722P
	AES732	Electrical Technology II for NPP Operators	3	AES731 & AES731P
	AES732P	Electrical Technology II for NPP Operators Lab	1	
	AES741	Thermal Hydraulics for NPP Operators	2	PHYS111 & PHYS111P
	AES741P	Thermal Hydraulics for NPP Operators Lab	1	
	AES751	Instrumentation and Control Technology	3	AES731 & AES731P
	AES751P	Instrumentation and Control Technology Lab	1	
		Total Credit Hours	**13**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	AES712	Nuclear Reactor Technology	4	AES711 & AES7111P
	AES786	Materials Science for NPP Operators	2	AES711 & AES7111P
	AES786P	Materials Science for NPP Operators Lab	1	
	ENGL118	Technical Writing	3	ENGL112
	HUMXXX	Humanities Elective 2	3	
		Total Credit Hours	**13**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	AES781	Nuclear Safety and Regulations	3	AES712
	AES782	Rad Measurement and Protection	3	AES751, AES751P, AES711 & AES711P
	AES782P	Rad Measurement and Protection Lab	1	
		Total Credit Hours	**7**	

3rd Year (Junior)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AES771	OJT 1 NPP Familiarization and Systems	7	HOP approval
	AES772	OJT 2 NPP Operation	3	HOP approval
	AES784	Work-Based Learning	3	HOP approval
	AES787	Graduation Project I	2	HOP approval
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AES773	OJT 3 Specialization Training Part A	12	AES772
		Total Credit Hours	**12**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AES774	OJT 3 Specialization Training Part B	4	AES773
	AES788	Graduation Project II	2	AES787
		Total Credit Hours	**6**	

24.10 Advanced Energy Engineering Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Anthony Hechanova	Senior Faculty, Department Head	Ph.D.	Massachusetts Institute of Technology, USA
Hong Kim	Faculty	Ph.D.	University of Iowa, USA
Evgeny Stankovskiy	Senior Lecturer	Ph.D.	University of Nevada, Las Vegas, USA
Husam Alomari	Senior Lecturer	Ph.D.	Goethe University Frankfurt, Germany
Hamza Ayyash	Lecturer	Master	University of Paris, Sud, France
Hanni Moussa	Lecturer	Bachelor	Alexandria University, Egypt
Tinashe Dhliwayo	Lecturer	Master	North Carolina State University, USA
Malek Albadarneh	Teaching Assistant	Master	University of Birmingham, UK
Muhammad Imron	Teaching Assistant	Master	Korea Advanced Institute of Science and Technology, Korea

25. Electromechanical Engineering Technology (EMET)

25.1 Introduction

The Electromechanical Engineering Technology Program (EMET) at AD Polytechnic aims to provide candidates with the knowledge and the hands-on skills of four multi-disciplinary systems:

- Mechatronics Engineering Technology Specialization
- Mechanical Engineering Technology Specialization
- Control and Instrumentation Engineering Technology Specialization
- Electrical Engineering Technology Specialization

The department offers CAA accredited Diploma (D), Higher Diploma (HD) and Applied Bachelor (AB) degrees in the aforementioned four specializations. It is predicted that the next 40 or 50 years will bring more technological advancement than the past 500 years, putting electromechanical engineering technology at the forefront of manufacturing and development. A very critical challenge nationwide should be addressed here as Abu Dhabi Emirate industries demand in the year 2020 will hit more than 40,000 estimated positions for engineers and technicians whereas the current output of graduate engineers by all national universities and institutes does not exceed 4,550. AD Poly's Electromechanical Engineering Technology program graduates will learn how to support the engineering activities of diverse range of industries that rely increasingly on Electromechanical Engineering Technology in order to maintain a competitive edge in the global economy.

EMET coursework reflects real-world demands through technical studies merged with know-how practical environments, including experience with industrial size modern equipment. The industry-relevant curriculum is taught by faculty at the top of their fields to provide the students with the skills and knowledge that employers are looking for. The technical skills first learned in the EMET program would be enhanced through real-world gradation projects. Moreover, effective tools embedded to complement EMET technical educational program would include effective communications, problem-solving and interpersonal skills that add value to any team.

EMET Advisory Committee provides regular review and input of its curriculum ensuring EMET program is always on the cutting edge of industry developments.

EMET Graduates will develop skills in industrial automation, robotics, control systems, machining, CAD/CAM, hydraulics, pneumatics, process control, safety, mechatronics systems, programmable logic controllers (PLCs), electronics, electrical machines, instrumentation and computer-control methods.
The EMET graduate is prepared to enter a wider range of careers to mention some but not limited to oil and gas industry, automation and programming, food and beverage processing, packaging, power generation, aerospace, mining, machine design, robotics, transportation, machine assembly, systems integration and commissioning, troubleshooting and testing, application support, maintenance, quality control quality-assurance, technical sales and services, and a host of other fields.

25.2 Degrees

Electromechanical Engineering Technology program offers different programs that award the following degrees:

Applied Bachelors:

- Electrical Engineering Technology
- Instrumentation & Control Engineering Technology
- Mechanical Engineering Technology
- Mechatronics Engineering Technology

Higher Diploma:

- Electrical Engineering Technology
- Instrumentation & Control Engineering Technology
- Mechanical Engineering Technology
- Mechatronics Engineering Technology

Diploma:

- Electrical Engineering Technology
- Instrumentation & Control Engineering Technology
- Mechanical Engineering Technology
- Mechatronics Engineering Technology

25.3 Program Accreditation and Delivery

All EMET programs are nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education

Applied Bachelors in Electrical Engineering Technology

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Applied Bachelors in Instrumentation & Control Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Applied Bachelors in Mechanical Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Applied Bachelors in Mechatronics Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Electrical Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Instrumentation & Control Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Mechanical Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Mechatronics Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Diploma in Electrical Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Diploma in Instrumentation & Control Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Diploma in Mechanical Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Diploma in Mechatronics Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

25.4 Program Mission

EMET's Mission is to graduate highly skilled engineers and technologists in the Electromechanical field through a dual educational-professional training system. Graduates will be equipped with industrially recognized skills and competencies which will enable them to effectively contribute in building a knowledge-based economy in the UAE

25.5 Program Objectives (POs/PEOs)

Applied Bachelor Program Educational Objectives

- EMET EO1: Provide a broad based curriculum that includes laboratory and hands-on training in Electromechanical Engineering Technology that produces graduates having competency in problem solving, industrial safety, plant operation and maintenance, troubleshooting, commissioning, analysis of plant data, machine interface and programming.
- EMET EO2: Provide students with teamwork experiences and an understanding of the professional and ethical responsibilities while demonstrating effective communication skills and knowledge of related contemporary issues.
- EMET EO3: Provide students with recognition and the ability to engage in life-long learning and the education necessary to comprehend the impact of the Electromechanical Engineering Technology industry in a global and societal context.
- EMET EO4: Provide students with leadership opportunities through the on-job-training along with the knowledge and skills necessary to pursue technical and professional careers in the Electromechanical Engineering Technology
- EMET EO5: Provide students with a comprehensive curriculum and training necessary to design and integrate engineering systems in Electromechanical Engineering Technology and to prepare them for postgraduate studies.

Higher Diploma Program Educational Objectives

- EMET EO1: Provide a broad based curriculum that includes laboratory and hands-on training in Electromechanical Engineering Technology that produces graduates having competency in problem solving, industrial safety, plant operation and maintenance, troubleshooting, commissioning, analysis of plant data, machine interface and programming.
- EMET EO2: Provide students with teamwork experiences and an understanding of the professional and ethical responsibilities while demonstrating effective communication skills and knowledge of related contemporary issues.
- EMET EO3: Provide students with recognition and the ability to engage in life-long learning and the education necessary to comprehend the impact of the Electromechanical Engineering Technology industry in a global and societal context.
- EMET EO4: Provide students with leadership opportunities through the on-job-training along with the knowledge and skills necessary to pursue technical and professional careers in the Electromechanical Engineering Technology

Diploma Program Educational Objectives

- EMET EO1: Provide a broad based curriculum that includes laboratory and hands-on training in Electromechanical Engineering Technology that produces graduates having competency in problem solving, industrial safety, plant operation and maintenance, troubleshooting, commissioning, analysis of plant data, machine interface and programming.
- EMET EO2: Provide students with teamwork experiences and an understanding of the professional and ethical responsibilities while demonstrating effective communication skills and knowledge of related contemporary issues.
- EMET EO3: Provide students with recognition and the ability to engage in life-long learning and the education necessary to comprehend the impact of the Electromechanical Engineering Technology industry in a global and societal context.

25.6 Program Learning Outcomes (PLOs/SLOs)

Applied Bachelor Program Learning Outcomes

Taking into the consideration national and international standards, upon completion the Electromechanical Eng. Tech Applied Bachelor is set to the following program learning outcomes:

- SO1: The graduating student will be able to apply appropriate mastery of the knowledge techniques, skills, and adapt to emerging applications of mathematics, science, modern technical tools of their engineering disciplines and technology.
- SO2: The graduating student will be able to design, conduct, analyze and interpret experiments, and apply experimental results to improve processes.
- SO3: The graduating student will be able to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- SO4: The graduating student will be able to identify, analyze, and solve technical problems.
- SO5: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary team.
- SO6: The graduating student will understand professional, ethical, and social responsibilities.
- SO7: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- SO8: The graduating student will recognize the need and ability to engage in lifelong learning.
- SO9: The graduating student will be able to use the techniques, skills, and modern engineering tools necessary for engineering practice and occupational competency.
- SO10: The graduating student will be able to deal with an electromechanical plant in a holistic system approach, identify the inter-relationships of subsystems and components and implement troubleshooting strategies.
- SO11: The graduating student will commit to Kaizen, Lean, Total Quality Management (TQM, Total Production Maintenance (TPM) and continuous improvement by suppressing wastes.
- SO12: The graduating student will be able to read and write technical documents and apply safety principles specific to the electromechanical industry.

Higher Diploma Program Learning Outcomes

Taking into the consideration national and international standards, upon completion, the Electromechanical Engineering Technology Higher Diploma Program is set to the following learning outcomes:

- SO1: The graduating student will be able to apply appropriate mastery of the knowledge techniques, skills, and adapt to emerging applications of mathematics, science, modern technical tools of their engineering disciplines and technology.
- SO2: The graduating student will be able to conduct, analyze and interpret experiments, and apply experimental results to improve processes.
- SO3: The graduating student will be able to identify, analyze, and solve technical problems.
- SO4: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary team.
- SO5: The graduating student will understand professional, ethical, and social responsibilities.
- SO6: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- SO7: The graduating student will recognize the need and ability to engage in lifelong learning.
- SO8: The graduating student will be able to use the techniques, skills, and modern engineering tools necessary for technical practice and occupational competency.

- SO9: The graduating student will be able to deal with an electromechanical plant in a holistic system approach, identify the inter-relationships of subsystems and components and implement troubleshooting strategies.
- SO10: The graduating student will support to Kaizen, Lean, Total Quality Management (TQM, Total Production Maintenance (TPM) and continuous improvement by suppressing wastes.
- SO11: The graduating student will be able to read and write technical documents and apply safety principles specific to the electromechanical industry.

Diploma Program Learning Outcomes

Taking into consideration the national and international standards, upon completion of the Electromechanical Engineering Technology Diploma degree requirements:

- SO1: The graduating student will be able to apply appropriate mastery of the knowledge techniques, skills, and adapt to emerging applications of mathematics, science, modern technical tools of their engineering disciplines and technology.
- SO2: The graduating student will be able to conduct, analyze and interpret experiments, and apply experimental results to improve processes.
- SO3: The graduating student will be able to identify, analyze, and solve technical problems.
- SO4: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary teams.
- SO5: The graduating student will understand professional, ethical, and social responsibilities.
- SO6: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- SO7: The graduating student will recognize the need and ability to engage in lifelong learning.
- SO8: The graduating student will be able to use the techniques, skills, and modern engineering tools necessary for technical practice and occupational competency.
- SO9: The graduating student will be able to deal with an electromechanical plant in a holistic system approach, identify the inter-relationships of subsystems and components and implement troubleshooting strategies.
- SO10: The graduating student will be able to read and write technical documents and apply safety principles specific to the electromechanical industry.

25.7 Program Entry Requirements

Abu Dhabi Polytechnic entry requirements fully apply to EMET program.

25.8 Curriculum Applied Bachelors in Electrical Engineering Technology:

Degree Requirements	Total Credit Hours: 152 Credit Hours
ADPoly General Requirements	47
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	93
Program Minor Requirements	0
Program Electives	6
General Electives	0

ADPoly General Requirements				47 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
MATH211	Linear Algebra	MATH100		3
HUM403	Personal Development Planning	N/A		2
HUM402	Creativity, Innovation & Entrepreneurship	N/A		3

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				93 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEE202	Electronic Devices	EMEE204		3
EMEX284	Electrical Installation & DC machines OCT	EMEE203		1
EMEX285	Digital Systems OCT	EMEE201		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1
EMEE301	Power Electronics I	EMEE202		3
EMEE302	Signal and Systems	MATH112, EMEE204		3

EMEE206	Introduction to Power Systems	EMEE203, MATH211		3
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEC303	Control System Technologies II	EMEC201		3
EMEE304	Power Transmission	EMEE206		3
EMEX302	Quality Management	ENGL114		2
EMEX301	Adv. Eng. Math	MATH112		3
EMEE303	Power Systems Protection	EMEE206		3
EMEE305	Communications	EMEE302		3
EMEE402	Power Systems Operation and Control	EMEE206		3
EMEX401	Engineering Economics	MATH111		2
EMEE306	Electronic Devices II	EMEE202		3
EMEC301	Motor Drives and Control	EMEC201		3
EMEE390	Graduation Project I	EMEE304, Minimum of 116CH		3
EMEE490	Graduation Project II	EMEE390		3
EMEE399	OJP 1	EMEX294, Minimum of 110CH		3
EMEE499	OJP 2		EMEE399	3

Program Electives				**18 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
EMEE480	Digital Signal Processing	EMEE302		3
EMEE481	Machine Learning	EMEE302		3
EMEE482	Renewable Electrical Energy	N/A		3
EMEC304	Digital Control	EMEC201		3
EMEX402	Mechatronics System Design	EMEE207, EMEX201		3
EMEX304	Integrated Automation	EMEC202		3

25.9 Study Plan Applied Bachelors in Electrical Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	ENG113	Engineering Drawings	2	N/A	
	EMEX301	Adv. Eng. Math	3	MATH112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	MATH211	Introduction to Linear Algebra	3	MATH100	
	EMEE202	Electronic Devices	3	EMEE204	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX284	Electrical Installation & DC machines OCT	1	EMEE203	
	EMEX285	Digital Systems OCT	1	EMEE201	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE301	Power Electronics I	3	EMEE202	
	EMEE302	Signal and Systems	3	MATH112, EMEE204	
	EMEE206	Introduction to Power Systems	3	EMEE203, MATH211	
	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	HUM403	Personal Development Planning	2	N/A	
	EMEC303	Control System Technologies II	3	EMEC201	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEE304	Power Transmission	3	EMEE206	
	EMEE390	Graduation Project I	3	EMEE304, Minimum 116 CH	
	EMEX302	Quality Management	2	ENGL114	
	HUM112	Emiratis Society and Culture	3	N/A	
	EMEE305	Communications	3	EMEE302	
	EMEE303	Power Systems Protection	3	EMEE206	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEE399	OJP 1	3	EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	xxxxxx	Technical Elective 1	3		
	EMEE402	Power Systems Operation and Control	3	EMEE206	
	EMEX401	Engineering Economics	2	MATH111	
	EMEE306	Electronic Devices II	3	EMEE202	
	EMEC301	Motor Drives and Control	3	EMEC201	
		Total Credit Hours	**14**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE490	Graduation Project II	3	EMEE390	
	xxxxxx	Technical Elective 2	3		
	HUM402	Creativity and Innovation	3	N/A	
		Total Credit Hours	**9**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE499	OJP 2	3		EMEE399
		Total Credit Hours	**3**		

25.10 Curriculum Higher Diploma in Electrical Engineering Technology:

Degree Requirements	Total Credit Hours: 117
ADPoly General Requirements	44
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	67
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				44 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
MATH211	Introduction to Linear Algebra	MATH100		3
HUM403	Personal Development Planning	N/A		2

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				67 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEE202	Electronic Devices	EMEE204		3
EMEX284	Electrical Installation & DC machines OCT	EMEE203		1
EMEX285	Digital Systems OCT	EMEE201		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1
EMEE301	Power Electronics I	EMEE202		3
EMEE302	Signal and Systems	MATH112, EMEE204		3
EMEE206	Introduction to Power Systems	EMEE203, MATH211		3
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEC303	Control System Technologies II	EMEC201		3
EMEE304	Power Transmission	EMEE206		3
EMEX302	Quality Management	ENGL114		2
EMEE390	Graduation Project I	EMEE304, Minimum of 116CH		3
EMEE399	OJP 1	EMEX294, Minimum of 110CH		3

25.11 Study Plan Higher Diploma in Electrical Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	ENG113	Engineering Drawings	2	N/A	
	HUM112	Emiratis Society and Culture	3	N/A	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	MATH211	Introduction to Linear Algebra	3	MATH100	
	EMEE202	Electronic Devices	3	EMEE204	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX284	Electrical Installation & DC machines OCT	1	EMEE203	
	EMEX285	Digital Systems OCT	1	EMEE201	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE301	Power Electronics I	3	EMEE202	
	EMEE302	Signal and Systems	3	MATH112, EMEE204	
	EMEE206	Introduction to Power Systems	3	EMEE203, MATH211	
	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	HUM403	Personal Development Planning	2	N/A	
	EMEC303	Control System Technologies II	3	EMEC201	
Total Credit Hours			**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEE304	Power Transmission	3	EMEE206	
	EMEE390	Graduation Project I	3	EMEE304, Minimum 116 CH	
	EMEX302	Quality Management	2	ENGL114	
Total Credit Hours			**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	
Summer	EMEE399	OJP 1	3	EMEX294, Minimum of 110 CH	
Total Credit Hours			**3**		

25.12 Curriculum Diploma in Electrical Engineering Technology:

Degree Requirements	Total Credit Hours: 80
ADPoly General Requirements	33
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	41
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2

Humanities and Social Science Requirements		6 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				41 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEE202	Electronic Devices	EMEE204		3
EMEX284	Electrical Installation & DC machines OCT	EMEE203		1
EMEX285	Digital Systems OCT	EMEE201		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1

25.13 Study Plan Electrical Engineering Technology:

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	HUM112	Emiratis Society and Culture	3	N/A	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	ENG113	Engineering Drawings	2	N/A	
		Total Credit Hours	**8**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**13**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEE202	Electronic Devices	3	EMEE204	
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX284	Electrical Installation & DC machines OCT	1	EMEE203	
	EMEX285	Digital Systems OCT	1	EMEE201	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
		Total Credit Hours	**10**		

25.14 Curriculum Applied Bachelors in Instrumentation & Control Engineering Technology:

Degree Requirements	Total Credit Hours: 152
ADPoly General Requirements	44
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	93
Program Minor Requirements	0
Program Electives	6
General Electives	3

ADPoly General Requirements				44 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
HUM403	Personal Development Planning	N/A		2
HUM402	Creativity, Innovation & Entrepreneurship	N/A		3

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				93 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEC301	Motor Drives and Control	EMEC201		3

EMEM205	CAD/CAM Technologies	ENG113		3
EMEX302	Quality Management	ENGL114		2
EMEC303	Control System Technologies II	EMEC201		3
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEC304	Digital Control System	EMEC201		3
EMEC306	Oil and Gas Metering Systems	EMEC201		3
EMEX301	Adv. Eng. Math	MATH112		3
EMEC401	Feedback Control Systems	EMEC303		3
EMEX401	Engineering Economics	MATH111		2
EMEC305	Distributed Control System	EMEC303		3
EMEC404	Scada	EMEC202, EMEC303		3
EMEC390	Graduation Project 1	EMEC303, Minimum of 116 CH		3
EMEC490	Graduation Project 2	EMEC390		3
EMEC399	OJP 1	EMEX294, Minimum 110 CH		3
EMEC499	OJP 2		EMEC399	3

Program Electives				**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
EMEC410	Intelligent Instrumentation and Asset Management Systems	EMEC303		3
EMEC411	Instrumentation in Hazardous Areas	N/A		3
EMEC412	Hazards and Plant Safety Engineering	N/A		3
EMEX304	Integrated Automation	EMEC202		3

General Electives			**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
CHEM411	Environmental Science and Analyses	CHEM111	3
PET120	Petroleum Geology	N/A	3
AES761	Applied Technical Chemistry	CHEM111	3
CHEM112	Chemistry II	CHEM111	3

25.15 Study Plan Applied Bachelors in Instrumentation & Control Engineering Technology:

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEM201	Dynamics	3	EMEM101, MATH111	
	ENG113	Engineering Drawings	2	N/A	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
	EMEX301	Adv. Eng. Math	3	MATH112	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	EMEC301	Motor Drives and Control	3	EMEC201	
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEX302	Quality Management	2	ENGL114	
	HUM112	Emirates Society & Culture	3	N/A	
	EMEC306	Oil & Gas Metering Systems	3	EMEC201	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC303	Control System Technologies II	3	EMEC201	
	HUM403	Personal Development Planning	2	N/A	
	EMEC390	Graduation Project I	3	EMEC303, Minimum of 116 CH	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC304	Digital Control System	3	EMEC201	
	xxxxxxxxx	Science Elective	3		
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	
	EMEC399	OJP 1	3	EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM402	Creativity and Innovation	3	N/A	
	EMEC401	Feedback Control Systems	3	EMEC303	
	EMEX401	Engineering Economics	2	MATH111	
	xxxxxxxxxx	Technical Elective 1	3		
		Total Credit Hours	**11**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC490	Graduation Project II	3	EMEC390	
	EMEC305	Distributed Control System	3	EMEC303	
	EMEC404	Scada	3	EMEC202, EMEC303	
	xxxxxxxxxx	Technical Elective 2	3		
		Total Credit Hours	**12**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC499	OJP 2			EMEC399
		Total Credit Hours	**3**		

25.16 Curriculum Higher Diploma in Instrumentation & Control Engineering Technology

Degree Requirements	Total Credit Hours: 117
ADPoly General Requirements	41
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	70
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				41 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
HUM403	Personal Development Planning	N/A		2

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				70 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1

EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEC301	Motor Drives and Control	EMEC201		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEX302	Quality Management	ENGL114		2
EMEC303	Control System Technologies II	EMEC201		3
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEC304	Digital Control System	EMEC201		3
EMEC390	Graduation Project 1	EMEC303, Minimum of 116 CH		3
EMEC399	OJP 1	EMEX294, Minimum 110 CH		3

25.17 Study Plan Higher Diploma in Instrumentation & Control Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEM201	Dynamics	3	EMEM101, MATH111	
	ENG113	Engineering Drawings	2	N/A	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
	HUM112	Emirates Society & Culture	3	N/A	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	EMEC301	Motor Drives and Control	3	EMEC201	
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEX302	Quality Management	2	ENGL114	
		Total Credit Hours	**11**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC303	Control System Technologies II	3	EMEC201	
	HUM403	Personal Development Planning	2	N/A	
	EMEC390	Graduation Project I	3	EMEC303, Minimum of 116 CH	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC304	Digital Control System	3	EMEC201	
		Total Credit Hours	**14**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC399	OJP 1	3	EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

25.18 Curriculum Diploma in Instrumentation & Control Engineering Technology:

Degree Requirements	Total Credit Hours: 80
ADPoly General Requirements	33
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	41
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				41 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE205	Introduction to Circuit Simulation	PHYS112		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX289	Electronic Applications OCT	EMEE202		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1

25.19 Study Plan Diploma in Instrumentation & Control Engineering Technology:

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	HUM112	Emirates Society & Culture	3	N/A	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	ENG113	Engineering Drawings	2	N/A	
		Total Credit Hours	**8**		

2nd Year (Sophomore)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE205	Introduction to Circuit Simulation	3	PHYS112	
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**13**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
		Total Credit Hours	**15**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX289	Electronic Applications OCT	1	EMEE202	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

25.20 Curriculum Applied Bachelors in Mechanical Engineering Technology:

Degree Requirements	Total Credit Hours: 152 Credit Hours
ADPoly General Requirements	44
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	96
Program Minor Requirements	0
Program Electives	3
General Electives	3

ADPoly General Requirements				44 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
HUM403	Personal Development Planning	N/A		2
HUM402	Creativity, Innovation & Entrepreneurship	N/A		3

Humanities and Social Science Requirements		6 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				96 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEM204	Materials Science	CHEM111		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEM206	Engineering Thermodynamics	MATH 111,		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEM202	Fluid Mechanics	EMEM101		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEE203	Electrical Machines	EMEE204		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX288	Pumps OCT	EMEM202		1
EMEX290	Fluid Mechanics OCT	EMEM202		1
EMEX291	Heat Exchange OCT	EMEM206		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX299	Pneumatics OCT	EMEX202		1
EMEX301	Adv. Eng. Math	MATH112		3
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEM302	Kinematics of Machinery	EMEM201		3
EMEM303	Manufacturing Processes	EMEM204		3

EMEM203	Heat Transfer	EMEM206,		3
EMEM304	Strength of Materials	EMEM101		3
EMEM305	Applied Industrial Maintenance	EMEX294		3
EMEX302	Quality Management	ENGL114		2
EMEM301	HVAC	EMEM203		3
EMEX401	Engineering Economics	MATH111		2
EMEM307	Machine Design I	EMEM304		3
EMEM401	Machine Design II	EMEM307		3
EMEM405	Thermodynamics II	EMEM206		3
EMEM402	Vibration and Noise Control	EMEM302,		3
EMEM390	Graduation Project I	EMEM307, Minimum of 116CH		3
EMEM490	Graduation Project II	EMEM390		3
EMEM399	OJP 1	EMEX294, Minimum of 110 CH		3
EMEM499	OJP 2		EMEM399	3

Program Electives				**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
EMEM480	Vehicle Dynamics	EMEM204,EMEM 302,EMEM401		3
EMEM481	Composite Materials	EMEM204, EMEM307		3
EMEM482	Internal Combustion Engines	EMEM405		3
EMEM483	Renewable Energy	EMEM206, EMEM203		3
EMEM484	Principles of Turbomachinery	EMEM405, EMEM202		3

General Electives			**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
CHEM411	Environmental Science and Analyses	CHEM111	3
PET120	Petroleum Geology	N/A	3
AES761	Applied Technical Chemistry	CHEM111	3
CHEM112	Chemistry II	CHEM111	3

25.21 Study Plan Applied Bachelors in Mechanical Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEM204	Materials Science	3	CHEM111	
	ENG113	Engineering Drawings	2	N/A	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEM206	Engineering Thermodynamics	3	MATH111, PHYS111, CHEM111	
	EMEX301	Adv. Eng. Math	3	MATH112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEM202	Fluid Mechanics	3	EMEM101	
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEM201	Dynamics	3	EMEM101, MATH111	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX288	Pumps OCT	1	EMEM202	
	EMEX290	Fluid Mechanics OCT	1	EMEM202	
	EMEX291	Heat Exchange OCT	1	EMEM206	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEX302	Quality Management	2	ENGL114	
	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	EMEM302	Kinematics of Machinery	3	EMEM201	
	EMEM303	Manufacturing Processes	3	EMEM204	
	EMEM203	Heat Transfer	3	EMEM206, EMEM202	
	EMEM304	Strength of Materials	3	EMEM101	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEM390	Graduation Project I	3	EMEM307, Minimum of 116 CH	
	HUM403	Personal Development Planning	2	N/A	
	EMEM301	HVAC	3	EMEM203	
	EMEM307	Machine Design I	3	EMEM304	
	EMEM305	Applied Industrial Maintenance	3	EMEX294	
	HUM112	Emiratis Society and Culture	3	N/A	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEM399	OJP 1		EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEM401	Machine Design II	3	EMEM307	
	EMEM405	Thermodynamics II	3	EMEM206	
	EMEM402	Vibration and Noise Control	3	EMEM302, EMEX301	
	xxxxx	Technical Elective 1	3		
	EMEX401	Engineering Economics	2	MATH111	
		Total Credit Hours	**14**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEM490	Graduation Project II	3	EMEM390	
	HUM402	Creativity and Innovation	3	N/A	
	xxxx	Science Elective	3		
		Total Credit Hours	**9**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEEM499	OJP 2			EMEM399
		Total Credit Hours	**3**		

25.22 Curriculum Higher Diploma in Mechanical Engineering Technology:

Degree Requirements	Total Credit Hours: 118 Credit Hours
ADPoly General Requirements	39
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	73
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				39 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				73 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEM204	Materials Science	CHEM111		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEM206	Engineering Thermodynamics	MATH 111, PHYS111, CHEM111		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEM202	Fluid Mechanics	EMEM101		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEE203	Electrical Machines	EMEE204		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX288	Pumps OCT	EMEM202		1
EMEX290	Fluid Mechanics OCT	EMEM202		1
EMEX291	Heat Exchange OCT	EMEM206		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX299	Pneumatics OCT	EMEX202		1
EMEX301	Adv. Eng. Math	MATH112		3
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEM302	Kinematics of Machinery	EMEM201		3
EMEM303	Manufacturing Processes	EMEM204		3
EMEM203	Heat Transfer	EMEM206, EMEM202		3
EMEM304	Strength of Materials	EMEM101		3
EMEM305	Applied Industrial Maintenance	EMEX294		3
EMEX302	Quality Management	ENGL114		2
EMEM390	Graduation Project I	EMEM307, Minimum of 116CH		3
EMEM399	OJP 1	EMEX294, Minimum of 110 CH		3

25.23 Study Plan Higher Diploma in Mechanical Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
Total Credit Hours			**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
Total Credit Hours			**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
Total Credit Hours			**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEM204	Materials Science	3	CHEM111	
	ENG113	Engineering Drawings	2	N/A	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEM206	Engineering Thermodynamics	3	MATH111, PHYS111, CHEM111	
	EMEX301	Adv. Eng. Math	3	MATH112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEM202	Fluid Mechanics	3	EMEM101	
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEM201	Dynamics	3	EMEM101, MATH111	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX288	Pumps OCT	1	EMEM202	
	EMEX290	Fluid Mechanics OCT	1	EMEM202	
	EMEX291	Heat Exchange OCT	1	EMEM206	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEX302	Quality Management	2	ENGL114	
	EMEX303	Health Safety and Environment	3	ENG114, ENGL114	
	EMEM302	Kinematics of Machinery	3	EMEM201	
	EMEM303	Manufacturing Processes	3	EMEM204	
	EMEM203	Heat Transfer	3	EMEM206, EMEM202	
	EMEM304	Strength of Materials	3	EMEM101	
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEM390	Graduation Project I	3	EMEM307, Minimum of 116 CH	
	EMEM305	Applied Industrial Maintenance	3	EMEX294	
	HUM112	Emiratis Society and Culture	3	N/A	
		Total Credit Hours	**9**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEM399	OJP 1		EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

25.24 Curriculum Diploma in Mechanical Engineering Technology:

Degree Requirements	Total Credit Hours: 80
ADPoly General Requirements	33
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	41
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2

Humanities and Social Science Requirements		6 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

rogram Major Requirements (compulsory)			1 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEM204	Materials Science	CHEM111		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEM206	Engineering Thermodynamics	MATH 111, PHYS111, CHEM111		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEM202	Fluid Mechanics	EMEM101		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEE203	Electrical Machines	EMEE204		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX288	Pumps OCT	EMEM202		1
EMEX290	Fluid Mechanics OCT	EMEM202		1
EMEX291	Heat Exchange OCT	EMEM206		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX299	Pneumatics OCT	EMEX202		1

25.25 Study Plan Diploma in Mechanical Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	HUM112	Emiratis Society and Culture	3	N/A	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	ENG113	Engineering Drawings	2	N/A	
		Total Credit Hours	**8**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEM204	Materials Science	3	CHEM111	
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEM206	Engineering Thermodynamics	3	MATH111, PHYS111, CHEM111	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEM202	Fluid Mechanics	3	EMEM101	
	EMEE203	Electrical Machines	3	EMEE204	
	EMEX202	Pneumatics and Hydraulics Systems	3	ENG113, PHYS112	
		Total Credit Hours	**12**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX288	Pumps OCT	1	EMEM202	
	EMEX290	Fluid Mechanics OCT	1	EMEM202	
	EMEX291	Heat Exchange OCT	1	EMEM206	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

25.26 Curriculum Applied Bachelors in Mechatronics Engineering Technology:

Degree Requirements	Total Credit Hours: 152 Credit Hours
ADPoly General Requirements	44
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	96
Program Minor Requirements	0
Program Electives	3
General Electives	3

ADPoly General Requirements			44 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
HUM403	Personal Development Planning	N/A		2
HUM402	Creativity, Innovation & Entrepreneurship	N/A		3

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				96 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX201	Introduction to Mechatronics	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEM304	Strength of Materials	EMEM101		3

EMEM206	Engineering Thermodynamics	MATH 111, PHYS111, CHEM111		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEC303	Control System Technologies II	EMEC201		3
EMEM302	Kinematics of Machinery	EMEM201		3
EMEX302	Quality Management	ENGL114		2
EMEX301	Adv. Eng. Math	MATH112		3
EMEX303	Health Safety and Environment	ENG114, ENGL114		3
EMEX304	Integrated Automation	EMEC202		3
EMEX402	Mechatronics System Design	EMEX201, EMEE207		3
EMEX403	Robotics	EMEX101, EMEM302		3
EMEM307	Machine Design I	EMEM304		3
EMEX401	Engineering Economics	MATH111		2
EMEX390	Graduation Project I	EMEC303, Min. of 116CH		3
EMEX490	Graduation Project II	EMEX390		3
EMEX399	OJP 1	EMEX294, Min. of 110 CH		3
EMEX499	OJP 2		EMEX399	3

Program Electives			**3 Credit Hours**	
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEX404	Special Topics on Mechatronics: Process Equipment Design	EMEC201		3
EMEC305	Distributed Control System	EMEC303		3
EMEM402	Vibration and Control	EMEM302, EMEX301		3
EMEC301	Motor Drive and Control	EMEC201		3

General Electives			**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
CHEM411	Environmental Science and Analyses	CHEM111	3
PET120	Petroleum Geology	N/A	3
AES761	Applied Technical Chemistry	CHEM111	3
CHEM112	Chemistry II	CHEM111	3

25.27 Study Plan Applied Bachelors in Mechatronics Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEX201	Introduction to Mechatronics	3	PHYS112	
	EMEX301	Adv. Eng. Math	3	MATH112	
	ENG113	Engineering Drawings	2	N/A	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEX202	Pneumatics & Hydraulics Systems	3	ENG113, PHYS112	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
		Total Credit Hours	**18**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	Scada OCT	1	EMEC202, EMEC201	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEM304	Strength of Materials	3	EMEM101	
	EMEM206	Engineering Thermodynamics	3	MATH 111, PHYS111, CHEM111	
	EMEM201	Dynamics	3	EMEM101, MATH111	
	EMEX303	Health Safety & Environment	3	ENG114, ENGL114	
	HUM112	Emiratis Society & Culture	3	N/A	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC303	Control System Technologies II	3	EMEC201	
	HUM403	Personal Development Planning	2	N/A	
	EMEX390	Graduation Project I	3	EMEC303, Minimum of 116 CH	
	EMEM302	Kinematics of Machinery	3	EMEM201	
	EMEX302	Quality Management	2	ENGL114	
	xxxx	Science Elective	3		
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX399	OJP 1		EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	xxxxxx	Technical Elective 1	3		
	EMEX304	Integrated Automation	3	EMEC202	
	EMEX402	Mechatronics System Design	3	EMEX201, EMEE207	
	EMEX403	Robotics	3	EMEX101, EMEM302	
	EMEM307	Machine Design I	3	EMEM304	
		Total Credit Hours	**15**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX401	Engineering Economics	2	EMEE390	
	HUM402	Creativity, Innovation & Entrepreneurship	3	N/A	
	EMEX490	Graduation Project II	3	EMEX490	
		Total Credit Hours	**8**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEEX499	OJP 2	3		EMEX399
		Total Credit Hours	**3**		

25.28 Curriculum Higher Diploma in Mechatronics Engineering Technology:

Degree Requirements	Total Credit Hours: 117
ADPoly General Requirements	41
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	70
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				41 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2
MATH111	Calculus I	MATH100		3
MATH112	Calculus II	MATH111		3
HUM403	Personal Development Planning	N/A		2

Humanities and Social Science Requirements		6 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				70 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX201	Introduction to Mechatronics	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1
EMEE207	Embedded Systems	EMEE204, EMEX101		3
EMEM205	CAD/CAM Technologies	ENG113		3
EMEM304	Strength of Materials	EMEM101		3
EMEM206	Engineering Thermodynamics	MATH 111, PHYS111, CHEM111		3
EMEM201	Dynamics	EMEM101, MATH111		3
EMEC303	Control System Technologies II	EMEC201		3
EMEM302	Kinematics of Machinery	EMEM201		3
EMEX302	Quality Management	ENGL114		2
EMEX390	Graduation Project I	EMEC303, Minimum of 116CH		3
EMEX399	OJP 1	EMEX294, Minimum of 110 CH		3

25.29 Study Plan Higher Diploma in Mechatronics Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	MATH 111	Calculus I	3	MATH100	
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	MATH112	Calculus II	3	MATH111	
		Total Credit Hours	**9**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEX201	Introduction to Mechatronics	3	PHYS112	
	HUM112	Emiratis Society & Culture	3	N/A	
	ENG113	Engineering Drawings	2	N/A	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEX202	Pneumatics & Hydraulics Systems	3	ENG113, PHYS112	
	EMEE207	Embedded Systems	3	EMEE204, EMEX101	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

3rd Year (Junior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEM205	CAD/CAM Technologies	3	ENG113	
	EMEM304	Strength of Materials	3	EMEM101	
	EMEM206	Engineering Thermodynamics	3	MATH 111, PHYS111, CHEM111	
	EMEM201	Dynamics	3	EMEM101, MATH111	
		Total Credit Hours	**12**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC303	Control System Technologies II	3	EMEC201	
	HUM403	Personal Development Planning	2	N/A	
	EMEX390	Graduation Project I	3	EMEC303, Minimum of 116 CH	
	EMEM302	Kinematics of Machinery	3	EMEM201	
	EMEX302	Quality Management	2	ENGL114	
		Total Credit Hours	**13**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX399	OJP 1		EMEX294, Minimum of 110 CH	
		Total Credit Hours	**3**		

25.30 Curriculum Diploma in Mechatronics Engineering Technology:

Degree Requirements	Total Credit Hours: 80 Credit Hours
ADPoly General Requirements	33
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	41
Program Minor Requirements	0
Program Electives	0
General Electives	0

ADPoly General Requirements				33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS111	Physics I	N/A		3
PHYS111P	Physics Lab		PHYS111	1
ENG114	Industrial Safety & Professional Ethics	N/A		2
ENG120P	Mech. Workshop	N/A		1
ICT110	Introduction to Programming & Problem Solving	N/A		3
ENGL111	English Communication Skills	N/A		3
MATH100	Precalculus	N/A		4
CHEM111	Chemistry I	N/A		3
CHEM111P	Chemistry I Lab		CHEM111	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENGL112	Technical English	ENGL111		3
ENGL114	English for Engineering	ENGL112		3
ENG113	Engineering Drawing	N/A		2

Humanities and Social Science Requirements			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM111	Islamic Culture	N/A	3
HUM112	Emirates Society & Culture	N/A	3

Program Major Requirements (compulsory)				41 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEM101	Statics	PHYS111, MATH100		3
EMEE201	Digital Logic Design	PHYS112		3
EMEC203	Instr. & Measurement	PHYS112		2
EMEE204	Electric Circuits	PHYS112		3
EMEX201	Introduction to Mechatronics	PHYS112		3
EMEX101	Intr. to Programming: C++	ICT110		2
EMEC201	Control System Technologies I	EMEC203		3
EMEE202	Electronic Devices	EMEE204		3
EMEX202	Pneumatics and Hydraulics Systems	ENG113, PHYS112		3
EMEC202	Programmable Logic Controllers	EMEE201, EMEX101		3
EMEE203	Electrical Machines	EMEE204		3
EMEX286	Hydraulics OCT	EMEX202		1
EMEX287	SCADA OCT	EMEC202, EMEC201		1
EMEX292	Compressors OCT	EMEX202		1
EMEX293	PCB OCT	EMEE204		1
EMEX294	AC Machines OCT	EMEE203		1
EMEX295	Process Control OCT	EMEC201		1
EMEX296	Robotics OCT	EMEX101		1
EMEX297	Embedded Systems OCT	EMEE207		1
EMEX298	PLC OCT	EMEC202		1
EMEX299	Pneumatics OCT	EMEX202		1

25.31 Study Plan Diploma in Mechatronics Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS111	Physics I	3	N/A	
	PHYS111P	Physics Lab	1		PHYS111
	ENG114	Eng. Safety and Professional Ethics	2	N/A	CHEM111
	ENG120P	Mech. Workshop	1	N/A	
	ICT110	Introduction to Programming and Prob. Solv.	3	N/A	
	ENGL111	English Comm. Skills	3	N/A	
	MATH100	Precalculus	4	N/A	PHYS111
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM111	Chemistry I	3	N/A	
	CHEM111P	Chemistry I Lab	1		CHEM111
	PHYS112	Physics II	3	PHYS111	
	ENGL112	Technical English	3	ENGL111	
	PHYS112P	Physics II Lab	1		PHYS112
	EMEM101	Statics	3	PHYS111, MATH100	
	HUM112	Emiratis Society & Culture	3	N/A	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	HUM111	Islamic Culture	3	N/A	
	ENGL114	English for Engineering	3	ENGL112	
	ENG113	Engineering Drawings	2	N/A	
		Total Credit Hours	**8**		

2nd Year (Sophomore)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE201	Digital Logic Design	3	PHYS112	
	EMEC203	Instr. & Measurement	2	PHYS112	
	EMEE204	Electric Circuits	3	PHYS112	
	EMEX201	Introduction to Mechatronics	3	PHYS112	
	EMEX101	Intr. to Programming: C++	2	ICT110	
		Total Credit Hours	**13**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEC201	Control System Technologies I	3	EMEC203	
	EMEE202	Electronic Devices	3	EMEE204	
	EMEX202	Pneumatics & Hydraulics Systems	3	ENG113, PHYS112	
	EMEC202	Programmable Logic Controllers	3	EMEE201, EMEX101	
	EMEE203	Electrical Machines	3	EMEE204	
		Total Credit Hours	**15**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEX286	Hydraulics OCT	1	EMEX202	
	EMEX287	SCADA OCT	1	EMEC202, EMEC201	
	EMEX292	Compressors OCT	1	EMEX202	
	EMEX293	PCB OCT	1	EMEE204	
	EMEX294	AC Machines OCT	1	EMEE203	
	EMEX295	Process Control OCT	1	EMEC201	
	EMEX296	Robotics OCT	1	EMEX101	
	EMEX297	Embedded Systems OCT	1	EMEE207	
	EMEX298	PLC OCT	1	EMEC202	
	EMEX299	Pneumatics OCT	1	EMEX202	
		Total Credit Hours	**10**		

25.32 Electromechanical Engineering Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Saud Hamad Aldajah	Senior Faculty, Department Head	Ph.D.	Illinois Institute of Technology
Qais Khasawneh	Faculty	Ph.D.	University of Akron
Shaaban Ali Salman Ali	Faculty	Ph.D.	University of New South Wales
Fawwaz Al Khatib	Senior Lecturer	Ph.D.	West Pomeranian University of Technology Szczecin, Poland
Mohammad Mansour Al Khawaldah	Senior Lecturer	Ph.D.	University of Hertfordshire, UK
Mohammad Yousef Al Haik	Senior Lecturer	Ph.D.	Virginia Polytechnic Institute and State University
Nashville Tolledo	Senior Lecturer	Masters	University of Cambridge
Saleh Ahmad	Senior Lecturer	Ph.D.	Ryerson University
Ibrahim Haroun Khleifat	Senior Lecturer	Bachelor	Trine University
Eyad Shams	Lecturer	Masters	United Arab Emirates University
Hussein Abdelhameed Alsamirat	Lecturer	Bachelor	University of Baghdad
Mohammad Mazedul Kabir	Lecturer	Ph.D.	University of Southern Queensland
Muhammad Umair Muzaffar	Lecturer	Masters	American University of Sharjah
Shoaib Hussain	Lecturer	Masters	American University of Sharjah
Waseem Siddique	Lecturer	Masters	United Arab Emirates University

26. Higher Diploma and Applied Bachelor in Information Security Engineering Technology (ISET)

26.1 Introduction

Computers have become integral to businesses, governments, and agencies in their everyday activities. The growth in the global Information Society is not without risks. In fact, risks and threats to cyber security are increasing every day. The UAE, as rest of the world, recognized the need to enhance its information security programs and build the national manpower in this vital field. In line with Abu Dhabi Vision 2030, Abu Dhabi Polytechnic (ADPoly) established a unique Information Security Engineering Technology (ISET) program to qualify skilled technical engineers/technologists who are benchmarked to international dual educational systems and standards, and make them ready-to-work with the emphasis on the strength of the know-how and manpower hands-on training skills. The ISET program is executed in corporation with several local entities and in collaboration with International organizations, namely, ISC2, EC-COUNCIL, SANS, Cisco, McAfee, Symantec, among others. In addition, the valuable industry experience that supports and enhances the in-class learning and in-house training will be provided through International ICT Training Academies, and specialized labs.

Due to the dual focus on both practical aspects via enclosing state of the art practice methods, techniques and technology solutions and theoretical aspects enclosing the state of art theorem, educational instruments, and methods; the afore-stated attributes are natural results to the Abu Dhabi Polytechnic graduates.

In the first year of the program, general mathematics, science, English language, humanities, engineering fundamentals, and an introduction to information technology and security industry courses will be offered to prepare solid ground for the students for their subsequent years of study that involve both On-Campus Training (OCT) and On-the-Job Performance (OJP). All students are required to complete a two semester of on-campus training, two graduation projects, one On-the-Job Performance (Field training) based on their selected specialization are required to graduate with applied bachelor in information security engineering technology.

The technical content of the Higher Diploma (HD) and Applied Bachelor (AB) in ISET program focuses on the applied aspects of science and engineering in that portion of the technological spectrum closest to technician and engineering operational functions. The technical content develops the skills, knowledge, methods, procedures, and techniques associated with the technical specializations and are appropriate to the goals of the program. Below are the three specializations of ISET and degree level per each.

26.2 Diploma/Higher Diploma/Applied Bachelor

Higher Diploma: A minimum of **120** credits are required to earn the higher diploma
Applied Bachelor: A minimum of **153** credits are required to earn the applied bachelor

Specialization Name	Degree		
	Diploma	Higher Diploma	Applied Bachelor
Software Security Specialization	NA	3 Years	4 Years
Networks and Cyber Security Specialization	NA	3 Years	4 Years
Systems/Servers Security Administration Specialization	NA	3 Years	4 Years

26.3 Program Accreditation and Delivery

This program is nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

26.4 Program Vision

To be the preferred choice in Information & Cyber security applied education, knowledge, expertise, and innovation in UAE and Region and to be source of ongoing academic leadership in education, research, and practice that prepares tomorrow's leaders capable of meeting UAE's Cyber security needs.

26.5 Program Mission

The mission of the Information Security Engineering Technology is to develop and maintain program of excellence that will support the Abu Dhabi Vision 2030 and UAE in its development as a leading center for high-technology industry and that will support national needs for the development and application of information security professionals.

We aim to:

- Enhance our position as one of the UAE's leading research, teaching, and training programs in the information security field.
- Provide the highest quality learning and teaching environment for our students and deliver an outstanding educational portfolio and Benchmarked against the highest international standards
- Produce graduates fully equipped to achieve the highest personal and professional standards

26.6 Program Objectives (POs/PEOs)

- To provide first-class information security engineering applied education that incorporates open ended design and experiential learning.
- To provide hands-on experience and develop skills necessary to pursue technical and professional careers in the information and cyber security field in the UAE as well as opportunity to pursue continued and post graduate education.
- To provide a dynamic learning environment for fostering teamwork, effective communication skills, ethical responsibility and lifelong learning approach.
- Provide students with necessary education to bridge the gap between industry and academia, and to understand the impact of information security technology in a global and societal context.

26.7 Program Learning Outcomes (PLOs/SLOs)

- Protect an organization's critical information and assets by applying latest information security practices, processes, frameworks, and techniques.
- Formulate, update, and communicate relevant short- and long-term organizational cyber security strategies and policies to effectively secure and monitor information systems.
- Design and implement secure information systems, components, and processes in a timely manner as well as identify, analyze, and solve problems associated with these systems.
- Understand the human, administrative, ethical aspects of information security profession and abide by all legal aspects associated with it.
- Demonstrate a broad knowledge of core concepts, theories, and practical skills within the field of information security technologies.
- Occupy roles in secure systems development, networking, administration, operations and forensic analysis.
- Plan and perform various tasks and projects that comprise long time spans, alone and as participant in a team in compliance with applicable legal and ethical requirements and regulations.
- Present relevant topics like theories, problems and solutions in written, oral and other applicable forms of expression.
- Design, implement, and administer solutions for networking and security problems to satisfy organizational goals.
- Recognize the need for, and be able to engage in, all aspects of lifelong learning.

26.8 Program Entry Requirements

Applied Bachelors and Higher Diploma:

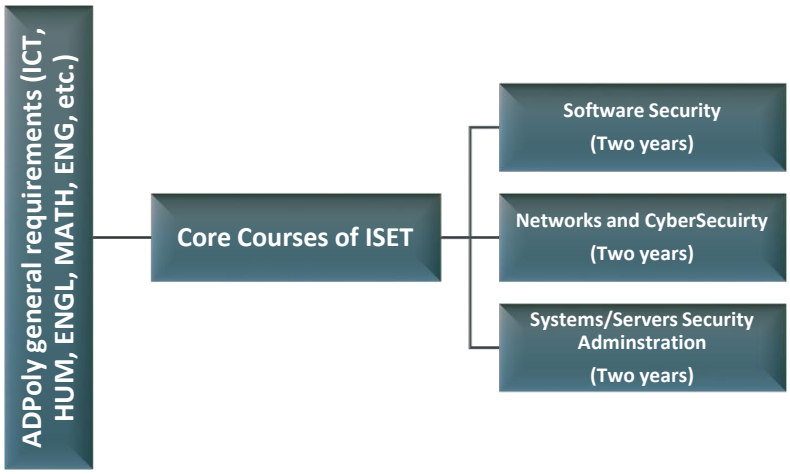
Grade 12: ADEC, MOE, ATHS & STS schools graduates must meet the following admission requirements to be eligible for studying at AD Poly:

An applicant to AD Poly must be a UAE citizen. Both male and female students can apply.

- Students with an overall average of 70% and above are eligible for admission in both branch Abu Dhabi and Alain.
- An applicant must score 500 or above on EmSat.
- Applicants must have EmSat score 1100 or who have scores of TOEFL 500/iBT 61, or IELTS (Academic) 5.0 will be directly admitted to the Program. Applicants who do not meet this criterion may enroll in the Foundation Program.
- An applicant needs to take an admission interview.
- An applicant must perform a medical check-up according to NAPO instructions.

The program embodies three specializations, namely, Software Security, Networks and Cybersecurity, and Systems/Servers Security Administration. A student will apply for a specialization towards the end

of second year of his/her study. Below is the flowchart of specialization election followed by description of curriculum content of each specialization:



26.9 ISET Curriculum

26.9.1 Curriculum General Requirements and ISET core courses

Degree Requirements	Total Credit Hours: 153 Credit Hours
ADPoly General Requirements	21
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory) – Core Course	30
Program Major Requirements (compulsory) - Specialization	63
Program Minor Requirements - ICT Requirement	27
Program Electives	6

ADPoly General Requirements				(21) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
MATH100	Precalculus			4*
MATH111	Calculus I	MATH100		3
ICT110	Introduction to Programing & Problem Solving			3
ENGL111	English Communication Skills			3
ENGL112	Technical English	ENGL111		3
ENGL-115	English of ICT	ENG-112		3
ENG-125	Intro to Computer Electronics			3
HUM402	Creativity, Innovation and Entrepreneurship			3

**Not calculated in the student cGPA or program overall credits – Applied Bachelor*

Humanities and Social Science Requirements			(06) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM-110	Life-Long Learning Skills		3
HUM-111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM-211	Arabic Communication Skills		3
HUM-212	Applied Research & Development Skills		3

Program Major Requirements (compulsory) – Core Course			30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
NCS-217	Network Security	ICT-121	3
SSA-222	Information Systems Security	ICT-132	3
NCS-220	Ethical Hacking and Digital Forensics	NCS-217	3
NCS-221	Intro to Applied Cryptography	ICT-132	3

SSA-314	Cloud and Infrastructure Security	NCS-217	3
NCS-410	Advanced Cryptography	NCS-222	3
SSD-414	Risk Analysis and Management	SSA-222	3
SSD-420	Incident Handling and Response	SSD-413	3
SSD-421	Information Assurance & Security Manag.	SSA-222	3
SSD-422	Ethics, Law and Policy in Cyberspace	SSA-222	3

26.9.2 Curriculum – Software Security (SSD) Specialization

Program Major Requirements (compulsory) – Specialization			(63) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSD-220	Web Programming and Security	ICT-132 & ICT-212	3
SSD-230	Secure Web Applications Development (OCT-I)	SSD-220	2
SSD-231	Secure Mobile Applications Development (OCT-I)	SSD-220	2
SSD-232	Web Application Security (OCT-I)	SSD-220	2
SSD-233	Ethical Hacking& Digital Forensics(OCT-I)	NCS-220	1
SSD-234	Secure Windows/Linux OS(OCT-I)	ICT-220	1
SSD-235	Mobile Forensics and Investigation (OCT-I)	NCS-220	2
SSD-316	Object Oriented Analysis and Design	ICT-210	3
SSD-311	Mobile Programming and Security	ICT-120 & ICT-132	3
SSD-317	Embedded Systems Secure Devlp	ICT-120 & ICT-131	3
SSD-326	Multi-Language Secure Coding	SSD-316	3
SSD-327	Malware Analysis: Tools and Techniques	SSD-220 & SSD-233	3
SSD-328	Software Vulnerabilities Testing	SSD-220 & NCS-220	3
SSD-329	Secure Database Development	ICT-212	3
SSD-341	InfoSec Project Management	SSA-222	2
SSD-336	Client/Server Security Admin (OCT-II)	ICT-220	2
SSD-337	Database Programming and Security (OCT-II)	SSD-329	2
SSD-338	Software Vulnerability Assessment (OCT-II)	SSD-328	2
SSD-339	Practical Requirements Engineering (OCT-II)	ICT-210	1
SSD-342	Secure Software design & implementation (OCT-II)	ICT-210	1
SSD-343	Software Verification and Validation (OCT-II)	SSD-316	2
SSD-410	Enterprise Software Archi & Design	SSD-342	3
SSD-411	Advanced Web Security	SSD-232	3
SSD-414	Graduation Project I	Dept. Approval	2
SSD-423	Graduation Project II	SSD-414	3
SSD-430	On Job Training (Internship)	Dept. Approval	6

Program Minor Requirements – (ICT Requirements)			(27) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ICT-120	Object Oriented Programming in Java	ICT-110	3
ICT-121	Intro to Computer Networks	ICT-110	3
ICT-122	Discrete Mathematics	MATH-111	3
ICT-131	Logic Design & Computer Organization	ENG-125	3
ICT-132	Fundamentals of Information Security	ICT-121	3
ICT-210	Introduction to Software Security	ICT-120 & ICT-132	3
ICT-211	Data Structure and Algorithms	ICT-120 & ICT-122	3
ICT-212	Intro to Database Systems	ICT-120	3
ICT-220	Operating Systems Security	ICT-131 & ICT-132	3

Program Electives			06 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSD-320	Homeland Security	NCS-220	3
SSD-323	Security Governance and Compliance	SSA-222	3
SSD-323	Security Architectures and Models	SSA-222	3
SSD-311	Security as Continuous Improvement	SSD-341	3
SSD-311	Human Computer Interaction Design	SSD-342	3
SSD-325	Critical SW Security Controls & Standards	SSD-411	3
SSD-415	Data Mining and Information Retrieval	SSD-316	3
SSD-322	Privacy in a networked world	SSA-222	3
SSD-425	Advanced Mobile Application Development	SSD-311	3

26.9.3 Curriculum – Network and Cyber Security specialization

Program Major Requirements (compulsory) – NCS Specialization			63 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSD-220	Web Programming and Security	ICT-132 & ICT-212	3
NCS-230	Routing and Switching - OCT I	ICT-121	2
NCS-236	Secure Network Design - OCT I	NCS-217	2
NCS-232	Network Security - OCT I	NCS-217	2
NCS-233	Ethical Hacking and Dig. Forensics - OCT I	NCS-220	1
NCS-234	Mobile Programming and Security- OCT I	ICT-132 & ICT-120	1
NCS-235	Penetration Testing in-Depth - OCT I	NCS-220	2
NCS-318	Fundamentals of Storage Networking	ICT-121	3
NCS-316	Wireless Network Security	NCS-217	3
NCS-326	Perimeter Protection	NCS 235	3

NCS-327	Advanced Network Security	NCS 232	3
NCS-328	Advanced Web Security	SSD 220	3
NCS-329	InfoSec Project Management	SSA 222	2
NCS-336	Linux-Unix Security Administration- OCT II	ICT 220	2
NCS-341	MS Windows Server Security Administration- OCT II	ICT 220	2
NCS-337	Advanced Routing and Switching- OCT II	NCS 230	2
NCS-338	Network Border Control- OCT II	NCS 326	1
NCS-339	Intrusion Detection & Response - OCT II	NCS 327	2
NCS-342	Database Server Security- OCT II	ICT 212 & SSA 317	1
NCS-411	Firewall and Intrusion Analysis	NCS-326	3
NCS-412	Adv Pen Testing & Ethical Hacking	NCS 235	3
NCS-xxx	Tech. Elective Course-I	Department Approval	3
NCS-xxx	Tech. Elective Course-II	Department Approval	3
NCS-414	Graduation Project I	Department Approval	2
NCS-423	Graduation Project II	NCS-414	3
NCS-430	On Job Training (Internship)	Department Approval	6

Program Electives (NCS Specialization)			**06 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
NCS-415	Homeland Security	NCS 220	3
NCS-416	Security Governance and Compliance	SSA-222	3
NCS-417	Hardware based Security	SSA-222	3
NCS-418	Security Architectures and Models	SSA-222	3
NCS-425	Wireless Ethical Hacking and Defense	NCS-316	3
NCS-426	Network Security Trends	NCS-326	3
NCS-427	Privacy in a networked world	SSA-222	3
NCS-428	Security protocols in-depth	NCS-327	3

26.9.4 Curriculum – Systems/Servers Security Admin(SSA) Specialization

Program Major Requirements (compulsory) – Specialization			63 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSA-222	Information Systems Security		3
SSA-230	Microsoft Windows Server Security (OCT-I)	ICT-220	2
SSA-231	MS Exchange Server Security(OCT-I)	ICT-220	2
SSA-232	Linux/UNIX Operating System Security(OCT-I)	ICT-220	2
SSA-233	MS SharePoint Server Security(OCT-I)	ICT-220	1
SSA-234	Physical Security and Biometrics(OCT-I)	SSA-222	1
SSA-235	Ethical Hacking (OCT-I)	NCS-220	2
SSA-310	Virtualization Technology and Security	ICT-220 & NCS-217	3
SSA-311	Client/Server Security Admin	ICT-220 & NCS-217	3
SSA-312	Securing Linux/UNIX Server	ICT-220	3
SSA-313	Cloud and Infrastructure Security	NCS-217	3
SSA-320	Penetration and Vulnerability Analysis	SSA-235	3
SSA-322	Security Tools and Technologies: Windows	SSA-230	3
SSA-323	Database Server Security	ICT-212 & SSA-230	3
SSA-324	InfoSec Project Management	SSA-222	2
SSA-330	Linux-Unix Security Administration (OCT-II)	SSA-318	2
SSA-332	MS Windows Server Security Administration (OCT-II)	SSA-328	2
SSA-333	Database Server Security(OCT-II)	SSA-329	2
SSA-331	MS SharePoint Security Administration(OCT-II)	SSA-233	1
SSA-334	Exchange server security (OCT-II)	SSA-236	2
SSA-335	Mobile Programming and Security (OCT-II)	ICT-132 & ICT-120	1
SSA-412	Identity Management	SSA-222	3
SSA-414	Graduation Project I	Dept. Approval	2
SSA-xxx	Tech. Elective Course-I	Dept. Approval	3
SSA-423	Graduation Project II	SSA-414	3
SSA-xxx	Tech. Elective Course-II	Dept. Approval	3
SSA-430	Field Training	Dept. Approval	6

Program Minor Requirements – (ICT Requirements)			27 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ICT-120	Object Oriented Programming in Java	ICT-110	3
ICT-121	Intro to Computer Networks	ICT-110	3
ICT-130	Discrete Mathematics	MATH-111	3
ICT-131	Logic Design & Computer Organization	ENG-125	3
ICT-132	Fundamentals of Information Security	ICT-121	3
ICT-210	Introduction to Software Security	ICT-120 & ICT-132	3
ICT-211	Data Structure and Algorithms	ICT-120 & ICT-122	3
ICT-212	Intro to Database Systems	ICT-120	3
ICT-220	Operating Systems Security	ICT-131 & ICT-132	3

Program Electives			06 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSA-315	Homeland Security	NCS-220	3
SSA-323	Hardware based Security	SSA-222	3
SSA-322	Security Governance and Compliance	SSA-222	3
SSA-419	Advanced Secure Database Administration	SSA-329	3
SSA-424	Security Architectures and Models	SSA-222	3
SSA-332	Systems Security Intelligence	SSA-326	3
SSA-335	Systems/Servers Security Trends	SSA-317	3
SSA-321	Security protocols in-depth	NCS-217	3

26.10 ISET Study Plan

26.10.1 General Requirements and ISET Core Courses

The first five semesters of the study plan apply to all three specializations.

1st Year (Freshman)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	MATH-100	PreCalculus	4*	MATH-100
	ICT-110	Intro to Programming & Problem Solving	3	ICT-110
	ENGL-111	English Communication Skills	3	ENGL-111
	HUM-xxx	Humanities - Elective (I)	3	HUM-xxx
	HUM-xxx	Humanities - Elective (II)	3	HUM-xxx
		Total Credit Hours	**12**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT-120	Object Oriented Programming in Java	3	ICT-110
	ICT-121	Intro to Computer Networks	3	ICT-110
	MATH-111	Calculus I	3	MATH-100
	ENGL-112	Technical English	3	ENG-111
	ENG-125	Intro to Computer Electronics	3	
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT-131	Logic Design & Computer Organization	3	ENG-125
	ENGL-115	English for ICT	3	ENGL-112
	ICT-132	Fundamentals of Information Security	3	ICT-121
	ICT-122	Discrete Mathematics	3	MATH-111
		Total Credit Hours	**12**	

2nd Year (Sophomore)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT-210	Introduction to Software Security	3	ICT-120 & ICT-132
	ICT-211	Data Structure and Algorithms	3	ICT-120 & ICT-122
	NCS-217	Network Security	3	ICT-121
	ICT-212	Intro to Database Systems	3	ICT-120
		Total Credit Hours	**12**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT-220	Operating Systems Security	3	ICT-131 & ICT-132
	SSD-220	Web Programming and Security	3	ICT-132 & ICT-212
	SSA-222	Information Systems Security	3	ICT-132
	NCS-220	Ethical Hacking and Digital Forensics	3	NCS-217
	NCS-222	Intro to Applied Cryptography	3	ICT-132
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSD-230	Secure Web Applications Development - OCT I	2	SSD-220
	SSD-236	Secure Mobile Applications Development - OCT I	2	SSD-220
	SSD-232	Web Application Security - OCT I	2	SSD-220
	SSD-233	Ethical Hacking & Digital Forensics - OCT I	1	NCS-220
	SSD-234	Secure Windows/Linux OS - OCT I	1	ICT-220
	SSD-235	Mobile Forensics and Investigation - OCT I	2	NCS-220
		Total Credit Hours	**10**	

26.10.2 Software Security (SSD) Specialization

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	SSD-230	Secure Web Applications Development - OCT I	2	SSD-220
	SSD-236	Secure Mobile Applications Development - OCT I	2	SSD-220
	SSD-232	Web Application Security - OCT I	2	SSD-220
	SSD-233	Ethical Hacking & Digital Forensics - OCT I	1	NCS-220
	SSD-234	Secure Windows/Linux OS - OCT I	1	ICT-220
	SSD-235	Mobile Forensics and Investigation - OCT I	2	NCS-220
		Total Credit Hours	**10**	

3rd Year (Junior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	SSD-316	Object Oriented Analysis and Design	3	ICT-210
	SSD-311	Mobile Programming and Security	3	ICT-120 & ICT-132
	SSD-317	Embedded Systems Secure Develop	3	ICT-120 & ICT-131
	SSA-319	Cloud and Infrastructure Security	3	NCS-217
	HUM-402	Creativity, Innovation and Entrepreneurship	3	
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSD-326	Multi-Language Secure Coding	3	SSD-316
	SSD-327	Malware Analysis: Tools and Techniques	3	SSD-220 & SSD-233
	SSD-328	Software Vulnerabilities Testing	3	SSD-220 & NCS-220
	SSD-329	Secure Database Development	3	ICT-212
	SSD-341	InfoSec Project Management	2	SSA-222
		Total Credit Hours	**14**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSD-336	Client/Server Security Admin - OCT II	2	ICT-220
	SSD-337	Database Programming and Security - OCT II	2	SSD-329

	SSD-338	Software Vulnerability Assessment - OCT II	2	SSD-328
	SSD-339	Practical Requirements Engineering - OCT II	1	ICT-210
	SSD-342	Secure Software design & implementation - OCT II	1	ICT-210
	SSD-343	Software Verification and Validation - OCT II	2	SSD-316
		Total Credit Hours	**10**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	NCS-410	Advanced Cryptography	3	NCS-222
	SSD-410	Enterprise Software Archi & Design	3	SSD-342
	SSD-411	Advanced Web Security	3	SSD-232
	SSD-413	Risk Analysis and Management	3	SSA-222
	SSD-414	Graduation Project I	2	Dept. Approval
	SSD-xxx	Tech. Elective Course-I	3	Dept. Approval
		Total Credit Hours	**17**	
Semester 2	SSD-420	Incident Handling and Response	3	SSD-413
	SSD-421	Information Assurance&Sec Manag.	3	SSA-222
	SSD-422	Ethics,Law&Policy in Cyberspace	3	SSA-222
	SSD-423	Graduation Project II	3	SSD-414
	SSD-xxx	Tech. Elective Course-II	3	Dept. Approval
		Total Credit Hours	**15**	
Summer	SSD-430	On Job Training (Internship)	6	Dept. Approval
		Total Credit Hours	**6**	

26.10.3 Networks and Cyber Security Specialization

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	NCS-230	Routing and Switching - OCT I	2	ICT-121
	NCS-236	Secure Network Design - OCT I	2	NCS-217
	NCS-232	Network Security - OCT I	2	NCS-217
	NCS-233	Ethical Hacking and Dig. Forensics - OCT I	1	NCS-220
	NCS-234	Mobile Programming and Security- OCT I	1	ICT-132 & ICT-120
	NCS-235	Penetration Testing in-Depth - OCT I	2	NCS-220
		Total Credit Hours	**10**	

3rd Year (Junior)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	NCS-318	Fundamentals of Storage Networking	3	ICT-121
	SSA-317	Client/Server Security Admin	3	ICT-220 &NCS 217
	NCS-316	Wireless Network Security	3	NCS-217
	NCS-317	Cloud and Infrastructure Security	3	NCS 232
	HUM-402	Creativity, Innovation and Entrepreneurship	3	NA
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	NCS-326	Perimeter Protection	3	NCS 235
	SSD-327	Malware Analysis: Tools and Techniques	3	SSD 220 & NCS 233
	NCS-327	Advanced Network Security	3	NCS 232
	NCS-328	Advanced Web Security	3	SSD 220
	NCS-329	InfoSec Project Management	2	SSA 222
		Total Credit Hours	**14**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	NCS-336	Linux-Unix Security Administration- OCT II	2	ICT 220
	NCS-341	MS Windows Server Security Administration- OCT II	2	ICT 220
	NCS-337	Advanced Routing and Switching- OCT II	2	NCS 230
	NCS-338	Network Border Control- OCT II	1	NCS 326
	NCS-339	Intrusion Detection & Response - OCT II	2	NCS 327
	NCS-342	Database Server Security- OCT II	1	ICT 212 & SSA 317
		Total Credit Hours	**10**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	NCS-410	Advanced Cryptography	3	NCS 222
	NCS-411	Firewall and Intrusion Analysis	3	NCS-326
	NCS-412	Adv Pen Testing & Ethical Hacking	3	NCS 235
	NCS-413	Risk Analysis and Management	3	SSA 222
	NCS-414	Graduation Project I	2	Dept Approval
	NCS-xxx	Tech. Elective Course-I	3	Dept Approval
		Total Credit Hours	**17**	
Semester 2	NCS-420	Incident Handling and Response	3	NCS-413
	NCS-421	Information Assurance & Security Manag.	3	SSA 222
	NCS-422	Ethics, Law and Policy in Cyberspace	3	SSA 222
	NCS-423	Graduation Project II	**3**	NCS-414
	NCS-xxx	Tech. Elective Course-II	**3**	Dept Approval
		Total Credit Hours	**15**	
Summer	NCS-430	On Job Training (Internship)	6	Department Approval
		Total Credit Hours	**6**	

26.10.4 Systems/Servers Security Admin(SSA) Specialization

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	SSA-230	Microsoft Windows Server Security - OCT I	2	ICT-220
	SSA-236	MS Exchange Server Security - OCT I	2	ICT-220
	SSA-232	Linux/UNIX Operating System Security - OCT I	2	ICT-220
	SSA-233	MS SharePoint Server Security - OCT I	1	ICT-220
	SSA-234	Physical Security and Biometrics - OCT I	1	SSA-222
	SSA-235	Ethical Hacking - OCT I	2	NCS-220
		Total Credit Hours	**10**	

3rd Year (Junior)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSA-316	Virtualization Technology and Security	3	ICT-220 & NCS-217
	SSA-317	Client/Server Security Admin	3	ICT-220 & NCS-217
	SSA-318	Securing Linux/UNIX Server	3	ICT-220
	SSA-319	Cloud and Infrastructure Security	3	NCS-217
	HUM-402	Creativity, Innovation and Entrepreneurship	3	NA
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSA-326	Penetration and Vulnerability Analysis	3	SSA-235
	SSD-327	Malware Analysis: Tools & Techniques	3	SSD-220 & SSA-235
	SSA-328	Security Tools and Technologies: Windows	3	SSA-230
	SSA-329	Database Server Security	3	ICT-212 & SSA-230
	SSA-341	InfoSec Project Management	2	SSA-222
		Total Credit Hours	**14**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSA-336	Linux-Unix Security Administration - OCT II	2	SSA-318
	SSA-337	MS Windows Server Security Administration - OCT II	2	SSA-328
	SSA-338	Database Server Security - OCT II	2	SSA-329
	SSA-339	MS Sharepoint Security Administration - OCT II	1	SSA-233
	SSA-342	Exchange Server Security - OCT II	2	SSA-236
	SSA-343	Mobile Programming and Security - OCT II	1	ICT-132 & ICT-120
		Total Credit Hours	**10**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	SSA-410	Advanced Cryptography	3	NCS-222
	SSD-411	Advanced Web Security	3	SSD-220
	SSA-412	Identity Management	3	SSA-222
	SSA-413	Risk Analysis and Management	3	SSA-326
	SSA-414	**Graduation Project I**	**3**	Dept. Approval
	SSA-xxx	**Tech. Elective Course-I**	**2**	Dept. Approval
		Total Credit Hours	**17**	
Semester 2	SSA-420	Incident Handling and Response	3	SSA-413
	SSA-421	Information Assurance & Security Manag.	3	SSA-413
	SSA-422	Ethics, Law and Policy in Cyber Space	3	SSA-413
	SSA-423	Graduation Project II	3	SSA-414
	SSA-xxx	Tech. Elective Course-II	3	Department Approval
		Total Credit Hours	**15**	
Summer	SSA-430	On Job Training (Internship)	6	Department Approval
		Total Credit Hours	**6**	

26.11 Information Security Engineering Technology Division Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Jamal Al-Karaki	Senior Faculty, Department Head	Ph.D.	Iowa State University
Natheer Khasawneh	Faculty	Ph.D.	University of Akron
Ali Abu Romman	Lecturer	Masters	Princess Sumaya of Technology
Asad Raza	Lecturer	Masters	KTH Royal Institute of Technology
Asif Siddique	Lecturer	Masters	Loyola University Chicago
Charles Shibu Gabriel	Lecturer	Masters	James Cook University
Mohamed Mousa	Lecturer	Ph.D.	Liverpool John Moores University
Muhammad Atif Chowhan	Lecturer	Masters	Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi
Muhammad Faheem Qureshi	Lecturer	Masters	University of Liverpool
Shady Mohammed Morsi	Lecturer	Masters	Coventry University
Enrico Angeles	Lecturer	Masters	AMA Computer College
Munavwar Mubarak Shaikh	Lecturer	Masters	Indian School of Business Management-India
Deepa Pavithran	Lab Technologist	Masters	Amrita school of Engineering
Dua'a Omar Abu Hamdi	Lab Technologist	Masters	Zayed University

27. Higher Diploma and Applied Bachelor in Petroleum Engineering Technology Degree Requirements

27.1 Introduction

As it stands today, Petroleum Engineering Technology (PET) at Abu Dhabi Polytechnic represent a host of high-caliber faculty, state-of-the art classrooms and laboratories, national and world-recognized educational programs, hard-working and caring staff, and a bright and talented Emirati student population.

The UAE is currently the sixth-largest petroleum producer in the world. In 2013, hydrocarbon export revenues were $123 billion, up from approximately $75 billion in 2010, Because of the importance of the petroleum industry, AD Poly Petroleum Engineering program is strategically important to UAE in terms of educating practical and hands-on Emirati applied engineers who can work in the field, and also develop the latest technologies for discovery, exploration, drilling, production and processing of the oil and gas. The program was developed based on ADNOC competency assurance management system (CAMS) and most of the male students are sponsored by ADNOC and its group of companies. After graduation, all sponsored students will be employed by sponsoring companies. ADNOC and its group of companies share our goals to graduate competent technologists and engineers to meet their manpower needs.

AD Poly Petroleum engineering program integrates theoretical knowledge with labs and on-campus practice and implements On-Job-Training (Internship) to strengthen students' practical skills. PET students spend two months in the industry during their internship program which is an excellent opportunity for them to get exposed to real life workplace. The program guarantees the graduates a prestigious job towards gaining an accredited (by the Ministry of Higher Education and Scientific Research of the UAE) Applied Bachelor in Petroleum Engineering Technology or Oil and Gas Process Engineering Technology with Higher Diploma as a possible higher exit. In addition to Bachelor degree, students graduate from this program with, at least, two international certificates in different disciplines such as: Health and Safety at Work (HSW); and Petroleum Drilling. Our curricula reflect adherence to established national and international accreditation standards (such as ABET).

The number of students since 2012 (when the department admitted the first group of students in Petroleum Engineering) has increased exponentially. First reason for this increase is the UAE's large resources of oil and gas, and the second reason is that PET at AD Poly has the talent and technology to fit petroleum industry manpower needs. We prepare our applied engineers to hit the ground running and break into the field right after their graduation.

The program has found widespread support from AD Poly and industry. Also, the Student Chapter of the Society of Petroleum Engineers (SPE) is actively involved in carrying out different program-related activities such as field trips, seminars, and inviting industry professionals to present short courses and workshops and to talk about future career in this profession.

Talented Emirati students are highly encouraged to consider the Petroleum Engineering program at AD Poly as a place of choice for their studies. It is very exciting to be part of an educational university within this expanding oil and gas business environment where all students will be served with the best quality of education and study environment.

27.2 Degrees

Petroleum Engineering Technology programs offers different programs that award the following degrees:

Applied Bachelors:

- Petroleum Engineering Technology with minor in Oil & Gas Processing Engineering
- Petroleum Engineering Technology
- Oil & Gas Process Engineering Technology

Higher Diploma:

- Petroleum Engineering Technology
- Oil & Gas Processing Engineering Technology

Diploma:

Oil & Gas Process Technology

27.3 Program Accreditation and Delivery

This program is nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education

Applied Bachelors in Petroleum Engineering Technology with Minor in Oil & Gas Process Engineering

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Applied Bachelors in Petroleum Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Petroleum Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Applied Bachelors in Oil & Gas Process Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Higher Diploma in Oil & Gas Process Engineering Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	3 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

Diploma in Oil & Gas Process Technology:

Program Delivery	Duration	Language	Semester	Study location
Full Time	2 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

27.4 Program Mission

The mission of Petroleum Engineering Technology program is to produce capable and competent technologists and engineers to satisfy industrial needs and be ready to pursue further education.

27.5 Program Objectives (POs/PEOs)

The Petroleum Engineering Technology Program Educational Objectives are derived from AD Polytechnic vision and educational goals but are focused on the Petroleum Engineering Technology.

The PEOs of Applied Bachelor in Petroleum Engineering describe the career and professional activities that the program prepares graduates to:

- Attain a broad knowledge in petroleum engineering applications to contribute as competent engineering professionals in industry, government or academia
- Pursue continued education, development and ethical responsibility through participation in professional organization, leadership roles, training and possible post graduate education
- Understand the impact of petroleum in a global and societal context.

27.6 Program Learning Outcomes (PLOs/SLOs)

The Petroleum Engineering Technology Program Educational Objectives are derived from AD Polytechnic vision and educational goals but are focused on the Petroleum Engineering. The petroleum engineering technology program Student Learning Outcomes (SLOs) are derived from the a-k program outcomes taken from the “Criteria for Accrediting Engineering Technology Programs,” Accreditation Board for Engineering and Technology (ABET), 2012-2013 & 2017-2018 Accreditation Cycles. The AD Poly Petroleum Engineering Technology Division plans to pursue ABET accreditation during the 2017/2018 academic year and uses their lettering convention here for uniformity. The PET program SLOs are as follows

- an ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities
- an ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies
- an ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes
- an ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives
- an ability to function effectively as a member or leader on a technical team
- an ability to identify, analyze, and solve broadly-defined engineering technology problems

- an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- an understanding of the need for and an ability to engage in self-directed continuing professional development;
- an understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
- a knowledge of the impact of engineering technology solutions in a societal and global context; and
- a commitment to quality, timeliness, and continuous improvement.

27.7 Program Entry Requirements

Abu Dhabi Polytechnic entry requirements fully apply to Petroleum Engineering Technology program.

27.8 Curriculum Applied Bachelors in Petroleum Engineering Technology with Minor in Oil & Gas Process Engineering:

Degree Requirements	Total Credit Hours: 175 Credit Hours
ADPoly General Requirements	48
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	80
Program Minor Requirements	18
Program Electives	11
General Electives	6

ADPoly General Requirements				48 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
*MATH100	Pre-calculus			4
MATH111	Calculus I	MATH100		3
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
MATH112	Calculus II	MATH111		3
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1

ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111, MATH111, CHEM112		3
MATH213	Differential Equations	MATH112		3
ENG224	Statics & Strength of Materials	PHYS111, MATH112		3
ENG227	Fluid Flow & Heat Transfer	MATH111, ENG126		3
MATH211	Linear Algebra			3
MATH212	Probability & Statistics	MATH111		3

**Pre-Calculus (MATH-100) is not included in total credit hours calculation required for graduation*

Humanities and Social Science Requirements			**12 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3
HUM402	Creativity. Innovation. & Entrepreneurship		3

Program Major Requirements (compulsory)				**80 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
PET120	Petroleum Geology	PET110		3
PET120P	Petroleum Geology Lab		PET120	1
PET209	Reservoir Rock Properties	PET120		2
PET209P	Reservoir Rock Properties Lab		PET209	1
PET216	Reservoir Fluid Properties	PET110, ENG126		2
PET216P	Reservoir Fluid Properties Lab		PET216	1
PET217	Reservoir Engineering I	PET209,	PET216	3
PET225	Drilling Technology I	PET209		3
PET225P	Drilling Technology I Lab		PET225	1
PET271	Pumps & Valves	ENG227		1
PET272	Heat Exchangers & Steam Traps	ENG227		1
PET273	Air Compressors	ENG227		1
PET274	Experimental Fluid Mechanics	ENG227		1
PET275	Oil & Gas Testing	CHEM112		1
PET276	DC Machines	PHYS112		1
PET277	AC Machines	PHYS112		1
PET278	Instrumentation & Control	PHYS112		1

PET279	Process Fundamentals Simulation	ENG227		1
PET330	Health & Safety at Work	ENG114		2
PET335	Drilling Technology II	PET225		2
PET314	Well Logging	PET225, PET209		4
PET314P	Well Logging Lab		PET314	1
PET321	Subsurface Production Engineering	PET217		4
PET345	Well Completion & Workover	PET225		3
PET317	Reservoir Engineering II	PET217		3
PET394	Graduation Project	Completion of 90 credits		2
PET371	Rig Safety	PET335		1
PET372	Drilling	PET335		1
PET373	Well Control	PET335		1
PET374	Stuck Pipe Prevention	PET335		1
PET375	Cementing	PET335		1
PET376	Well Head/Christmas Tree	PET335		1
PET377	Workover	PET335		1
PET378	Formation Evaluation	PET321		1
PET379	Matrix Acidization	PET321		1
PET411	Petroleum Economics			2
PET417	Reservoir Simulation	PET317		4
PET430	Well Testing	PET217, MATH213		3
PET440	Production System Design & Analysis	PET321		3
PET425	Water Treatment & Injection			2
PET425P	Water Treatment & Injection Lab		PET425	1
PET494	Graduation Project			3
PET495	Internship			3

Program Minor Requirements				**18 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
OGP225	Chemical Reactors & Mixing	CHEM112		3
OGP225P	Chemical Reactors & Mixing Lab		OGP225	1
OGP215	Equilibrium Thermodynamics	ENG126		2
OGP220	Mass Transfer	ENG227		3
OGP464	Process Dynamics & Controls	MATH213		3
OGP345	Petroleum Refining & Processing	OGP220		2
OGP345P	Petroleum Refining & Processing Lab		OGP345	1
OGP316	Gas Processing & Treatment	OGP220		3

Program Electives				11 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET401	Numerical Methods	MATH213		3
PET421	Enhanced Oil Recovery	PET321		3
PET431	Applied Environment	ENG114		2
PET451	Special Topics in Petroleum Engineering			3
OGP222	Elementary Principles of Process Engineering	CHEM112		2
OGP340	Petroleum Storage & Loading	PET321	OGP316	2
OGP371	Process Equipment Drawing	ENG113		1
OGP415	Chemical Reactor Design (Lecture + Lab)	OGP225		4
OGP417	Process Modeling & Simulation (Lecture + Lab)	MATH213		3
OGP430	Petrochemicals	OGP225		3
OGP465	Plant and Equipment Design (Lecture + Lab)	OGP345		4

General Electives			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM110	Life Long Learning Skills		3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM211	Arabic Communication Skills		3
HUM212	Applied Research & Development Skills		3

27.9 Study Plan Applied Bachelors in Petroleum Engineering Technology with Minor in Oil & Gas Process Engineering:

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	MATH100	Pre-calculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Problem Solving	3		
	ENGL111	English Comm. Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**14**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	MATH112	Calculus II	3	MATH111	
	PET120	Petroleum Geology	3	PET110	
	PET120P	Petroleum Geology Lab	1		PET120
	ENG113	Eng. Drawing	2		
	ENG126	Thermodynamics	3	PHYS111, CHEM112, MATH111	
		Total Credit Hours	**12**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG120P	Mechanical Workshop	1		
	MATH213	Differential Equations	3	MATH112	
	ENG114	Indust. Safety & Pro Ethics	2		
	PET209	Reservoir Rock Properties	2	PET120	
	PET209P	Reservoir Rock Properties Lab	1		PET209
	ENGL113	English for Oil & Gas	3	ENGL112	
	ENG224	Statics & Strength of Materials	3	PHYS112, MATH111	
	ENG227	Fluid Flow & Heat Transfer	3	ENG126, MATH111	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH211	Linear Algebra	3		
	PET225	Drilling Technology 1	3	PET209	
	PET225P	Drilling Technology 1 Lab	1		PET225
	PET216	Reservoir Fluid Properties	2	ENG126, PET110	
	PET216P	Reservoir Fluid Properties Lab	1		PET216
	PET217	Reservoir Eng. I	3	PET209,	PET216
	HUMXXX	Humanities Elective	3		
	OGPXXX	Technical Elective	2		
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET271	Pumps & Valves	1	ENG227	
	PET272	Heat Exchangers & Steam Traps	1	ENG227	
	PET273	Air Compressors	1	ENG227	
	PET274	Experimental Fluid Mechanics	1	ENG227	
	PET275	Oil & Gas Testing	1	CHEM112	
	PET276	DC Machines	1	PHYS112	
	PET277	AC Machines	1	PHYS112	
	PET278	Instrumentation & Control	1	PHYS112	
	PET279	Process Fundamentals Simulation	1	ENG227	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**12**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PET330	Health & Safety at Work	2	ENG114	
	OGP225	Chemical Reactors & Mixing	3	CHEM112	
	OGP225P	Chemical Reactors & Mixing Lab	1		OGP225
	PET335	Drilling Technology II	2	PET225	
	PET314	Well Logging	4	PET225, PET209	
	PET314P	Well Logging Lab	1		PET314
	PET321	Subsurface Production Engineering	4	PET217	
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	MATH212	Probability & Statistics	3	MATH111	
	PET345	Well Completion & Workover	3	PET225	
	OGP215	Equilibrium Thermodynamics	2	ENG126	
	PET317	Reservoir Engineering II	3	PET217	
	PET394	Graduation Project I	2	Completion of 90 credits	
	PETXXX	Technical Elective	3		
	OGP220	Mass Transfer	3	ENG227	
		Total Credit Hours	**19**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET371	Rig Safety	1	PET335	
	PET372	Drilling	1	PET335	
	PET373	Well Control	1	PET335	
	PET374	Stuck Pipe Prevention	1	PET335	
	PET375	Cementing	1	PET335	
	PET376	Well Head/Christmas Tree	1	PET335	
	PET377	Workover	1	PET335	
	PET378	Formation Evaluation	1	PET321	
	PET379	Matrix Acidization	1	PET321	
	PET495	Internship	3		
		Total Credit Hours	**12**		

4th Year (Senior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	OGP464	Process Dynamics & Controls	3	MATH213	
	PET411	Petroleum Economics	2		
	PET417	Reservoir Simulation	4	PET317	
	PET430	Well Testing	3	PET217, MATH213	
	PET440	Production System Design & Analysis	3	PET321	
	PETXXX	Technical Elective	3		
Total Credit Hours			**18**		
Semester 2	PET494	Graduation Project II	3		
	HUM402	Creativity, Innovation, & Entrepreneurship	3		
	OGPXXX	Technical Elective	3		
	PET425	Water Treatment & Injection	2		
	PET425P	Water Treatment & Injection Lab	1		PET425P
	OGP345	Petroleum Refining & Processing	2	OGP220	
	OGP345 P	Petroleum Refining & Processing Lab	1		OGP345
	OGP316	Gas Processing & Treatment	3	OGP220	
		Total Credit Hours	**18**		

27.10 Curriculum Applied Bachelors in Petroleum Engineering Technology:

Degree Requirements	Total Credit Hours: 152 Credit Hours
ADPoly General Requirements	48
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	80
Program Minor Requirements	N/A
Program Electives	6
General Electives	6

ADPoly General Requirements				48 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
*MATH100	Pre-calculus			4
MATH111	Calculus I	MATH100		3
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
MATH112	Calculus II	MATH111		3
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1
ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111,		3
MATH213	Differential Equations	MATH112		3
ENG224	Statics & Strength of Materials	PHYS111,		3
ENG227	Fluid Flow & Heat Transfer	MATH111,		3
MATH211	Linear Algebra			3
MATH212	Probability & Statistics	MATH111		3

**Pre-Calculus (MATH-100) is not included in total credit hours calculation required for graduation*

Humanities and Social Science Requirements		12 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3
HUM402	Creativity. Innovation. & Entrepreneurship		3

Program Major Requirements (compulsory)			80 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
PET120	Petroleum Geology	PET110		3
PET120P	Petroleum Geology Lab		PET120	1
PET209	Reservoir Rock Properties	PET120		2
PET209P	Reservoir Rock Properties Lab		PET209	1
PET216	Reservoir Fluid Properties	PET110, ENG126		2
PET216P	Reservoir Fluid Properties Lab		PET216	1
PET217	Reservoir Engineering I	PET209,	PET216	3
PET225	Drilling Technology I	PET209		3
PET225P	Drilling Technology I Lab		PET225	1
PET271	Pumps & Valves	ENG227		1
PET272	Heat Exchangers & Steam Traps	ENG227		1
PET273	Air Compressors	ENG227		1
PET274	Experimental Fluid Mechanics	ENG227		1
PET275	Oil & Gas Testing	CHEM112		1
PET276	DC Machines	PHYS112		1
PET277	AC Machines	PHYS112		1
PET278	Instrumentation & Control	PHYS112		1
PET279	Process Fundamentals Simulation	ENG227		1
PET330	Health & Safety at Work	ENG114		2
PET335	Drilling Technology II	PET225		2
PET314	Well Logging	PET225, PET209		4
PET314P	Well Logging Lab		PET314	1
PET321	Subsurface Production Engineering	PET217		4
PET345	Well Completion & Workover	PET225		3
PET317	Reservoir Engineering II	PET217		3

PET394	Graduation Project	Completion of 90 credits		2
PET371	Rig Safety	PET335		1
PET372	Drilling	PET335		1
PET373	Well Control	PET335		1
PET374	Stuck Pipe Prevention	PET335		1
PET375	Cementing	PET335		1
PET376	Well Head/Christmas Tree	PET335		1
PET377	Workover	PET335		1
PET378	Formation Evaluation	PET321		1
PET379	Matrix Acidization	PET321		1
PET411	Petroleum Economics			2
PET417	Reservoir Simulation	PET317		4
PET430	Well Testing	PET217, MATH213		3
PET440	Production System Design & Analysis	PET321		3
PET425	Water Treatment & Injection			2
PET425P	Water Treatment & Injection Lab		PET425	1
PET494	Graduation Project			3
PET495	Internship			3

Program Electives				**11 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PET401	Numerical Methods	MATH213		3
PET421	Enhanced Oil Recovery	PET321		3
PET431	Applied Environment	ENG114		2
PET451	Special Topics in Petroleum			3

General Electives			**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM110	Life Long Learning Skills		3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM211	Arabic Communication Skills		3
HUM212	Applied Research & Development Skills		3

27.11 Study Plan Applied Bachelors in Petroleum Engineering Technology:

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH100	Precalculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Probl. Solving	3		
	ENGL111	English Comm. Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**14**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	E MATH112	Calculus II	3	MATH111	
	PET120	Petroleum Geology	3	PET110	
	PET120P	Petroleum Geology Lab	1		PET120
	ENG113	Eng. Drawing	2		
	ENG126	Thermodynamics	3	PHYS111, CHEM112, MATH111	
		Total Credit Hours	**12**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG120P	Mechanical Workshop	1		
	MATH213	Differential Equations	3	MATH112	
	ENG114	Indust. Safety & Pro Ethics	2		
	PET209	Reservoir Rock Properties	2	PET120	
	PET209P	Reservoir Rock Properties Lab	1		PET209
	ENGL113	English for Oil & Gas	3	ENGL112	
	ENG224	Statics & Strength of Materials	3	PHYS112, MATH111	
	ENG227	Fluid Flow & Heat Transfer	3	ENG126, MATH111	
		Total Credit Hours	**18**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	MATH211	Linear Algebra	3		
	PET225	Drilling Technology 1	3	PET209	
	PET225P	Drilling Technology 1 Lab	1		PET225P
	PET216	Reservoir Fluid Properties	2	ENG126, PET110	
	PET216P	Reservoir Fluid Properties Lab	1		PET216
	PET217	Reservoir Eng. I	3	PET209	PET216
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**16**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET271	Pumps & Valves	1	ENG227	
	PET272	Heat Exchangers & Steam Traps	1	ENG227	
	PET273	Air Compressors	1	ENG227	
	PET274	Experimental Fluid Mechanics	1	ENG227	
	PET275	Oil & Gas Testing	1	CHEM112	
	PET276	DC Machines	1	PHYS112	
	PET277	AC Machines	1	PHYS112	
	PET278	Instrumentation & Control	1	PHYS112	
	PET279	Process Fundamentals Simulation	1	ENG227	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**12**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PET330	Health & Safety at Work	2	ENG114	
	PET335	Drilling Technology II	2	PET225	
	PET314	Well Logging	4	PET225, PET209	
	PET314P	Well Logging Lab	1		PET314
	PET317	Reservoir Engineering II	3	PET217	
	PET321	Subsurface Production Engineering	4	PET217	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH212	Probability & Statistics	3	MATH112	
	PET345	Well Completion & Workover	3	PET225	
	PET394	Graduation Project I	2	Completion of 90 credits	
	PETXXX	Technical Elective	3		
	PET425	Water Treatment & Injection	2		
	PET425P	Water Treatment & Injection Lab	1		
	HUM402	Creativity, Innovation, & Entrepreneurship	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET371	Rig Safety	1	PET335	
	PET372	Drilling	1	PET335	
	PET373	Well Control	1	PET335	
	PET374	Stuck Pipe Prevention	1	PET335	
	PET375	Cementing	1	PET335	
	PET376	Well Head/Christmas Tree	1	PET335	
	PET377	Workover	1	PET335	
	PET378	Formation Evaluation	1	PET321	
	PET379	Matrix Acidization	1	PET321	
	PET495	Internship	3		
		Total Credit Hours	**12**		

4th Year (Senior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	PETXXX	Technical Elective	3		
	PET494	Graduation Project II	3		
	PET411	Petroleum Economics	2		
	PET417	Reservoir Simulation	4	PET317	
	PET430	Well Testing	3	PET217, MATH213	
	PET440	Production System Design & Analysis	3	PET321	
Total Credit Hours			**18**		

27.12 Curriculum Higher Diploma in Petroleum Engineering Technology

Degree Requirements	Total Credit Hours: 125 Credit Hours
ADPoly General Requirements	48
Humanities and Social Science Requirements	9
Program Major Requirements (compulsory)	59
Program Minor Requirements	N/A
Program Electives	3
General Electives	6

ADPoly General Requirements		48 Credit Hours		
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
*MATH100	Precalculus			4
MATH111	Calculus I	MATH100		3
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
MATH112	Calculus II	MATH111		3
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1
ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111, MATH111, CHEM112		3
MATH213	Differential Equations	MATH112		3
ENG224	Statics & Strength of Materials	PHYS111, MATH112		3
ENG227	Fluid Flow & Heat Transfer	MATH111, ENG126		3
MATH211	Linear Algebra			3
MATH212	Probability & Statistics	MATH111		3

**Not included in credit hours calculation*

Humanities and Social Science Requirements			9 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3

Program Major Requirements (compulsory)				59 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
PET120	Petroleum Geology	PET110		3
PET120P	Petroleum Geology Lab		PET120	1
PET209	Reservoir Rock Properties	PET120		2
PET209P	Reservoir Rock Properties Lab		PET209	1
PET216	Reservoir Fluid Properties	PET110, ENG126		2
PET216P	Reservoir Fluid Properties Lab		PET216	1
PET217	Reservoir Engineering I	PET209,	PET216	3
PET225	Drilling Technology I	PET209		3
PET225P	Drilling Technology I Lab		PET225	1
PET271	Pumps & Valves	ENG227		1
PET272	Heat Exchangers & Steam Traps	ENG227		1
PET273	Air Compressors	ENG227		1
PET274	Experimental Fluid Mechanics	ENG227		1
PET275	Oil & Gas Testing	ENG227		1
PET276	DC Machines	PHYS112		1
PET277	AC Machines	PHYS112		1
PET278	Instrumentation & Control	PHYS112		1
PET279	Process Fundamentals Simulation	ENG227		1
PET330	Health & Safety at Work	ENG114		2
PET335	Drilling Technology II	PET225		2
PET314	Well Logging	PET225, PET209		4
PET314P	Well Logging Lab		PET314	1
PET321	Subsurface Production Engineering	PET217		4
PET345	Well Completion & Workover	PET225		3
PET394	Graduation Project			2
PET371	Rig Safety	PET335		1
PET372	Drilling	PET335		1

PET373	Well Control	PET335		1
PET374	Stuck Pipe Prevention	PET335		1
PET375	Cementing	PET335		1
PET376	Well Head/Christmas Tree	PET335		1
PET377	Workover	PET335		1
PET378	Formation Evaluation	PET321		1
PET379	Matrix Acidization	PET321		1
PET430	Well Testing	PET217, MATH213		3

Program Electives				**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET401	Numerical Methods	MATH213		3
PET421	Enhanced Oil Recovery	PET321		3
PET431	Applied Environment	ENG114		2
PET451	Special Topics in Petroleum Engineering			3

General Electives			**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM110	Life Long Learning Skills		3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM211	Arabic Communication Skills		3
HUM212	Applied Research & Development Skills		3

27.13 Study Plan Higher Diploma in Petroleum Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH100	Precalculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Probl. Solving	3		
	ENGL111	English Comm. Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**14**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	E MATH112	Calculus II	3	MATH111	
	PET120	Petroleum Geology	3	PET110	
	PET120P	Petroleum Geology Lab	1		PET120
	ENG113	Eng. Drawing	2		
	ENG126	Thermodynamics	3	PHYS111, CHEM112, MATH111	
		Total Credit Hours	**12**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	ENG120P	Mechanical Workshop	1		
	MATH213	Differential Equations	3	MATH112	
	ENG114	Indust. Safety & Pro Ethics	2		
	PET209	Reservoir Rock Properties	2	PET120	
	PET209P	Reservoir Rock Properties Lab	1		PET209
	ENGL113	English for Oil & Gas	3	ENGL112	
	ENG224	Statics & Strength of Materials	3	PHYS112, MATH111	
	ENG227	Fluid Flow & Heat Transfer	3	ENG126, MATH111	
		Total Credit Hours	**18**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH211	Linear Algebra	3		
	PET225	Drilling Technology 1	3	PET120	
	PET225P	Drilling Technology 1 Lab	1		PET225P
	PET216	Reservoir Fluid Properties	2	ENG126, PET110	
	PET216P	Reservoir Fluid Properties Lab	1		PET216
	PET217	Reservoir Eng. I	3	PET209	PET216
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**16**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	PET271	Pumps & Valves	1	ENG227	
	PET272	Heat Exchangers & Steam Traps	1	ENG227	
	PET273	Air Compressors	1	ENG227	
	PET274	Experimental Fluid Mechanics	1	ENG227	
	PET275	Oil & Gas Testing	1	CHEM112	
	PET276	DC Machines	1	PHYS112	
	PET277	AC Machines	1	PHYS112	
	PET278	Instrumentation & Control	1	PHYS112	
	PET279	Process Fundamentals Simulation	1	ENG227	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**12**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	PET330	Health & Safety at Work	2	ENG114	
	PET335	Drilling Technology II	2	PET225	
	PET314	Well Logging	4	PET225, PET209	
	PET314P	Well Logging Lab	1		PET314
	PET321	Subsurface Production Engineering	4	PET217	
		Total Credit Hours	**13**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH212	Probability & Statistics	3	MATH112	
	PET345	Well Completion & Workover	3	PET225	
	PET394	Graduation Project	2		
	PETXXX	Technical Elective	3		
	PET430	Well Testing	3	PET217, MATH213	
		Total Credit Hours	**14**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	PET371	Rig Safety	1	PET335	
	PET372	Drilling	1	PET335	
	PET373	Well Control	1	PET335	
	PET374	Stuck Pipe Prevention	1	PET335	
	PET375	Cementing	1	PET335	
	PET376	Well Head/Christmas Tree	1	PET335	
	PET377	Workover	1	PET335	
	PET378	Formation Evaluation	1	PET321	
	PET379	Matrix Acidization	1	PET321	
		Total Credit Hours	**9**		

27.14 Curriculum Applied Bachelors Oil & Gas Process Engineering Technology:

Degree Requirements	Total Credit Hours: 152 Credit Hours
ADPoly General Requirements	45
Humanities and Social Science Requirements	12
Program Major Requirements (compulsory)	80
Program Minor Requirements	N/A
Program Electives	9
General Electives	6

ADPoly General Requirements				45 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
*MATH100	Precalculus			4
MATH111	Calculus I	MATH100		3
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
MATH112	Calculus II	MATH111		3
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1
ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111, MATH111, CHEM112		3
MATH213	Differential Equations	MATH112		3
ENG224	Statics & Strength of Materials	PHYS111, MATH112		3
MATH211	Linear Algebra			3
MATH212	Probability & Statistics	MATH111		3

**Not included in credit hours calculation*

Humanities and Social Science Requirements			12 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3
HUM402	Creativity. Innovation. & Entrepreneurship		3

Program Major Requirements (compulsory)				80 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
OGP120	Organic Chemistry (Lecture + Lab)	CHEM112		3
OGP215	Equilibrium Thermodynamics	ENG126		2
OGP218	Fluid Mechanics	PHYS111		3
OGP223	Physical Chemistry (Lecture + Lab)	CHEM112		3
OGP222	Elementary Principle in Process Engineering	CHEM112		2
OGP228	Heat Transfer	OGP218, ENG126		3
OGP220	Mass Transfer	OGP218		3
PET271	Pumps & Valves	OGP228		1
PET272	Heat Exchangers & Steam Traps	OGP228		1
PET273	Air Compressors	OGP228		1
PET274	Experimental Fluid Mechanics	OGP228		1
PET275	Oil & Gas Testing	OGP228		1
PET276	DC Machines	PHYS112		1
PET277	AC Machines	PHYS112		1
PET278	Instrumentation & Control	PHYS112		1
PET279	Process Fundamentals Simulation	OGP228		1
PET330	Health & Safety at Work	ENG114		2
PET401	Numerical Methods	MATH213		3
OGP314	Analytical Chemistry	CHEM112		3
OGP313	Surface Production Operations	PET110		2
OGP316	Gas Processing & Treatment	OGP220		3
OGP225	Chemical Reactors & Mixing	CHEM112		3
OGP225P	Chemical Reactors & Mixing Lab		OGP225	1
PET425	Water Treatment & Injection			2
PET425P	Water Treatment & Injection Lab		PET425	1
OGP345	Petroleum Refining & Processing	OGP220		2

OGP345P	Petroleum Refining & Processing Lab		OGP345	1
OGP394	Graduation Project I			2
OGP371	Process Engineering Drawing	ENG113		1
OGP372	Oil Handling System & Facilities	PET110		1
OGP373	Gas Handling System & Facilities	OGP316		1
OGP374	Separation Process	OGP220		1
OGP375	Oil & Gas Distillation	OGP220		1
OGP376	Reactors Engineering	OGP225		1
OGP377	Pipeline Pigging & Inspection	OGP313		1
OGP378	Tank Farm Operations	OGP313		1
OGP379	Control Room Operations	OGP313		1
OGP464	Process Dynamics & Controls	MATH213		3
OGP465	Plant & Equipment Design	OGP345		4
PET411	Petroleum Economics			2
PET494	Graduation Project			3
PET495	Internship			3

Program Electives				**9 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET421	Enhanced Oil Recovery	PET321		3
PET431	Applied Environment	ENG114		2
PET451	Special Topics in Petroleum Engineering			3
OGP340	Petroleum Storage & Loading	OGP316		2
OGP371	Process Equipment Drawing	ENG113		1
OGP415	Chemical Reactor Design (Lecture + Lab)	OGP225		4
OGP417	Process Modeling & Simulation (Lecture + Lab)	MATH213		3
OGP430	Petrochemicals	OGP225		3

General Electives			**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM110	Life Long Learning Skills		3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM211	Arabic Communication Skills		3
HUM212	Applied Research & Development Skills		3

27.15 Study Plan Applied Bachelors Oil & Gas Process Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH100	Pre-Calculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Probl. Solving	3		
	ENGL111	English Comm.Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**14**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH112	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH112	Calculus II	3		
	OGP120	Organic Chemistry (Lec. + Lab)	3	CHEM112	
	ENG113	Eng. Drawing	2		
	ENG126	Thermodynamics	3	PHYS111, CHEM112, MATH111	
		Total Credit Hours	**11**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH213	Differential Equations	3	MATH112	
	ENG120P	Mech. Workshop	1		
	OGP218	Fluid Mechanics	3	PHYS111	
	ENGL113	English for Oil & Gas	3	ENGL112	
	ENG224	Statics & Strength of Materials	3	PHYS112, MATH111	
	OGP215	Equilibrium Thermodynamics	2	ENG126	
	ENG114	Industrial Safety & Pro Ethics	2		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH211	Linear Algebra	3		
	OGP223	Physical Chemistry (Lecture + Lab)	3	CHEM112	
	OGP222	Elementary Principle of Proc. Eng	2	CHEM112	CHEM112
	OGP228	Heat Transfer	3	OGP218, ENG126	
	OGP220	Mass Transfer	3	OGP218	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	PET271	Pumps & Valves	1	OGP228	
	PET272	Heat Exchangers & Steam Traps	1	OGP228	
	PET273	Air Compressors	1	OGP228	
	PET274	Experimental Fluid Mechanics	1	OGP228	
	PET275	Oil & Gas Testing	1	CHEM112	
	PET276	DC Machines	1	PHYS112	
	PET277	AC Machines	1	PHYS112	
	PET278	Instrumentation & Control	1	PHYS112	
	PET279	Process Fundamentals Simulation	1	OGP228	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**12**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	PET330	Health & Safety at Work	2	ENG114	
	OGP225	Chemical Reactors & Mixing	3	CHEM112	
	OGP225P	Chemical Reactors & Mixing Lab	1		OGP225
	PET401	Numerical Methods	3	MATH213	
	OGP314	Analytical Chemistry	3	CHEM112	
	OGP313	Surface Production Operations	2	PET110	
	OGP316	Gas Processing & Treatment	3	OGP220	
		Total Credit Hours		**17**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester2	MATH212	Probability & Statistics	3	MATH112	
	PET425	Water Treatment & Injection	2		
	PET425P	Water Treatment & Injection Lab	1		
	OGP345	Petroleum Refining & Processing	2	OGP220	
	OGP345P	Petroleum Refining & Processing Lab	1		OGP345P
	OGP394	Graduation Project I	2		
	PETXXX	Technical Elective	3		
	OGPXXX	Technical Elective	3		
		Total Credit Hours		**17**	
	ourse Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	OGP371	Process Engineering Drawing	1	ENG113	
	OGP372	Oil Handling System & Facilities	1	PET110	
	OGP373	Gas Handling System & Facilities	1	OGP316	
	OGP374	Separation Process	1	OGP220	
	OGP375	Oil & Gas Distillation	1	OGP220	
	OGP376	Reactors Engineering	1	OGP225	
	OGP377	Pipeline Pigging & Inspection	1	OGP313	
	OGP378	Tank Farm Operations	1	OGP313	
	OGP379	Control Room Operations	1	OGP313	
	PET495	Internship	3		
		Total Credit Hours	**12**		

4th Year (Senior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	OGP464	Process Dynamics & Controls	3	MATH213	
	PET411	Petroleum Economics	2		
	HUM402	Creativity, Innovation, & Entrepreneurship	3		
	OGP494	Graduation Project II	3		
	OGP465	Plant & Equipment Design	4	OGP345	
	OGPXXX	Technical Elective	3		
		Total Credit Hours	**18**		

27.16 Curriculum Higher Diploma in Oil & Gas Process Engineering Technology:

Degree Requirements	Total Credit Hours: 123
ADPoly General Requirements	45
Humanities and Social Science Requirements	9
Program Major Requirements (compulsory)	57
Program Minor Requirements	N/A
Program Electives	6
General Electives	6

ADPoly General Requirements			45 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
*MATH100	Precalculus			4
MATH111	Calculus I	MATH100		3
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
MATH112	Calculus II	MATH111		3
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1
ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111, MATH111, CHEM112		3
MATH213	Differential Equations	MATH112		3
ENG224	Statics & Strength of Materials	PHYS111, MATH112		3
MATH211	Linear Algebra			3
MATH212	Probability & Statistics	MATH111		3

Humanities and Social Science Requirements		9 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3

Program Major Requirements (compulsory)		57 Credit Hours		
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
OGP120	Organic Chemistry (Lecture + Lab)	CHEM112		3
OGP215	Equilibrium Thermodynamics	ENG126		2
OGP218	Fluid Mechanics	PHYS111		3
OGP223	Physical Chemistry (Lecture + Lab)	CHEM112		3
OGP222	Elementary Principle in Process Engineering	CHEM112		2
OGP228	Heat Transfer	OGP218, ENG126		3
OGP220	Mass Transfer	OGP218		3
PET271	Pumps & Valves	OGP228		1
PET272	Heat Exchangers & Steam Traps	OGP228		1
PET273	Air Compressors	OGP228		1
PET275	Oil & Gas Testing	OGP228		1
PET330	Health & Safety at Work	ENG114		2
PET401	Numerical Methods	MATH213		3
OGP314	Analytical Chemistry	CHEM112		3
OGP313	Surface Production Operations	PET110		2
OGP316	Gas Processing & Treatment	OGP220		3
OGP225	Chemical Reactors & Mixing	CHEM112		3
OGP225P	Chemical Reactors & Mixing Lab		OGP225	1
OGP345	Petroleum Refining & Processing	OGP220		2
OGP345P	Petroleum Refining & Processing Lab		OGP345	1
OGP394	Graduation Project I			2
OGP371	Process Engineering Drawing	ENG113		1
OGP372	Oil Handling System & Facilities	PET110		1
OGP373	Gas Handling System & Facilities	OGP316		1
OGP374	Separation Process	OGP220		1
OGP375	Oil & Gas Distillation	OGP220		1
OGP376	Reactors Engineering	OGP225		1
OGP377	Pipeline Pigging & Inspection	OGP313		1
OGP378	Tank Farm Operations	OGP313		1
OGP379	Control Room Operations	OGP313		1

Program Electives				9 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET421	Enhanced Oil Recovery	PET321		3
PET431	Applied Environment	ENG114		2
PET451	Special Topics in Petroleum Engineering			3
OGP340	Petroleum Storage & Loading	OGP316		2
OGP371	Process Equipment Drawing	ENG113		1
OGP415	Chemical Reactor Design (Lecture + Lab)	OGP225		4
OGP417	Process Modeling & Simulation (Lecture + Lab)	MATH213		3
OGP430	Petrochemicals	OGP225		3

General Electives			6 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM110	Life Long Learning Skills		3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM211	Arabic Communication Skills		3
HUM212	Applied Research & Development Skills		3

27.17 Study Plan Higher Diploma in Oil & Gas Process Engineering Technology:

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH100	Pre-Calculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Probl. Solving	3		
	ENGL111	English Comm.Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**18**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH112	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH112	Calculus II	3		
	OGP120	Organic Chemistry (Lec. + Lab)	3	CHEM112	
	ENG113	Eng. Drawing	2		
	ENG126	Thermodynamics	3	PHYS111, CHEM112, MATH111	
		Total Credit Hours	**11**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH213	Differential Equations	3	MATH112	
	ENG120P	Mech. Workshop	1		
	OGP218	Fluid Mechanics	3	PHYS111	
	ENGL113	English for Oil & Gas	3	ENGL112	
	ENG224	Statics & Strength of Materials	3	PHYS112, MATH111	
	OGP215	Equilibrium Thermodynamics	2	ENG126	
	ENG114	Industrial Safety & Pro Ethics	2		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH211	Linear Algebra	3		
	OGP223	Physical Chemistry (Lecture + Lab)	3	CHEM112	
	OGP222	Elementary Principles of Proc. Eng	2	CHEM112	CHEM112
	OGP228	Heat Transfer	3	OGP218, ENG126	
	OGP220	Mass Transfer	3	OGP218	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	PET271	Pumps & Valves	1	OGP228	
	PET272	Heat Exchangers & Steam Traps	1	OGP228	
	PET273	Air Compressors	1	OGP228	
	PET275	Oil & Gas Testing	1	OGP228	
	HUMXXX	Humanities Elective	3		
		Total Credit Hours	**7**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	PET330	Health & Safety at Work	2	ENG114	
	OGP225	Chemical Reactors & Mixing	3	CHEM112	
	OGP225P	Chemical Reactors & Mixing Lab	1		OGP225
	PET401	Numerical Methods	3	MATH213	
	OGP314	Analytical Chemistry	3	CHEM112	
	OGP313	Surface Production Operations	3	PET110	
	OGP316	Gas Processing & Treatment	3	OGP220	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester2	MATH212	Probability & Statistics	3	MATH112	
	OGP345	Petroleum Refining & Processing	2	OGP220	
	OGP345P	Petroleum Refining & Processing Lab	1		OGP345P
	PET394	Graduation Project I	2		
	PETXXX	Technical Elective	3		
	OGPXXX	Technical Elective	3		
		Total Credit Hours	**14**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	OGP371	Process Engineering Drawing	1	ENG113	
	OGP372	Oil Handling System & Facilities	1	PET110	
	OGP373	Gas Handling System & Facilities	1	OGP316	
	OGP374	Separation Process	1	OGP220	
	OGP375	Oil & Gas Distillation	1	OGP220	
	OGP376	Reactors Engineering	1	OGP225	
	OGP377	Pipeline Pigging & Inspection	1	OGP313	
	OGP378	Tank Farm Operations	1	OGP313	
	OGP379	Control Room Operations	1	OGP313	
		Total Credit Hours	**9**		

27.18 Curriculum Diploma in Oil & Gas Process Technology:

Degree Requirements	Total Credit Hours: 86 Credit Hours
ADPoly General Requirements	37
Humanities and Social Science Requirements	15
Program Major Requirements (compulsory)	34
Program Minor Requirements	N/A
Program Electives	N/A
General Electives	N/A

ADPoly General Requirements			37 Credit Hours	
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
MATH100	Precalculus			4
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab		CHEM111	1
ICT110	Introduction to Programing & Problem Solving			3
PHYS111	Physics I			3
PHYS111P	Physics I Lab		PHYS111	1
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
PHYS112	Physics II	PHYS111		3
PHYS112P	Physics II Lab		PHYS112	1
ENG114	Ind. Safety & Prof. Ethics			2
ENG120P	Mechanical Workshop			1
ENG113	Eng. Drawing			2
ENG126	Thermodynamics	PHYS111, CHEM112		3
ENG133	Applied Electrical Technology	PHYS112		3
ENG124	Applied Instrumentation & Controls	PHYS112		3

Humanities and Social Science Requirements			15 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL111	English Comm. Skills		3
ENGL112	Technical English Skills	ENGL111	3
ENGL113	English for Oil & Gas	ENGL112	3
HUM111	Islamic Culture		3
HUM112	Emirates Society & Culture		3

Program Major Requirements (compulsory)				34 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET110	Introduction to Petroleum Engineering			3
PET111	Introduction to Gas Production	PET110		3
OGP211	Fundamentals of Pipelines Engineering	PET111		3
OGP218	Fluid Mechanics	PHYS111		3
OGP213	Intro. to Surface Production Operations	PET110	PET111	2
OGP222	Elementary Principle in Process Engineering	CHEM112		2
OGP228	Heat Transfer	OGP218, ENG126		3
PET271	Pumps & Valves	OGP228		1
PET272	Heat Exchangers & Steam Traps	OGP228		1
PET273	Air Compressors	OGP228		1
PET275	Oil & Gas Testing	OGP228		1
PET330	Health & Safety at Work	ENG114		2
OGP216	Intro. to Gas Processing & Treatment	OGP228		3
OGP224	Pipelines Installation & Operation Management	OGP211		3
OGP295	Internship			3

27.19 Study Plan Diploma in Oil & Gas Process Technology:

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH100	Pre-Calculus	4		
	CHEM111	Chemistry I	3		
	CHEM111P	Chemistry I Lab	1		CHEM111
	ICT110	Intro. To Progr. & Probl. Solving	3		
	ENGL111	English Comm.Skills	3		
	PHYS111	Physics I	3		
	PHYS111P	Physics I Lab	1		PHYS111
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	HUM111	Islamic Culture	3		
	CHEM112	Chemistry II	3	CHEM111	
	CHEM112P	Chemistry II Lab	1		CHEM112
	PET110	Intro. to Petroleum Engineering	3		
	ENGL112	Technical English Skills	3	ENGL111	
	PHYS112	Physics II	3	PHYS111	
	PHYS112P	Physics II Lab	1		PHYS112
		Total Credit Hours	**17**		
	Credit Hours	**Prerequisite(s)**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	ENG120P	Mech. Workshop	1		
	ENG114	Industrial Safety & Pro Ethics	2		
	ENG113	Eng. Drawing	2		
	PET111	Introduction to Gas Production	3	PET110	
	ENGL113	English for Oil & Gas	3	ENGL112	
		Total Credit Hours	**11**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	HUM112	Emirates Society & Culture	3		
	OGP211	Fundamentals of Pipeline Engg	3	PET111	
	OGP218	Fluid Mechanics	3	PHYS111	
	OGP213	Intro. to Surface Production Operations	2	PET110	PET111
	ENG113	Applied Electrical Technology	3	PHYS112	
	ENG126	Thermodynamics	3	PHYS112, CHEM112	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	PET330	Health & Safety at Work	2		
	OGP216	Intro. to Gas Processing & Treatment	3	OGP228	
	OGP222	Elementary Principles of Proc. Eng	2	CHEM112	CHEM112
	OGP228	Heat Transfer	3	OGP218, ENG126	
	OGP224	Pipelines Instal & Operation Manag.	3	OGP211	
	ENG124	Applied Instrumentation & Control	3	PHYS112	
	OGP295	Internship	3		
		Total Credit Hours	**19**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	PET271	Pumps & Valves	1	OGP228	
	PET272	Heat Exchangers & Steam Traps	1	OGP228	
	PET273	Air Compressors	1	OGP228	
	PET275	Oil & Gas Testing	1	OGP228	
		Total Credit Hours	**4**		

27.20 Petroleum Engineering Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Abdelaziz Khlaifat	Senior Faculty, Department Head	Ph.D.	Illinois Institute of Technology, USA
Antonio Mateo	Faculty	Ph.D.	Ohio State University, USA
Gbubemi Harrison	Professional Technical Faculty	Ph.D.	Heriot-Watt University, UK
Arun Kumar	Professional Technical Faculty	Ph.D.	University of Texas at Austin, USA
Amar Sahed	Senior Lecturer	Ph.D.	University of Limerick, Ireland
Mohammad Al Alaween	Senior Lecturer	Ph.D.	University of Newcastle upon Tyne, UK
Arman Mukhamedyarov	Lecturer	Master	Heriot-Watt University, UK
Khalid Hussain	Professional Technical Lecturer	Master	University of Stavanger, Norway
Afsar Ali	Teaching Assistant	Master	University of Alberta, Canada
Arwa Alfarajat	Lab Technologist	Master	University of Jordan, Jordan
Muhammad Hussam	Teaching Assistant	Master	Glasgow Caledonian University, UK
Rana Osama Saqer	Teaching Assistant	Master	United Arab Emirates University
Anatoliy Levytskyy	Lab Technologist	Master	University of Winnipeg, Canada

28. Diploma, Higher Diploma and Bachelor of Science Degrees in Meteorology Program Requirements

28.1 Introduction

In order to achieve Meteorology (MET) program objectives, the students must receive the best preparation to enter their future job. MET curriculum gives students a solid knowledge of theory and required skills for working in meteorological fields. As a result, MET graduates will be ready to enter the real-life job with required solid knowledge of theory and practice to be productive contributors, but they also will understand the need to continue to learn and improve their skills throughout their careers.

28.2 Diploma/Higher Diploma/Bachelor of Science

MET at Abu Dhabi Polytechnic offers the specialization of Meteorology for Diploma, Higher Diploma and Bachelor Degrees. A total of 83 are required for Diploma, 120 credit hours are required for the Higher Diploma and 154 credit hours for the Bachelor of Science in Meteorology. These credit hours are fully prescribed under the following academic areas:

28.3 Program Accreditation and Delivery

This program is nationally accredited by the Commission for Academic Accreditation at the UAE's Ministry of Education

Program Delivery	Duration	Language	Semester	Study location
Full Time	4 years	English	Fall, Winter and Summer	Abu Dhabi-MBZ

28.4 Program Mission

The mission of Meteorology Program is to provide quality education and training in atmospheric sciences in order to graduate qualified manpower to perform various duties required for meteorology services and institutes.

28.5 Program Objectives (POs/PEOs)

I) Diploma PEO's

- PEO-1: Provide a broad-based curriculum in Meteorology that generates graduates with skills and competencies at the international standards.
- PEO-2: Provide students with laboratory and on-the-job training and practical experience.
- PEO-3: Provide students with teamwork experience and capable of solving technical problems in their specialized range of activity, while demonstrating effective communication skills and ethical conduct.

II) Higher Diploma PEO's

- PEO-1: Provide a broad-based curriculum in Meteorology that generates graduates with skills and competencies at the international standards.

- PEO-2: Provide students with laboratory and on-the-job training and practical experience.
- PEO-3: Provide students with teamwork experience and capable of solving technical problems in their specialized range of activity, while demonstrating effective communication skills and ethical conduct.
- PEO-4: Provide students with an understanding of professional and ethical responsibility and the ability to engage in life-long learning.

III) Bachelor of Science PEO's

- PEO-1: Provide a broad-based curriculum in Meteorology that generates graduates with skills and competencies at the international standards.
- PEO-2: Provide students with laboratory and on-the-job training and practical experience.
- PEO-3: Provide students with teamwork experience and capable of solving technical problems in their specialized range of activity, while demonstrating effective communication skills and ethical conduct.
- PEO-4: Provide students with an understanding of professional and ethical responsibility and the ability to engage in life-long learning.
- PEO-5: Provide students with the higher education and training in meteorology to perform as meteorologists, researchers and leaders in academic, government and private sectors.

28.6 Program Learning Outcomes (PLOs/SLOs)

Diploma Program Educational Outcomes

- MET SLO1: The graduating student will be able to apply appropriate mastery of knowledge techniques and skills consistent with the duties of a weather technician as defined by WMO standards, and adapt to emerging applications of mathematics, science and modern technical tools related to taking standard weather observations and encoding and decoding weather reports.
- MET SLO2: The graduating student will be able to demonstrate skills for interpreting and applying atmospheric observations, knowledge of the atmosphere and its evolution, facility with computer applications to atmospheric problems and handle weather forecasting products.
- MET SLO3: The graduating student will be able to identify, analyze, and solve technical problems
- MET SLO4: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary team
- MET SLO5: The graduating student will understand professional, ethical, and social responsibilities
- MET SLO6: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of their solutions in a global, economic, environmental, and societal context
- MET SLO7: The graduating student will recognize the need and ability to engage in life-long learning
- MET SLO8: The graduating student will be able to use the techniques, skills, and modern tools necessary for practice and occupational competency
- MET SLO9: The graduating student will be able to deal with the meteorological issues in a holistic system approach, identify the inter-relationships of meteorology branches and implement troubleshooting strategies

Higher Diploma Program Learning Outcomes

- MET SLO1: The graduating student will be able to apply advanced mastery of knowledge techniques and skills required to develop an operational understanding of data from remote sensors, applications in air quality, and weather analysis consistent with assisting in preparation and delivery of operational weather forecasts. The graduating student will be prepared to readily

adapt to emerging applications of mathematics, science, modern technical tools of their disciplines and applications.

- MET SLO2: The graduating student will be able to demonstrate skills for interpreting and applying atmospheric observations, knowledge of the atmosphere and its evolution, facility with computer applications to atmospheric problems, and assist weather forecaster in producing and applying weather analysis and forecasts
- MET SLO3: The graduating student will be able to identify, analyze, and solve technical problems
- MET SLO4: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary team
- MET SLO5: The graduating student will understand professional, ethical, and social responsibilities
- MET SLO6: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of their solutions in a global, economic, environmental, and societal context
- MET SLO7: The graduating student will recognize the need and ability to engage in life-long learning
- MET SLO8: The graduating student will be able to use the techniques, skills, and modern tools necessary for practice and occupational competency
- MET SLO9: The graduating student will be able to deal with the meteorological issues in a holistic system approach, identify the inter-relationships of meteorology branches and implement troubleshooting strategies

Bachelor of Science Program Learning Outcomes

- MET SLO1: The graduating student will be able to apply appropriate mastery of the knowledge techniques, skills, and adapt to emerging applications of mathematics, science, modern technical tools of their disciplines and applications
- MET SLO2: The graduating student will be able to apply physical principles to explain the thermal structure of the atmosphere, describe atmospheric circulation systems, develop a forecast in the short to medium range, and know the design and use of instrumentation, computer software, and data interpretation methods in atmospheric studies.
- MET SLO3: The graduating student will be able to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, and sustainability
- MET SLO4: The graduating student will be able to identify, analyze, and solve technical problems
- MET SLO5: The graduating student will be able to develop effective Core Skills: Effective Communication, Numeracy, Information and Communication Technology, Problem Solving and Working with others in multidisciplinary team
- MET SLO6: The graduating student will understand professional, ethical, and social responsibilities
- MET SLO7: The graduating student will have respect for diversity and knowledge of contemporary professional issues and understand the impact of meteorology in a global, economic, environmental, and societal context
- MET SLO8: The graduating student will recognize the need and ability to engage in lifelong learning
- MET SLO9: The graduating student will be able to use the techniques, skills, and modern technology necessary for practice and occupational competency
- MET SLO10: The graduating student will be able to deal with meteorological issues in a holistic system approach, identify the inter-relationships of subsystems and components and implement troubleshooting strategies
- MET SLO11: The graduating student will be adaptable to new avenues of scientific inquiry which offer interdisciplinary and practical applications to commercial and public needs for atmospheric studies
- MET SLO12: The graduating student will be able to explain ideas and results through written, numerical, graphical, oral and computer-based forms of communication

28.7 Program Entry Requirements

Bachelor of Science:

- Secondary School/Science Branch 80% GPA
- In Mathematics and Physics the overall score is above 80%.

Higher Diploma:

- Secondary School/Science Branch 80% GPA
- In Mathematics and Physics the overall score is above 80%

Diploma:

- Secondary School/ 70% GPA

28.8 Curriculum

B.Sc. Degree Requirements	Total Credit Hours: 154
ADPoly General Requirements	57
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	79
Program Minor Requirements	-
Program Electives	9
General Electives	3

Higher Diploma Degree Requirements	Total Credit Hours: 120 Credit Hours
ADPoly General Requirements	57
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	51
Program Minor Requirements	-
Program Electives	6
General Electives	-

Degree Requirements	Total Credit Hours: 00 Credit Hours
ADPoly General Requirements	46
Humanities and Social Science Requirements	6
Program Major Requirements (compulsory)	31
Program Minor Requirements	-
Program Electives	-
General Electives	-

Program General Requirements				57 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM111	Chemistry I			3
CHEM111P	Chemistry I Lab			1
ENG114	Safety and Ethics			2
ENGL111	English Commun Skills			3
ICT110	Intro to Programming & Problem Solving			3
MATH100	Precalculus			4
MATH111	Calculus I	MATH100		3
ENGL112	Technical English	ENGL111		3
PHYS111	Physics I	MATH100		3
PHYS111P	Physics I Lab		PHYS111	1
CHEM112	Chemistry II	CHEM111		3
CHEM112P	Chemistry II Lab		CHEM112	1
MATH112	Calculus II			3
PHYS112	Physics II		PHYS111	3
PHYS112P	Physics II Lab		PHYS112	1
ENGL117	English for Met	ENGL112		3
MATH214	Calculus III	MATH112		3
MATH212	Probability & Statistics	MATH111		3
MATH211	Linear Algebra	MATH111		3
HUM-402	Creativity, Innovation and Entrepreneurship			3
MATH213	Differential Equations	MATH111		3

Humanities and Social Science Requirements			06 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
HUM-111	Islamic Culture		3
HUM112	Emirates Society & Culture		3
HUM-211	Arabic Communication Skills		3

Program Major Requirements (compulsory)				79 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MET-111	Intro to Meteorology	MATH111		3
MET-221	Met Instrum & Observ Workshop	MET-111		1
MET-222	Atm Thermodynamics	MET-111 MATH112		3
MET-223	Atm Dynamics I	MET-222		3
MET-224	Aviation Met	MET-111		3
MET-225	Physical Met	MET-222		4
MET-226	Intern Met Code Workshop	MET-221		1
MET-227	Climatology	MET-111, MATH212		3
MET-232	Meteorology & Computing Workshop	ICT110		1
MET-228	Synoptic Met I	MET-223		3
MET-229	Intro to Weather Charts Analysis Workshop		MET-228	1
MET-323	Synoptic Met II	MET-228		3
MET-321	Atm Dynamics II	MET-223		3
MET-322	Weather Charts Analysis Workshop		MET-323	1
MET-324	NWP & Numerical Analysis	MET-321		3
MET-325	Satellite Meteorology	PHYS112		3
MET-326	Marine Meteorology	MET-111		3
MET-327	Radar Meteorology	PHYS112		3
MET-421	Air Pollution	MET-111		3
MET-422	Atmospheric Waves	MET-321		3
MET-423	Tropical Met	MET-321		3
MET-425	Planetary BL Met	MET-321		3
MET-426	Climate Data Management Workshop	MET-227		1
MET-427	Global Climate Changes	MET-227		3
MET-424	Graduation Project 1	Student must pass a total of 90 CR		2
MET-428	Graduation Project 2	MET-424		1
OCT Modules				

MET-328	Mod 1: C++	MET-324		1
MET-329	Mod 2: WRF Model	MET-324		1
MET-330	Mod 3: Weather Broadcast	MET-322		2
MET-331	Mod 4: Weather Charts Analysis	MET-322		1
MET-332	Mod 5: Weather Forecasting Techniques	MET-322		1
MET-333	Mod 6: Numerical Comp Using MATLAB	MET-324		1
MET-334	Mod 7: Satellite & Radar Analyses	MET-325, MET-327		1
MET-335	Mod 8: Synop Met pract, Tephigram	MET-323		1
OJT Modules				
MET-429	Met Instruments and Observations			1
MET-430	International Met Code			1
MET-431	Weather Charts Analysis & Forecasting			1
MET-432	NW Analysis			1
MET-433	Satellite & Radar Analyses II			1
MET-434	Weather Forecasting Techniques II			1

Program Electives			**9 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
	Elective A		6
	Elective B		3

General Electives			**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
	Elective		3

28.9 B.Sc. Study Plan

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH100	Precalculus	4		
	CHEM111	Chemistry I	3		
	ENGL111	English Communication Skills	3		
	ENG111	Industrial Safety & Pro Ethics	2		
	ICT110	Intro to Program & Problem Solving	3		
	CHEM111P	Chemistry I Lab	1		
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	PHYS111	Physics I	3	MATH100	
	ENGL112	Technical English	3	ENGL111	
	CHEM112P	Chemistry II Lab	1		
	HUMXXX	Humanities 1	3		
	PHYS111P	Physics I Lab	1		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MATH112	Calculus II	3	MATH111	
	PHYS112	Physics II	3	PHYS111	
	MET-111	Intro to Meteorology	3	MATH111	
	PHYS112P	Physics II Lab	1		
		Total Credit Hours	**10**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	ENGL117	English for Met	3	ENGL112	
	MET-221	Met Instrum & Observ Workshop	1	MET-111	
	MET-222	Atm Thermodynamics	3	MET-111 MATH112	
	MATH214	Calculus III	3	MATH112	
	MATH212	Probability & Statistics	3	MATH111	
	HUMXXX	Humanities 2	3		
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MET-223	Atm Dynamics I	3	MET-222	
	MET-224	Aviation Met	3	MET-111	
	MET-225	Physical Met	4	MET-222	
	MET-226	Intern Met Code Workshop	1	MET-111	
	MET-227	Climatology	3	MET-111 MATH212	
	MET-232	Meteorology & Computing Workshop	1		
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MATH211	Linear Algebra	3	MATH111	
	MET-XXX	Elective A	3		
	MET-228	Synoptic Met I	3	MET-223	
	MET-229	Intro to Weather Charts Analysis Workshop	1		
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH213	Differential Equations	3	MATH111	
	MET-323	Synoptic Met II	3	MET-228	
	MET-321	Atm Dynamics II	3	MET-223	
	MET-322	Weather Charts Analysis Workshop	1		
	MET-XXX	Elective A	3		
	ICT-141	Modeling & Simulation Workshop	2	ICT-110	
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MET-324	NWP & Numerical Analysis	3	MET-321 MATH213	
	MET-325	Satellite Meteorology	3	PHYS112	
	MET-326	Marine Meteorology	3	MET-111	
	MET-327	Radar Meteorology	3	PHYS112	
	HUM-402	Creativity, Innovation and Entrepreneurship	3		
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MET-328	Mod 1: C++	1		
	MET-329	Mod 2: WRF Model	1		
	MET-330	Mod 3: Weather Broadcast	2		
	MET-331	Mod 4: Weather Charts Analysis	1		
	MET-332	Mod 5: Weather Forecasting Techniques	1		
	MET-333	Mod 6: Numerical Comp Using MATLAB	1		
	MET-334	Mod 7: Satellite & Radar Analyses	1		
	MET-335	Mod 8: Synop Met pract, Tephigram	1		
		Total Credit Hours	**9**		

4th Year (Senior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MET-XXX	Elective B	3		
	MET-421	Air Pollution	3	MET-111	
	MET-422	Atmospheric Waves	3	MET-321	
	MET-423	Tropical Met	3	MET-321	
	MET-424	Project (1)	2		
	XXX-XXX	Elective	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MET-429	Met Instruments and Observations	1		
	MET-430	International Met Code	1		
	MET-431	Weather Charts Analysis & Forecasting	1		
	MET-432	NW Analysis	1		
	MET-433	Satellite & Radar Analyses II	1		
	MET-434	Weather Forecasting Techniques II	1		
		Total Credit Hours	**6**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MET-425	Planetary BL Met	**3**		
	MET-426	Climate Data Management Workshop	**3**		
	MET-427	Global Climate Changes	**3**		
	MET-428	Project (2)	**1**		
		Total Credit Hours	**10**		

28.10 HD Study Plan

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH100	Precalculus	4		
	CHEM111	Chemistry I	3		
	ENGL111	English Communication Skills	3		
	ENG111	Industrial Safety & Pro Ethics	2		
	ICT110	Intro to Program & Problem Solving	3		
	CHEM111P	Chemistry I Lab	1		
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	PHYS111	Physics I	3	MATH100	
	ENGL112	Technical English	3	ENGL111	
	CHEM112P	Chemistry II Lab	1		
	HUMXXX	Humanities 1	3		
	PHYS111P	Physics I Lab	1		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s**	**Corequisite**
Summer	MATH112	Calculus II	3	MATH111	
	PHYS112	Physics II	3	PHYS111	
	MET-111	Intro to Meteorology	3	MATH111	
	PHYS112P	Physics II Lab	1		
		Total Credit Hours	**10**		

2nd Year (Sophomore)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	ENGL117	English for Met	3	ENGL112	
	MET-221	Met Instrum & Observ Workshop	1	MET-111	
	MET-222	Atm Thermodynamics	3	MET-111 MATH112	
	MATH214	Calculus III	3	MATH112	
	MATH212	Probability & Statistics	3	MATH111	
	HUMXXX	Humanities 2	3		
		Total Credit Hours	**16**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MET-223	Atm Dynamics I	3	MET-222	
	MET-224	Aviation Met	3	MET-111	
	MET-225	Physical Met	4	MET-222	
	MET-226	Intern Met Code Workshop	1	MET-111	
	MET-227	Climatology	3	MET-111 MATH212	
	MET-232	Meteorology & Computing Workshop	1		
		Total Credit Hours	**15**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MATH211	Linear Algebra	3	MATH111	
	MET-XXX	Elective A	3		
	MET-228	Synoptic Met I	3	MET-223	
	MET-229	Intro to Weather Charts Analysis Workshop	1		
		Total Credit Hours	**10**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH213	Differential Equations	3	MATH111	
	MET-323	Synoptic Met II	3	MET-228	
	MET-321	Atm Dynamics II	3	MET-223	
	MET-322	Weather Charts Analysis Workshop	1		
	MET-XXX	Elective A	3		
	ICT-141	Modeling & Simulation Workshop	2	ICT-110	
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MET-324	NWP & Numerical Analysis	3	MET-321 MATH213	
	MET-325	Satellite Meteorology	3	PHYS112	
	MET-326	Marine Meteorology	3	MET-111	
	MET-327	Radar Meteorology	3	PHYS112	
	HUM-402	Creativity, Innovation and Entrepreneurship	3		
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MET-3001	Met Instruments (1)	1		
	MET-3002	Met Instruments (2)	1		
	MET-3003	Weather Observations	1		
	MET-3004	Met Intn'l Code (1)	1		
	MET-3005	Met Intn'l Code (2)	1		
	MET-3006	Weather Charts Analysis	1		
		Total Credit Hours	**6**		

28.11 Diploma Study Plan

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	MATH100	Precalculus	4		
	CHEM111	Chemistry I	3		
	ENGL111	English Communication Skills	3		
	ENG111	Industrial Safety & Pro Ethics	2		
	ICT110	Intro to Program & Problem Solving	3		
	CHEM111P	Chemistry I Lab	1		
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 2	MATH111	Calculus I	3	MATH100	
	CHEM112	Chemistry II	3	CHEM111	
	PHYS111	Physics I	3	MATH100	
	ENGL112	Technical English	3	ENGL111	
	CHEM112 P	Chemistry II Lab	1		
	HUMXXX	Humanities 1	3		
	PHYS111P	Physics I Lab	1		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Summer	MATH112	Calculus II	3	MATH111	
	PHYS112	Physics II	3	PHYS111	
	MET-111	Intro to Meteorology	3	MATH111	
	PHYS112P	Physics II Lab	1		
		Total Credit Hours	**10**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
Semester 1	ENGL117	English for Met	3	ENGL112	
	MET-221	Met Instrum & Observ Workshop	1	MET-111	
	MET-222	Atm Thermodynamics	3	MET-111 MATH112	
	MATH214	Calculus III	3	MATH112	
	MATH212	Probability & Statistics	3	MATH111	
	HUMXXX	Humanities 2	3		
		Total Credit Hours	**16**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MET-223	Atm Dynamics I	3	MET-222	
	MET-224	Aviation Met	3	MET-111	
	MET-225	Physical Met	4	MET-222	
	MET-226	Intern Met Code Workshop	1	MET-111	
	MET-227	Climatology	3	MET-111 MATH212	
	MET-232	Meteorology & Computing Workshop	1		
		Total Credit Hours	**15**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Corequisite**
	MET-228	Synoptic Met I	3	MET-223	
	MET-229	Intro to Weather Charts Analysis Workshop	1		
	MET-2001	Met Instruments (1)	1	OJT Modules	
	MET-2002	Met Instruments (2)	1		
	MET-2003	Weather Observations	1		
	MET-2004	Met Intn'l Code (1)	1		
	MET-2005	Met Intn'l Code (2)	1		
		Total Credit Hours	**9**		

29. Course Descriptions

Course descriptions of programs, which are offered in AD Polytechnic, are listed below. The credit for each course is indicated after the title in the course description. A credit is mainly based on the number of lecture hours per week and is less affected by the number of laboratory or on-the-job experience hours per week.

29.1 Advanced Energy Systems (AES)

AES-711 Introduction to Nuclear Technology (4 CR)
This course covers the introduction to nuclear power technology, including nuclear technology history, current status, nuclear terminologies and radiation protection. This course also covers the fundamentals of atomic structure, mass defect, and binding energy; nuclear interactions and reactions; cross-sections; neutron activation; half-life determination; isotope identification methods; ionization (Bremsstrahlung, ionization and excitation);radiation interactions with matter (pair production, Compton scattering, photoelectric effect); and, neutron interactions (elastic and inelastic scattering, charged particle emission, fission, radioactive capture).

Lecture 3 hrs/wk, Laboratory/tutorial 2 hrs/wk. Prerequisite: PHYS-111.

AES-712 Nuclear Reactor Theory (4 CR)
This course provides basic concepts and theories associated with the theory of the fission process; control of fission process; neutron flux effects on reactor power; neutron leakage; fission products; neutron sources; reactivity coefficients; changes in reactor operational parameters; radiation from fission and from fission products; residual heat/decay heat. This course also covers the introduction to nuclear reactor operation, including nuclear reactor kinetics, reactor control, and power operation.

Lecture 4 hrs/wk, Tutorial 1 hr/wk. Prerequisite: AES-711.

AES-722 Mechanical Technology I for Nuclear Power Plant Operators (3 CR)
This course covers the operating principles and types of valves, pumps, heat exchangers, steam traps, filters and strainers, air compressors, refrigeration machines, heating, ventilation, and air conditioning systems, steam turbines, diesel engines, hangers and snubbers.

Lecture 3 hrs/wk. Prerequisite: PHYS-111. Co-requisite: AES-722P.

AES-722P Mechanical Technology I Laboratory (1 CR)
This course contains the laboratory experiments that complement Mechanical Technology for Nuclear Power Plant Operators course (AES-722). The purposes of these laboratory experiments are to (1) apply the theoretical knowledge, (2) learn technical know-how related to the topics covered in the class and (3) learn to write a technical report. The students demonstrate, conduct experiments, analyze experimental results in a group, and write laboratory reports individually. This course is taken concurrently with AES-722 Mechanical Technology.

Laboratory/Tutorial 2 hrs/wk.

AES-723 Mechanical Technology II for Nuclear Power Plant Operators (2 CR)
This course covers the operating principles and types of refrigeration machines; heating, ventilation, and air conditioning systems; steam turbines; and, diesel engines.

Lecture 2 hrs/wk. Prerequisite: AES-722.

AES-731 Electrical Technology I for Nuclear Power Plant Operators (3 CR)
This course covers basic electrical concepts and theory relating to DC circuit analysis including Ohm's law, Kirchhoff laws, resistive networks, equivalent circuits, capacitance and inductance. It also covers the DC motors and DC generators. One weekly lab session will focus on gaining hands-on skills with

electrical components, circuit diagrams, circuit assembly, instrumentation (oscilloscope, multimeters, function generators, power supply units, data acquisition), electrical safety, and DC circuit testing and measurement.
Lecture 2 hrs/wk, Laboratory/Tutorial 2 hrs/wk. Prerequisite: MATH-100.

AES-732 Electrical Technology II for Nuclear Power Plant Operators (3 CR)
This course covers basic concepts relating to AC systems, including basic AC theory, AC reactive components, three phase power, AC machines, Electrical transmission and distribution, and rectification.

Lecture 3 hrs/wk. Prerequisite: AES-731. Co-requisite: AES-732P.

AES-732P Electrical Technology II Laboratory (1 CR)
This laboratory is an experimental course intended to complement Electrical Technology II principles. The purpose of the lab course is to explore some of the main concepts experimentally, which are covered in the Electrical Technology II course. Students will conduct and analyze experiments on Voltage Measurements, RC circuits and Transformers then do an analysis and give lab reports while working either individually or in teams. This course is taken concurrently with AES-732 Electrical Technology II.

Laboratory/Tutorial 2 hrs/wk.

AES-741 Thermal Science for Nuclear Power Plant Operators (3 CR)
This course covers thermodynamics units, volumetric properties of pure fluids, important thermodynamics properties, mechanisms of heat transfer by conduction, convection, and radiation, heat exchanger design and sizing, fluid mechanics and fluid statics, and application of thermodynamics to flow systems, in particular the Rankine cycle in electric power production.

Lecture 2 hrs/wk, Laboratory/Tutorial 2 hrs/wk. Prerequisite: PHYS-111.

AES-751 Instrumentation and Control Technology (4 CR)
This course provides knowledge and skills of fundamental instrumentation and control principles and concepts. It includes demonstrated knowledge of systems and components associated with process control, valve actuators and position indicators, miscellaneous sensors and detectors, chemistry instrumentation, and radiation detectors. It encompasses demonstrating an understanding of concepts of instrumentation and control, temperature sensors and detectors, pressure sensors and detectors, level sensors and detectors, flow sensors and detectors, and measurement.

Lecture 3 hrs/wk, Laboratory/Tutorial 2 hrs/wk. Prerequisite: AES-731.

AES-761 Applied Technical Chemistry (3 CR)
This course covers fundamental knowledge and skills of chemistry concepts required to solve problems in engineering and energy technology related environments. It includes demonstrating knowledge of water chemistry fundamentals, sources and types of impurities, control/removal of impurities, effects of impurities, the use of hydrogen gas in oxygen control, radical production and recombination, and radiochemistry. It also encompasses demonstrated understanding of solution chemistry, physical states, and nomenclature with a focus on water chemistry involving effects of impurities, ion exchange, water treatment, and corrosion..

Lecture 2 hrs/wk, Laboratory/Tutorial 2 hrs/wk. Prerequisite: CHEM-111.

The following courses (AES-771 through AES-774) are provided by Nawah at the Barakah Nuclear Power Plant in the western region of Abu Dhabi. A total of 26 CR of OJT is required for the HDNT which consist of the following courses:
AES-771 OJT 1 Nuclear Power Plant Systems and Operation
AES-772 OJT 2 Nuclear Power Plant Familiarization
AES-773 OJT 3 Specialization Qualifications Part A

AES-774 OJT 3 Specialization Qualifications Part B

AES-781 Nuclear Safety and Regulations (3 CR)
This course covers basic concepts of a Design Basis Accident (DBA), severe accidents, accident analysis, principles and methods for assessing risk and reliability for Nuclear Power Plants. The course also covers several safety parameters and safety analysis of NPPs and safety improvement, international cooperation, and trends.
Lecture 3 hrs/wk. Prerequisite: AES-712.

AES-782 Radiation Measurement and Protection (4 CR)
This course covers two main subjects: first to teach students how to measure radiation and understand the principle of radiation detection, and second to provide detailed radiological protection theory and techniques and develop student understanding and skills in radiation protection fundamentals needed to apply in the operation and maintenance of a nuclear power plant.

Lecture 3 hrs/wk, Laboratory/Tutorial 2 hrs/wk. Prerequisite: AES-711.

AES-784 Work-based Learning (3 CR)
This course provides practical experience at the workplace in a nuclear power plant, and covers the general system and component knowledge that is part of the Basic Systems Knowledge curriculum and focus on the in-depth knowledge required for the non-licensed operator discipline.

Lecture 3 hrs/wk. Registration for this course requires department head approval.

AES-786 Materials Science for Nuclear Power Plant Operators (3 CR)
This course covers the introduction to material problems in a nuclear power plant, including basic material properties, brittle fracture characteristics, radiation-induced property changes, and temperature effects such as heat up and cool down rate limits.

Lecture 2 hrs/wk. Laboratory/Tutorial 2 hrs/wk. Prerequisite: AES-711.

AES-787 Graduation Project I (2 CR)
This course is the first part of the capstone program in nuclear engineering technology to develop student understanding in broader issues in the commercial nuclear power industry. Students review topics and select and propose a project for further research and presentation.

Lecture/Tutorial 2 hrs/wk. Registration for this course requires department head approval.

AES-788 Graduation Project II (2 CR)
This course is the final part of the capstone program in nuclear engineering technology to develop student understanding in broader issues in the commercial nuclear power industry. Students research their topic area and prepare and present their findings.

Lecture/Tutorial 2 hrs/wk. Registration for this course requires department head approval.

29.2 Aircraft Engineering Technology (AET)

Course Descriptions

Course that are part of the AET degree program are listed here. Courses are listed by department course code and course number. The credit for each course is indicated after the title of the course description:

- Aircraft Engineering Technology-Aeromechanical (AME)
- Aircraft Engineering Technology-Avionics (AVN)
- Aviation Science (AVSC)
- English (ENGL)
- Humanities (HUM)
- Information and Communications Technology (ICT)
- Mathematics (MATH)
- Physics (PHYS)

Aviation Science (AVSC) Courses:

AVSC 210 – Human Factors (9 B) (3 Credits)
This course is designed with the intention to improve the level of Human Factors awareness and to improve the understanding of Human Performance issues related to activities in a maintenance environment. The course provides students with the necessary knowledge and skills to appraise human error and factors affecting human performance, and to apply tools and methods for error prediction and measurement. Topics covered also include social physiology, physical environments, tasks, communication and hazards in the workplace.

AVSC 220 – Aviation Legislation - EASA (10 B) (3 Credits)
This course is designed to provide students with a working knowledge of aviation legislation to enable maintenance work to be done within the requirements of the Law. The course covers international regulatory framework from the United Nations to national level including the role of ICAO, CAR -66 (Certifying Staff-Maintenance) and CAR-145 (Approved Maintenance Organization), the purpose of the documents required under aircraft certifications, the continuing airworthiness of the aircraft, approved maintenance organizations and the Continuing Airworthiness Management Organizations (CAMO).

AVSC 225 – Aviation Legislation - GCAA (3 Credits)
This course is designed to give students a good working knowledge of the Legislation applicable to the Aviation engineering personnel working under the GCAA regulations. The topics covered in this course include the regulations of GCAA CAR Part II Chapter 7 Module 10 (Legislation), and in particular CAR Operations, CAR 66 for maintenance certifying staff, CAR 14 for approved maintenance organizations, and CAR M (aircraft maintenance).

AVSC 260 – Engineering Project (3 Credits)
The purpose of this course is to instill in the students some basic engineering/technology management knowledge, and to guide them to complete a cycle managing an aviation related engineering project from start to finish. This course is a capstone course to develop the student's ability to analyze and synthesize simple but important engineering problems and provide a methodology for understanding the problem and provide a solution. The course is conducted under the supervision of an instructor.

Avionics (AVN) Courses:

AVN 110 – Electrical Engineering I (3 B) (3 Credits)
The aim of this course is to introduce students to the basic principles of electricity and electron theory and develop their knowledge in the concept of direct current circuits and applications. The course covers the basic principles of electricity such as electron theory, static electricity and conduction, electrical

terminology, generation of electricity, DC sources of electricity, and DC theory. This course introduces the concept of direct current circuits and studies it applications and its fundamental theories.

AVN 110P – Electrical Engineering I Lab. (1 Credit)
The experiments of this course help student understanding the concepts of direct current circuits and verifies the theories behind their operation. It is a practical course that is conducted in a laboratory/workshop setting. The course covers the practical applications of electrical measurements, generation of electricity, DC and AC sources and their applications.

AVN 211 – Electrical Engineering II (3 B) (3 Credits)
The objective of this course is to develop student understanding and skills in electric power circuits, motors and generators. This course is a continuation of Electrical Engineering I and covers an advanced level with emphasis put to electrical terms such as resistance, power, capacitance, magnetism, inductance, AC theory, resistive, capacitive and inductive circuits, and transformers, filters, AC generators and motors. Frequency dependent devices are also covered.

AVN 211P – Electrical Engineering II Lab. (1 Credit)
The experiments of this course help student understanding the concepts of direct current generators, motors and transformers and characteristics of AC motors. It is a practical course that is conducted in a laboratory/workshop setting. The course covers the practical applications of AVN 211 Electrical Engineering II.

AVN 219 – Electronics I (4 B1) (3 Credits)
The objective of this course is to develop student's skills and understanding in semiconductors, diodes and transistors. The course introduces two basic electronic semiconductors devices, the diode and the transistor. Various diode types and their applications and various transistors types and applications are discussed. Types of diodes covered include the PN junction, Zener, Schottky with applications extended to rectifier circuits. BJTs, JFETs and MOSFETs and their applications are also covered.

AVN 229 – Digital Techniques I (5 B) (3 Credits)
This course is intended to develop student knowledge and skills in the area of electronic instrument systems, numbering systems, data buses, data conversion and logic gates. The course covers an advanced level of digital systems with emphasis put on electronic instrument systems, numbering systems, data buses, data conversion and logic gates.

AVN 236 – Digital Techniques II (5 B) (3 Credits)
This course is intended to develop student knowledge and skills in the area of digital techniques. The course is a continuation of Digital Techniques I covering an advanced level with emphasis put on basic computer structure, fiber optics, electronic displays, electromagnetic environment and typical digital aircraft systems.

AVN 237 – Electronics II (4 B2) (3 Credits)
The objective of this course is to provide students with the necessary information required in integrated circuits and amplifiers and their applications in aircraft. The course builds on top of Electronics I course by addressing Integrated Circuits (ICs) and applications with emphasis on operational amplifiers and their applications. Printed circuit boards (PCB's) and servo mechanisms are also covered.

AVN 314 – Avionics Systems I (13 B2) (3 Credits)
The objective of this course is to develop students' skills and understanding of aircraft theory of flight, structures and systems. The course introduces the Theory of Flight including aerodynamics, flight controls operations and systems and high speed flight. The course also covers the Airworthiness Requirements of Structural Strength; the aircraft component and their construction. The course also includes Aircraft Systems: pressurization and air-conditioning systems, hydraulic systems, pneumatics systems, fire systems, fuel system, ice control systems, oxygen systems, landing gears, and water and waste system. Aircraft Equipment and Furnishings are also covered.

AVN 315 – Avionics Systems II (13 B2) (3 Credits)
The objective of this course is to develop student's skills and understanding on the principle of auto-flight, radio communication and navigation systems. The course includes the principles of auto-flight and its applications in modern aircrafts and also covers the principles of radio communications and its application to navigation systems. Primary and secondary radar systems are explained, and Communication and navigation systems such as VHF, VOR, DME, MLS, GPS, FDS, Inertial navigation systems are covered. Also covered are practical aircraft installations and data busses.

AVN 316 – Avionics Systems III (13 B2) (4 Credits)
The objective of this course is to develop student's skills and understanding in aircraft power system either DC or AC and also in logical approach to fault diagnosis. The course covers electronic communication and aircraft instrument systems, aircraft electrical power systems: that includes AC, DC and emergency power systems sources. The course also includes logical approach to fault diagnosis, and communicate technical information both orally and in the form of written technical reports.

AVN 317 – Digital Techniques III (5 B) (2 Credits)
This course intends to develop student knowledge and skills in the area of digital techniques of microprocessor, of multiplexing, de-multiplexing and integrated circuits. The course covers materials required for avionics specialization as an in depth continuation to the materials covered Digital Techniques I and II. Covered topics include microprocessor, multiplexing and de-multiplexing techniques and integrating circuits IC's.

AVN 317P – Digital Techniques III Lab. (5 B) (1 Credit)
This course intends to develop students' knowledge and skills in the area of digital techniques, microprocessor, multiplexing, de-multiplexing and integrated circuits. The course covers materials required for avionics specialization as an in depth continuation to the materials covered Digital Techniques I and II. Covered topics include microprocessor, multiplexing and de-multiplexing techniques and integrating circuits IC's.

AVN 324 – Avionics Systems IV (13 B2) (4 Credits)
The objective of this course is to develop students' skills and understanding in flight instruments, light and on board maintenance systems. This course includes aircraft systems at an advanced level to satisfy partial EASA/GCAA requirements for Module 13. The course covers flight instruments, lights, on board maintenance systems, integrated modular avionics, and cabin and information systems.

AVN 326 – Propulsion and FADEC (14 B2) (3 Credits)
This course intends to develop students' knowledge and skills in construction, operation of Gas Turbine Engine and familiarize them with the system FADEC and how it meters fuel to the engine. The course introduces the constructional arrangement and operation of turbojet, turbofan, turbo shaft, and turbo prop engines, electronic engine control and fuel metering system (FADEC), and covers engine indication systems, their components and their principles of operation.

AVN 340 – On-The-Job Training / Internship (3 Credits)
This training aims to expose students to practical applications on operational aircrafts and/or in Aviation Industry under the supervision of a Faculty member and/or qualified engineers. It is a required On the Job Training carried out under the supervision of a faculty member at a Part 145 licensed establishment.
Aircraft Maintenance Engineering (AME) Courses

AME 212 – Advanced Materials and Hardware I (6 B1) (3 Credits)
The objective of this course is to develop students' understanding and skills on the characteristics, types and uses of aircraft materials. The course covers aircraft materials both ferrous and nonferrous: characteristics, properties, heat treatment and testing: tension, hardness, and fatigue tests. The course also includes characteristics and properties of composite and non-metallic materials and their identification; sealant types and bonding techniques; wooden aircraft structure: characteristics, preservation, defects and repairs; aircraft fabric coverings. Corrosion: types, causes and protection of aircraft parts are also covered.

AME 214 – Advanced Aerodynamics (8 B1) (3 Credits)
This course is intended to introduce students to the advanced concepts of aerodynamics, flow dynamics and factors affecting aircraft stability and control. The course provides students with the physics of atmosphere; and basic aerodynamics including: the airflow around a body, airfoil sections, the aerodynamic forces acting on the aircraft, generation of aerodynamic lift and different types of aerodynamic drag. The course also includes theory of flight: the aerodynamic forces and aircraft performance during steady level flight, climb and descent, and turning; and aircraft stability and flight dynamics.

AME 214P – Advanced aerodynamics Lab. (1 Credit)
The practical sessions assigned to this course are intended to perform aerodynamic tasks to help students understanding the basic principles of aerodynamics and improve their experimental skills. The course includes identifying different airfoil sections; primary and secondary flight controls; studying the nature of airflow around aerodynamic bodies; determining the optimum angle of attack (AOA) and the stall angle of airfoil sections. Each task's allocated time will constitute report writing, basic calculations and production of graphs.

AME 218 – Advanced Maintenance Practices I (7 B1) (3 Credits)
The objective of this course is to enable students to demonstrate competence in working effectively and safely in an aircraft maintenance organization. The course includes an introduction to Safety Precautions for aircraft and workshops; basic understanding of First Aid at work; the safe use, care and control of tools; standards of workmanship; use of workshop materials, lubrication equipment and methods; precision measuring tools. The course also includes calibration standards, and calibration of tools and equipment.

AME 218P – Advanced Maintenance Practices I Lab. (2 Credits)
The objective of this course is to develop practical skills, hand-on experience and professional understanding of Aircraft Maintenance Practices I as a part of EASA requirements for Module 7.
Topics of this course include performing practical tasks to identify and apply safety precautions in the work area: First Aid and Fire Extinguishing equipment; using, controlling and calibrating Hand Tools, Marking out and Measuring Tools, Electrical Power Tools and Pneumatic Tools.

AME 226 – Advanced Materials and Hardware II (6 B1) (3 Credits)
The objective of this course is to develop students' understanding and skills on the aircraft hardware and develop hands-on practices on using bolts, screws, cables, gears, belts, etc. The course covers all types of fasteners and locking devices including: screws, bolts and studs, aircraft rivets. The course also covers pipes and unions, springs, bearings and transmissions; gears and belts. In addition, the course contains control cables, turnbuckles, compensation devices, pulleys, Bowden cables, and aircraft flexible control systems. Electrical cables and connectors: construction, crimping, connector types and insulators are also covered.

AME 227 – Advanced Maintenance Practices II (7 B1) (4 Credits)
The objective of this course is to introduce students to basic engineering drawings, diagrams and standards, and to apply ATA 100 specifications, common systems of fits and clearances. The course covers the basic concepts of Engineering Drawings, Diagrams and Standards: drawing types and diagrams, their symbols, dimensions, tolerances and projections; The ATA 100 series of aircraft publications; Fits and Clearances: Drill sizes for bolt holes, classes of fits, common system of fits and clearances, schedule of fits and clearances for aircraft and engines.

AME 228 – Advanced Maintenance Practices III (7 B1) (3 Credits)
This course is intended to familiarize students with the various types of electrical cables and connectors, and to apply materials and techniques used to repair electrical cables and connectors. The course covers Avionics general test equipment; Aircraft Electrical Wiring Interconnect System (EWIS); Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Wiring protection techniques.

AME 228P– Advanced Maintenance Practices III Lab. (7 B1) (1 Credit)
This course is intended to improve the students' Hands-on and Practical Skills related to various types of electrical cables and connectors, and to apply the techniques used to repair such cables and connectors. The course includes the practical tasks related to Avionics general test equipment; Aircraft Electrical Wiring Interconnect System (EWIS); Use of hand- and hydraulic- operated crimp tools; Testing of crimp joints; Connector pin removal and insertion; Testing and installation precautions of Co-axial cables; and Wiring protection techniques.

AME 237 – Advanced Maintenance Practices IV (7 B1) (3 Credits)
The objective of this course is to familiarize students with aircraft riveting procedure, aircraft parts and to perform basic welding, brazing and soldering tasks in accordance with the safety regulations related to the specific joining technology. The course includes Aircraft Riveting: riveted joints, rivet spacing and pitch, tools used for riveting and dimpling, inspection of riveted joints; Aircraft Parts: Pipes and Hoses, Springs; Bearings, Transmissions, Control Cables; Material Handling; Aircraft Welding, Brazing, Soldering and Bonding: soldering methods, inspection of soldered joints, welding and brazing methods, inspection of welded and brazed joints.

AME 237P – Advanced Maintenance Practices IV Lab. (2 Credits)
The objective of this course is to develop practical skills, hand-on experience and professional understanding of Aircraft Maintenance Practices IV as a part of EASA requirements for Module 7. Topics include practical tasks for sheet metal work, lay out of typical riveted joints, removal and installation of universal rivets, effect of heat treatment, basic concepts and procedures of soldering and welding, and bending and flaring of pipes.

AME 238 – Advanced Maintenance Practices V (7 B1) (3 Credits)
This course is intended to equip students with the knowledge and practical skills required to perform aircraft handling and storage tasks and to apply aircraft repair, assembly and troubleshooting techniques. The course covers Aircraft Handling and Storage, Aircraft Jacking, Lifting, Weighing and Balancing, Taxiing, Choking, Mooring, and Effects of Environmental Conditions on aircraft handling. The course also covers Maintenance Procedure: basic concept of Maintenance Planning, Aircraft Maintenance Program and Maintenance Schedule; Aircraft Inspections; Aircraft Repair and Assembly Techniques and Trouble Shooting. NDT/NDI, corrosion repair and protection are also included.

AME 238P – Advanced Maintenance Practices V Lab. (2 Credits)
The objective of this course is to develop practical skills, hand-on experience and professional understanding of Aircraft Maintenance Practices V as a part of EASA requirements for Module 7. Topics of this course include practical tasks for Aircraft Handling and Storage; Effects of Environmental Conditions on aircraft; Maintenance Procedure; Aircraft Repair and Assembly Techniques and Trouble Shooting.

AME 310 – Turbine Engines I (15 B1) (3 Credits)
The overall objective of the course is to develop student understanding and skills in Gas Turbine Engine fundamentals, construction, operation and performance. The course covers Gas Turbine Engine principles with an emphasis put on the relationship between force, work, power, energy, acceleration, and Brayton cycle; construction and working principles of gas turbine engine components: inlet section, compressors, combustion chamber, turbine section, and exhaust section; characteristics and performance of different types of gas turbine engines.

AME 314 – Aircraft Structures & Systems I (11 B1) (3 Credits)
This course is intended to provide students with the knowledge and skills about theory of flight, aircraft structures, construction of aircraft parts, as well as the concept of pressurization and air-conditioning systems. The course covers the Theory of Flight including aerodynamics, flight controls operations and systems and high speed flight. The course also covers the Airworthiness Requirements of Structural Strength: stresses, zoning, and construction methods. Aircraft Pressurization and Air-conditioning Systems, Aircraft Equipment and Furnishings are also covered.

AME 315 – Propellers (17 B1) (3 Credits)
This course is intended to provide students with the fundamental principles of propeller construction, systems and operation. The course covers blade element theory, propeller construction, propeller types and operation, propeller pitch control, synchronizing, ice protection system, propeller maintenance, storage and preservation.

AME 316 – Aircraft Structures & Systems II (11 B1) (3 Credits)
This course is intended to develop the students' knowledge and skills in aircraft fire, hydraulic, fuel, and ice protection systems. The course is a comprehensive study of EASA module 11 B1 part II. Areas of study includes fire protection system: fire and smoke detection, fire warning; hydraulic power: hydraulic systems components, reservoirs, pumps, accumulators, valves, seals, fluid; fuel systems: lay out of the system, components, fueling and defueling; ice and rain protection system: anti icing, de-icing, rain protection. The course also includes Flight Control Systems: Primary and Secondary controls, Manually- and Power-operated control systems; Autopilot and Fly-by-wire; Balancing and rigging and Stall warning system.

AME 317 – Aircraft Structures & Systems III (11 B1) (3 Credits)
The objective of this course is to develop the students' knowledge and skills in aircraft landing gears and their systems, oxygen and pneumatic systems and aircraft water and waste systems. This course covers General Air Transportation Association (ATA) landing gear: purposes, types, extension and retraction, shock strut, wheels, tires, brakes systems and nose steering; Pneumatic systems: high pressure pneumatic system layout and components, low pressure source, uses; vacuum systems lay out; oxygen systems: layout, source of oxygen, types of systems and uses. The course also covers potable water and waste systems.

AME 317P – Aircraft Structures & Systems III Lab. (1 Credit)
The objective of the practical tasks assigned this course is to develop student's skills, understanding and hand-on practice of the aircraft systems. The tasks include Landing Gear system: landing gear components and operation, inspection, removal and installation, shock absorber inspection and servicing, Wheels and Brake inspection; Oxygen system: familiarization of aircraft oxygen system operation, location, and functions; Pneumatic system: pneumatic system components location and operation; water and waste system: components location and operation; in all system students use AMM and IPC.

AME 323 – Aircraft Structures & Systems IV (11 B1) (3 Credits)
The overall objective of the course is to develop students' understanding and skills in aircraft instrument, avionics, communication and navigation systems. Topics covered in this course include flight instruments, engine instruments, radio and navigation instruments, pitot-static system, gyroscopic principles, antenna, HF and VHF communication systems, area navigation system, and auto flight system. The course also includes aircraft electrical power, DC and AC motors and generators, power distribution systems, power control units, aircraft lights, on board maintenance systems and information systems.

AME 323P – Aircraft Structures & Systems IV Lab. (1 Credit)
The objective of the course is to develop student understanding and skills in fundamental concepts relating to aircraft instruments, avionics, communication and navigation systems. Practical tasks cover flight instruments, engine instruments, radio and navigation instruments, VHF communication systems, aircraft electrical power, power distribution systems, aircraft external and internal lights and on board maintenance systems.

AME 325 – Turbine Engines II (15 B1) (3 Credits)
This course is intended to develop students' understanding and skills in Gas Turbine Engine lay-out, operation and functioning of engine systems, safety procedures, ground operations, and thrust augmentation systems. The course covers engine systems lay-out; principles of operation of engine auxiliary systems and accessory parts; engine fuel, lubrication, starting and ignition systems; engine installation, safety procedures and monitoring systems. The course also includes engine ground operation, and thrust augmentation systems.

AME 325P – Turbine Engines II Lab. (1 Credit)
The practical sessions assigned to this course are intended to perform practical tasks on gas turbine engines to help students understanding the basic concepts of gas turbine systems, assembly and operation and improve their inspection and maintenance skills on Gas Turbine Engines. Topics include removal and installation practices of engine components: LP fuel pump, fuel injectors, oil filter and chip detectors; performing inspections as per the maintenance manuals; assembly/disassembly of HP module of the engine DGEN 380A7; removal/installation and various maintenance activities for ignitor plugs and for Air Starter Motor on Adour aero-engine.

AME 340 – On-The-Job Training / Internship (3 Credits)
This training aims to expose students to practical applications on operational aircrafts and/or in Aviation Industry under the supervision of a Faculty member and/or qualified engineers. It is a required On the Job Training carried out under the supervision of a faculty member at a Part 145 licensed establishment.

AME 403 - Principle of Business for Engineers (3 Credits)
The overall objectives of this course are to develop students' ability to show knowledge and understanding of fundamental principles of business management for engineers. This course work covers organization structure, project management, phases of project management, project cost, project selection criteria, project financial analysis and control.

AME 427 - Total Quality Management in Aviation (3 Credits)
The aim of this course is to introduce students to the philosophy and principles of Total Quality Management (TQM) in the aviation area as well as to provide them with the underlying principles and techniques of Total Quality Management (TQM) with emphasis on their application to organizations. This course provides a basic understanding of the philosophy, conceptual frameworks and the tools of the Total Quality Movement. Topics covered are Basic concepts, definitions, basic principles of total quality management, Historical background of TQM, Application of TQM in Aviation organizations, Advantages, Disadvantages, Opportunities, Threats for Aviation organizations from the application of TQM, Quality Management Systems, Quality Management Standards, appropriate tools and techniques for controlling, improving and measuring quality, enhancing students' appreciation for the importance, need, and role of quality assurance.

29.3 Aircraft Maintenance

Course Description

Aircraft Maintenance (Aeromechanical)

AME 101 Work shop Practices and Orientation (3 Cr.)
The objective of this course is to provide the student with knowledge and skills to work in workshops with attention to safety and to expose the student to electronic and mechanical workshops and perform simple tasks in each. It covers basic technical operations, handle hand and power tools to be used in sheet metal work, riveting, filing, as well as applying measuring tools, select and adjust test equipment used on aircraft. Prerequisite: ENGL 112; Co-requisite: None

AME 113 Maintenance practice I-Cat A (3 Cr.)
The objective of this course is to develop students understanding and skills on the safety precautions and testing as part of EASA module 7 Cat A. This course covers safety precautions for aircraft and workshops, workshop practices, care and control of tools. The course also includes dimensions, allowances and tolerances, standards of workmanship, calibration of tools and equipment. Pre-requisite: None; Co-requisite: None

AME 114 Basic Materials and Hardware- Cat A (3Cr.)
The objective of this course is to develop skills and understanding of aircraft materials and hardware as per EASA Cat A module 6 requirements. This course covers the characteristics of ferrous, non-ferrous, metallic, non-metallic and composite materials, properties and application of sealant and bonding agents, wooden structure and fabric covering. The course also covers various types of corrosion: methods of detection and treatment; aircraft fasteners, their specifications and how they are applied in aircraft technology; pipes and unions, springs, bearings, transmission and aircraft control cables and end fittings; cable systems components, Bowden cables and aircraft flexible control systems; construction and characteristics of aircraft electrical cables and connectors. Pre-requisite: None; Co-requisite: AME 113

AME 115 Basic Aerodynamics (Cat A) (2 Cr.)
The objective of this course is to provide students with the basic principles of aerodynamics as per EASA Cat A requirements. The course covers the characteristics of atmosphere; and basic aerodynamics including: the airflow around a body, airfoil sections, and the aerodynamic forces acting on the aircraft, lift generation and different types of drag. The course also includes theory of flight: the aerodynamic forces and aircraft stability and lift augmentation devices. Pre-requisite: Math I, Physics I; Co-requisite: None

AME 116 Aircraft Structure and Systems I- Cat A (3 Cr.)
This course is designed to develop student understanding and skills in aircraft structure I as per EASA Cat A requirements. This course covers fundamentals of aero-plane theory of flight and flight controls and high speed flight. The course also covers the airworthiness requirements of structural strength, the aircraft component and their construction, aircraft pressurization and air-conditioning systems, aircraft equipment and furnishings. The course also includes: the principles and components of hydraulic power, pneumatic systems, fire protection system, landing gear, ice protection system, fuel system and water and waste system. Pre-requisite: AME 115; Co-requisite: None

AME 117: Aircraft Maintenance Practices II - Engineering Drawings- Cat A (3 Cr.)
This course is designed to develop students understanding and skills on engineering drawing as a part of EASA Cat A module 7. This course covers introduction to engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances and electrical cables. The course also includes standard methods of checking aircraft parts. Pre-requisite: AME 113; Co-requisite: None

AME 121 Aircraft Maintenance Practices III - Electrical Cables and Connectors- Cat A (3 Cr.)
The objective of this course is to develop students understanding and skills on electrical cables as a part of EASA Cat A module 7. This course covers fundamental knowledge of electrical cables, connectors and wiring protection methods. The course also covers the techniques which are applied to bond metallic and composite material structure, aircraft bolts, screws, nuts and other fasteners. Basic tests and inspections on standard aircraft components using the required materials, tools and testing equipment are also included. Pre-requisite: AME 113; Co-requisite: None

AME-124 Aircraft Maintenance Practices IV- Aircraft Parts Joining and Inspection- Cat A (3 Cr.)
The objective of this course is to develop students understanding and skills on aircraft maintenance practice part IV of EASA Cat A module 7. This course covers the fundamental knowledge of riveting, riveted joints, aircraft handling and operation, pipe bending, flaring, inspection and testing, bearing and shafts, safety precautions of aircraft operations, nondestructive inspection, corrosion, aircraft storage methods. The course also covers composite repairs and tools and aircraft ground support equipment (GSE). Pre-requisite: AME 113, AME 121; Co-requisite: None

AME 221 Aircraft Structure and Systems II- Cat A (4 Cr.)
This course provides students with skills and understanding of the aircraft electric and electronic systems as part of EASA Cat A module 11. The course covers fundamentals of aircraft instrument systems such as pitot static and gyroscopic, avionics systems which covers auto-flight, communication and navigation systems. The course also includes electrical power: DC and AC generators and power distribution, Lights and on board systems. Pre-requisite: AME 116; Co-requisite: None

AME 223 Gas Turbine Engines- Cat A (3 Cr.)
The overall objective of the course is to develop student understanding and skills in Gas Turbine Engines as per EASA Cat A module 15 requirements. The course covers: gas turbine engines fundamentals, construction and working principles; gas turbine engine components: inlet section, compressors section, combustion chamber, turbine section, and exhaust section; gas turbine engine systems: starting, fuel, oil cooling and engine indication systems. The course also covers safety procedures, monitoring systems, engine ground operation, and thrust augmentation systems. Pre-requisite: AME 214; Co-requisite: None

AME 225 Propeller- Cat A (2 Cr.)
This course is intended to provide students with the fundamental principles and operation of propeller as per EASA Cat A module 17 requirements. It includes principles, construction, systems and operation of the propeller. The course also covers blade element theory, propeller pitch control, synchronizing, ice protection system, propeller maintenance, storage and preservation. Pre-requisite: AME 115; Co-requisite: AME 214

AME 240 On-the-Job Training / Internship - (3 Cr.)
On the Job Training is provided to students under the supervision of a faculty member and/or qualified engineers at a Part 145 licensed establishment. This training aims to expose students to practical applications in aviation industry. Pre-requisite: Second year student status; Co-requisite: None

AME 211 Materials and Hardware I-B1 – (3 Cr.)
The objective of this course is to develop students understanding and skills on the characteristics, types and uses of aircraft materials. The course covers aircraft materials both ferrous and nonferrous: characteristics, properties, heat treatment and testing: tension, hardness, and fatigue tests. The course also includes characteristics and properties of composite and non-metallic materials and their identification; sealant types and bonding techniques; wooden aircraft structure: characteristics, preservation, defects and repairs; aircraft fabric coverings. Corrosion: types, causes and protection of aircraft parts are also covered. Pre-requisite: Physics, AME 114; Co-requisite: None

AME 214 Aerodynamics-B1 (3 Cr.)
This course provides students with the fundamental principles of aerodynamics. The course will focus on the physics of atmosphere; and basic aerodynamics including: the airflow around a body, airfoil sections, the aerodynamic forces acting on the aircraft, generation of aerodynamic lift and different

types of aerodynamic drag. The course also includes theory of flight: the aerodynamic forces and aircraft performance during steady level flight, climb and descent, and turning; and aircraft stability and flight dynamics. Pre-requisite: AME 115; Co-requisite: AME 214P

AME 214P Aerodynamics Lab (3 Cr.)
The practical sessions assigned to the advanced aerodynamics course are intended to perform aerodynamic tasks to help students understanding the basic principles of aerodynamics and improve their experimental skills. Topics include identifying different airfoil sections, primary and secondary flight controls; studying the nature of airflow around aerodynamic bodies; determining the optimum angle of attack (AOA) and the stall angle of airfoil sections. Each task's allotted time will constitute report writing, basic calculations and production of graphs. Pre-requisite: AME 115; Co-requisite: AME 214

AME 215 Aircraft Maintenance Practices I-B1 (3 Cr.)
This course provides students with understanding and skills on the safety precautions and testing as part of EASA module 7 Cat B. This course covers safety precautions for aircraft and workshop; workshop practices; calibration of tools and calibration standards; operation, function and use of common avionic general testing equipment. This course also covers engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances. Other topics includes standard methods for checking shafts, bearings, electrical cables and connectors, wiring protection techniques, bonding practices and testing, riveting, pipes and hoses, springs, bearings, transmissions and control cables. Pre-requisite: AME 113; Co-requisite: None

AME 217 Aircraft Maintenance Practices II-B1 (3 Cr.)
The objective of this course is to develop students understanding and skills on the safety precautions and testing as part of EASA module 7 Cat B. This course covers advanced level of aircraft parts joining and repair methods: different types of basic welding, brazing and soldering, selecting of appropriate material, filler material and flux. This course also covers aircraft handling and storage, jacking, inspections, effects of environmental conditions on aircraft handling, aircraft repair and assembly techniques, trouble shooting, maintenance procedures and inspections carried out after abnormal events such as lightning strikes, heavy landings and flight through turbulences, maintenance planning, modifications, quality assurance and control. Pre-requisite: AME 215; Co-requisite: None

AME 222 Materials and Hardware II- B1 (3 Cr.)
The objective of this course is to develop students understanding and skills on the aircraft hardware EASA Cat. B. The course covers all types of fasteners and locking devices: screws, bolts and studs, aircraft rivets. the course also covers pipes and unions, springs, bearings and transmissions; gears and belts. In addition, the course contains control cables, turnbuckles, compensation devices, pulleys, Bowden cables, and aircraft flexible control systems. Electrical cables and connectors: construction, crimping, connector types and insulators are also covered. Pre-requisite: AME 215, AME 117; Co-requisite: None

AME 230 Aircraft Structures and Systems I-B1 (3 Cr.)
This course is intended to provide students with the fundamental principles of the Theory of Flight including aerodynamics, flight controls operations and systems and high speed flight. The course also covers the airworthiness requirements of structural strength: stresses, zoning, construction methods; primary and secondary structure, the aircraft component and their construction, types of rivets, methods of surface protection, exterior finishing, alignment and symmetry. Pre-requisite: AME 212, AME 214; Co-requisite: None

AME 324 Gas Turbine Engines-B1 (4 Cr.)
This course is designed to develop student understanding and skills in aircraft gas turbine engine as part of EASA part B. The course covers an advanced level of gas turbine engine construction and engine systems layout. The main topics are the principles of operation, engine construction, systems and accessory parts. These include engine fuel metering and distribution, FADEC, HMU, and EEC effects on performance and fuel consumption, lubrication systems, oil cooling systems, typical engine installation and mounting, standard safety procedures, monitoring programs, engine ground operation dangers, thrust augmentation systems, CSD, and gearbox systems, fire detection systems, engine

installation and ground operation including safety precautions. Pre-requisite: Math I and Physics I; Co-requisite: None

AME 334 Aircraft Structures and Systems II-B1 (3 Cr.)
The objective of this course is to develop student understanding and skills on aircraft structures and systems part II of EASA module 11 B1. Areas of study includes fire protection system: fire and smoke detection, fire warning; hydraulic power: hydraulic systems components, reservoirs, pumps, accumulators, valves, fluid; fuel systems: lay out of the system, components, fueling and defueling. The course also includes flight control systems: primary and secondary controls, manually and power operated control systems; landing gear: purposes, types, extension and retraction, shock strut, wheels tires, brakes systems and nose steering; Pneumatic systems. Operation of On Board Maintenance systems, operation and function of electrical power generation. Pre-requisite: AME 230; Co-requisite: None

AME 336 Propeller-B1 (3 Cr.)
The objective of this course is to develop students working skills on aircraft propeller. This course covers the function, fundamental principles of propeller, propeller construction, systems and operation. The course also covers blade element theory, propeller pitch control, propeller synchronizing, ice protection system, propeller maintenance, storage and preservation. Pre-requisite: AME 214; Co-requisite: AME 324

Aircraft Maintenance (Avionics):

AVN 110 Electrical Engineering I (3 Cr.)
This course provides understanding and skills of aircraft electrical engineering as part of EASA module 3. This course covers the basic principles of electricity such as electron theory, static electricity and conduction, electrical terminology, generation of electricity, DC sources of electricity, and DC theory. This course introduces the concept of direct current circuits and studies it applications and its fundamental theories. Pre-requisite: MATH 100, PHYS 111; Co-requisite: AVN 110P - Electrical Engineering I Lab

AVN 110 Electrical Engineering I Lab (1 Cr.)
This is a practical course that is conducted in a laboratory/workshop setting. This course covers the practical applications of electrical measurements, generation of electricity, DC and AC sources and their applications. This course's experiments address the concepts of direct current circuits and verifies the theories behind their operation. Pre-requisite: MATH 100, PHYS 111; Co-requisite: AVN 110 - Electrical Engineering

AVN 211 Electrical Engineering II (3 Cr.)
This course is a continuation of Electrical Engineering I and covers an advanced level with emphasis put to electrical terms such as resistance, power, capacitance, magnetism, inductance, AC theory, resistive, capacitive and inductive circuits, and transformers, filters, AC generators and motors. Frequency dependent devices are also covered. Pre-requisite: AVN 110; Co-requisite: AVN 211P

AVN 211P Electrical Engineering II Lab (1 Cr.)
This course is a continuation of Electrical Fundamentals I and covers an advanced level with emphasis put to electrical terms such as resistance, power, capacitance, magnetism, inductance, AC theory, resistive, capacitive and inductive circuits, and transformers, filters, AC generators and motors and other applications as aircraft systems require. Pre-requisite: AVN 110; Co-requisite: AVN 211 - Electrical Engineering II

AVN 112 Electronics (3 Credits)
This course provides student with understanding and skill of aircraft electronics. It covers electronic fundamentals with emphasis on semiconductors such as the diode and the transistor. A fundamental characteristic, properties and uses of these devices are discussed. A brief introduction to integrated circuits, printed circuit board technology, and servo mechanisms are also covered. Pre-requisite: AVN 110, AVN 211; Co-requisite: None

AVN 123 Fundamentals of Digital Techniques (3 Cr.)
This course is designed to develop student understanding and skills in the fundamental of digital techniques. The course covers aircraft electronic instrument systems, basic computer structure and electrostatic sensitive devices, typical systems arrangements and cockpit layout of electronic instrument systems, computer terminology, special handling of components sensitive to electrostatic discharges. Pre-requisite: AVN 110; Co-requisite: None

AVN 311 Electronics Communications (3 Cr.)
This course covers the basic principles of electronic communication techniques and radio principles. AM, FM and other modulation techniques are discussed and the principles of a super-heterodyne receiver are learned. Pre-requisite: AVN 110; Co-requisite: None

AVN 321 Digital Techniques I (3 Cr.)
This course is designed to develop student understanding and skills in digital techniques. This course covers an advanced level of digital systems with emphasis put on electronic instrument systems, numbering systems, data buses and data conversion. Pre-requisite: AVN 211; Co-requisite: None

AVN 327 Avionics I (3 r.)
This course covers flight theory, general concepts of aero-structures and systems, auto-flight principles, comm. & nav. Systems, and electrical power generation and regulations. Pre-requisite: AVN 112, AVN 123; Co-requisite: None

AVN 333 Avionics II (3 Cr.)
This course is a continuation of AVN Avionics I course. It Aims to consolidate and develop the general and fundamental aircraft maintenance taught in the earlier parts of the course by examining the components, system layout and operation of avionic systems. Pre-requisite: AVN 327; Co-requisite: None

AVN 326 Propulsion and FADEC (3 Cr.)
This course is designed to develop student understanding and skills in aircraft propulsion and FADEC system. The course introduces to the constructional arrangement and operation of turbojet, turbofan, turbo shaft, and turbo prop engines, electronic engine control and fuel metering system (FADEC), and covers engine indication systems, their components and their principles of operation. Pre-requisite: AVN 311, AVN 211; Co-requisite: None

29.4 Air Traffic Management

ATM 101 - Private Pilot Ground School (PPLG) - (3 Credits)
This course is designed to help the ATM students to get familiarized with the Private Pilot License (PPL) knowledge and Expose student pilots to the world of aviation. It is designed to help students evaluate the exciting field of aviation as a career or ATC controller to ensure dedication and integrity to maintain a safe environment. This course is designed as a preparation course for your flight training required by the Federal Aviation Administration or GCAA to pass the PPL written exam.

ATM 201– Aviation Law (LAW) – (4 Credit Hours)
This is a course which introduce the students to recognize and apply the regulations governing rules of the air, airspace and flight planning, licensing for ATCO and explain their development and incorporation into legislation of Air Traffic Operations.

ATM 202 – Meteorology (MET) – (4 Credit Hours)
This is a course which introduce the students to describe the composition of the atmosphere and various meteorological phenomena therein that may be encountered in the provision of air traffic services (ATS); demonstrate knowledge of standard meteorological reports, the abbreviations and terminology used, and types of information available to pilots from ATS. This course will introduce the students to acquire, decode and make use of meteorological information relevant to provision of ATS.

ATM 203 – Navigation (NAV) – (3 Credit Hours)
This is a course which introduce the students to recognize the basic principles of navigation and use this knowledge in ATS operations.

ATM 204 – Equipment and Systems (EQB) – (4 Credit Hours)
This is a course which introduce the students to explain the basic working principles of equipment that is in general use in and appreciate how this equipment aids the controller in providing a safe and efficient ATS.

ATM 205 – Aircraft (ACB) – (3 Credit Hours)
This is a course which introduce the students to describe the basic principles knowledge of the theory of flight and aircraft characteristics and how these influence ATS operations.

ATM 206 – Air Traffic Management (ATB) – (4 Credit Hours)
This is a course which introduce the students to the basic principles and apply basic operational procedures of air traffic management. They will also appreciate the need to apply the standard ICAO separation minima, coordination required and safety net available to ensure safe operation of the air traffic in the allocated airspaces.

ATM 207 – Radio Telephony & Phraseology Practice (RTFP) – (2 Credit Hours)
This is a course which introduce the students to become familiar with aviation English Language used by the pilots and the air traffic controllers.

ATM 208 – Human Factors (HUM) – (4 Credit Hours)
This is a course which introduce the students to recognize the importance which affect personal and team performance in ATC environment. This is a course which introduce the students to recognize the necessity to constantly extend their knowledge and to analyze factors which affect personal and team performance.

ATM 209 – Professional Environment (PEN) – (3 Credit Hours)
This is a course which introduce the students to recognize the need of close cooperation with other parties concerning Air Traffic Operations and aspect of environmental protection. Additionally, the course was designed to expose students to the basic framework of Threat and Error Management. The course shall examine threats, errors and undesired states, and apply these to both real world and aviation environments.

ATM 210 - AIR Traffic Quality Assurance (ATQA) – (2 Credit hours)
This course provides specific direction for the reporting, investigation, and recording of air traffic incidents. Additional guidance is provided for the identification and correction of performance deficiencies through establishing a quality assurance program at the facility and national level. This course is designed to work in concert with current GCAA Orders concerning facility evaluations, air traffic technical training, performance management systems, and bargaining unit contractual agreements.

ATM 220 - ATM Project I– (3 Credits)
The purpose of this course is to instill in the students some basic ATM aviation related project from start to finish. The instructor of the course will give a series of lectures pertaining to managing Air Traffic and provide the student with the opportunity to exercise his learning in implementing a project based on the principles discussed in class. This course is a capstone course to develop the student's ability to analyze and synthesize simple but important Air Traffic problems and provide a methodology for understanding the problem and provide a solution. This course is conducted under the supervision of an instructor.

ATM 230 – On-the-Job Training ATCA (OJT 1) – (6 Credits)
This is a course which introduce the students to perform and manage air traffic movement at operational ATC facility with a qualified trainer. The student must demonstrate a required level of competent in order to achieve the skills as an ATCA. At the end of week 8, the students must achieve competent status in order to pass the course.

ATM 301 – Air Traffic Management- Radar (ATMR) – (3 Credits)
This is a course which introduce the students to demonstrate and manage air traffic to ensure safe, orderly and expeditious services.

ATM 301P – Air Traffic Management Practical (R) (ATMP R) – (3 Credit)
This is a course which introduce the students to demonstrate and manage air traffic to ensure safe, orderly and expeditious services.

ATM 302 – Advanced Equipment (EQA) – (4 Credits)
This is a course which introduce the students to describe the basic principles of the equipment and systems and comply with the equipment and system degradation procedures in the provision of ATS.

ATM 303 – Unusual Degraded and Emergency Tower (UDET) – (3 Credits)
This is a course which introduce the students to develop professional attitude to manage traffic in abnormal and emergency situation. Additionally, able to explain and to demonstrate the knowledge handling emergency situation during simulated practical exercises and during practical live event at work place.

ATM 304 – Aerodromes and Advanced Aviation Law (ADLAW) – (2 Credits)
This is a course which introduce the students to explain the design, layout of Aerodromes and the use of lights signal to control air and ground traffics. This is a course which introduce the students to recognize and apply the Rules of the Air and the Regulations regarding reporting, airspace, and appreciate the Licensing and Competence principles in Air Traffic Operations.

ATM 305 – Advanced Navigation and Aircraft (ANV) – (2 Credits)
This is a course which introduce the students to analyze all navigational aspects in order to organize the air traffic in ATM. This is a course which introduce the students to assess and integrate aircraft performance in the provision of ATS.

ATM 306 – Air Traffic Management: Tower (ATMT) – (2 Credits)
This is a course which introduce the students to the basic layout and the facilities of an aerodrome. The students must be able to describe all hazardous area and obstructions area within the movement area. They must also recognize all lights signal use to control air and ground traffic.

ATM 306P – Air Traffic Management Practical (T) (ATMP T) – (3 Credits)
This is a course which introduce the students to satisfactorily demonstrate and manage air and ground air traffic to ensure safe, orderly and expeditious services within the aerodrome traffic zone. Additionally, the students must demonstrate satisfactorily handling aircraft in distress situation in the area of responsibility.

ATM 307 – Unusual Degraded and Emergency Radar (UDR) – (3 Credits)
This is a course which introduce the students to develop professional attitude to manage traffic in abnormal and emergency situation. Additionally, able to explain and to demonstrate the knowledge handling emergency situation during simulated practical exercises and during practical live event at work place.

ATM 320 - ATM Project II– (3 Credits)
The purpose of this course is to instill in the students some basic ATM aviation related project from start to finish. The instructor of the course will give a series of lectures pertaining to managing Air Traffic and provide the student with the opportunity to exercise his learning in implementing a project based on the principles discussed in class. This course is a capstone course to develop the student's ability to analyze and synthesize simple but important Air Traffic problems and provide a methodology for understanding the problem and provide a solution. This course is conducted under the supervision of an instructor.

ATM 330 – On Job Training ATCA (OJT 2) – (6 Credits)
This is a course which introduce the students to perform and manage air traffic movement at operational ATC facility with a qualified trainer. The student must demonstrate a required level of competent in order to achieve the skills as an ATCO. At the end of week 8, the students must achieve competent status in order to pass the course.

29.5 Electromechanical Engineering Technology (EMT) EMET Mechatronics Engineering Technology Specialization

EMEM101 Statics (3 CR)
This course aims to introduce to the students force and moment vectors, resultants of more than one vector. Principles of statics and free-body diagrams. Equilibrium principles. Applications to simple trusses. Center of Gravity and moment of inertia. Internal forces in beams. Laws of friction.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEE205 Introduction to Circuit Simulation (3 CR)
This course provides an introduction to different simulation software. It is designed to give students fluency in MATLAB, including popular toolboxes. The course covers basic plotting, using flow control, creating functions and solving complex mathematical problems including linear, polynomial and differential equations. Calculus and Simulink also included in the delivery of the unit. Besides MATLAB, other circuit simulation software such as Multisim and PSpice are also taught in the course and students are required to build and simulate circuits using these programs.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEE201 Digital Logic Design (3 CR)
This course provides the students with the necessary knowledge and skills needed to deal with number-base conversion, Boolean algebra & basic logic gates, gate-level minimization using Boolean algebra, and gate-level minimization using map methods & other techniques. It also provides the basic knowledge about the digital circuits design procedure, the basic combinational logic circuits (half-adder, full-adder, binary adder-subtractor, decimal adder, binary multiplier, magnitude comparator, decoders, encoders, and multiplexers), and the basic sequential circuits (latches, flip-flops, and clocked sequential circuits).
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC203 Instrumentation and measurement (3 CR)
This course provides the knowledge and the understanding of basics of instrumentation and transducers used in the manufacturing industries. This course will equip the student with the basic knowledge of temperature, flow, pressure, and level measurements. In addition to that he will know various types of detectors, sensors, and instruments that are used with the electronic measurements like displacement, speed, force, vibration, and fire detection.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE204 Electric Circuits (3 CR)
This course provides the students with the necessary knowledge about the basic concepts of electricity, Ohm's law, electrical diagrams, basic DC theory, open circuits, short circuits, resistive circuits & networks, voltage & current divider techniques, Kirchhoff's laws (KCL & KVL), DC solving methods & analyses (nodal, loop, source transformation, superposition, Thevenin's, Norton's, and maximum power transfer), DC bridges (Wheatstone & Kelvin), capacitive circuits, inductive circuits, and mixed RLC circuits.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX101 Introduction to Programming with C++ (3 CR)
This programming course is oriented to electromechanical students and it is divided into two parts. The first part is a fast-paced introduction to the C++ programming language for students with prior programming experience. The second part of this course introduces the object-oriented programming paradigm focusing on the definition and use of classes along with fundamentals of object-oriented design in C++.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEC201 Control System Technologies I (3 CR)
This units aims to introduce students to the fundamentals knowledge of control system technologies. Topics include: linear feedback control theory, mathematical modeling of physical systems, transfer

functions, block diagrams, test signals, transient response of control systems, time domain specifications, steady-state error and stability, PID controllers, root locus techniques, , frequency domain analysis, Nyquist criterion, Bode plots and Nicholas charts.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EMEE207 Embedded Systems (3 CR)
This course is designed to enable students to recognize and understand Microprocessor and Microcontroller technology. It also provides the student the opportunity to develop the knowledge and skills to program, test and interface memory devices and eventually create an embedded system. The course topics include basic programming of a microcontroller device and interfacing sensors and actuators to the microcontroller.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEC202 Programmable Logic Controllers (3 CR)
This course is designed to develop student competency and skills in mechatronic systems using programmable logic control.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE203 Electrical Machines (3 CR)
This course has been designed to give students a fundamental knowledge and understanding of a range of electrical machines and their applications. In particular, students will study the analysis of AC circuits, magnetic circuits, constructional features, principle of operation, performance characteristics and applications of DC motors, single phase motors, three phase motors, synchronous generators and motors, and different types of transformers. The Course acts as a good foundation Course for more in depth studies in specialist areas of electrical motors and transformers.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE202 Electronic Devices 1 (3 CR)
The overall course objective is to develop student understanding and skills in diodes, zener diodes, special-purpose diodes, Bipolar Junction Transistors (BJTs), power amplifiers, Junction Field Effect Transistors (JFETs), and Metal Oxide Semiconductor Field Effect Transistors (MOSFETs).
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX290 PCB OCT (1 CR)
This training module is intended to provide students with knowledge and hands-on skills in the simulation of electrical circuits, printed circuit board (PCB) design, circuit board fabrication and assembly, and testing of a fully functional circuit board. It includes:
1. Simulate, design and test a Printed Circuit Board for Rectifier circuit.
2. Simulate, design and test a Printed Circuit Board for an amplifier circuit.

Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX291 AC Machines OCT (1 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of electrical Machines. This course covers a wide range of generators and motors –dc. Single phase and three phase a.c.
The training is designed to build:
Social skills through team interactions.
Technical competence through hands-on training.
Introduce the students to the principles of DC electrical machines ;motors& generators.
Introduce the students to the principles of AC electrical machines; motors& generators for single phase and three phases.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX292 Customized Automation Solutions with TIA (1 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of electrical Machines. This course covers a wide range of generators and motors –dc. Single phase and three phase a.c.

The training is designed to build:
Social skills through team interactions.
Technical competence through hands-on training.
Introduce the students to the principles of DC electrical machines ;motors& generators.
Introduce the students to the principles of AC electrical machines; motors& generators for single phase and three phases.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX293 PLC OCT (1 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of PLCs -programmable logic controllers' – technologies using Siemens S7- 300 SIMATIC PLC integrated with a flexible manufacturing system. The training is designed to build:
Social skills through team interactions.
Technical competence through hands-on training.
Methodological competence.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX294 ROBOTICS OCT (1 CR)
The overall objective of this module is to provide students with knowledge and hands-on skills in the programming of a pick and place robotic arm.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX295 Pneumatics and Hydraulics OCT (1 CR)
This unit covers training on pneumatics and hydraulics equipment and schematic drawing of Hydraulics and Pneumatics circuits. The equipment used is produced by FESTO with the assist of FLUIDSIM-P and FLUIDSIM-H softwares which can simulate the operation process of both pneumatics and hydraulics circuits.
Lecture 1 hr/wk, Lab 2 hrs/wk.

EMEX296 Pump OCT (1 CR)
This On-Campus Training (OCT) EMEM290 course provides hands-on training on operating, measuring, testing, evaluating and controlling industrial pumps.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX297 Air Compressor OCT (1 CR)
This On-Campus Training (OCT) EMEM291 course provides hands-on training on operating, measuring, testing, evaluating and controlling industrial piston air compressor.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX298 Fluid Mechanics OCT (1 CR)
This On-Campus Training (OCT) EMEM293 course provides hands-on training on operating, measuring, testing and investigating fluid mechanics equipment. Investigate Bernoulli's law, flow types / Reynolds number, Impact force and pressure losses.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX299 Heat Exchanger OCT (1 CR)
This On-Campus Training (OCT) EMEM292 course provides hands-on training on operating, measuring, testing, evaluating and controlling heat exchangers.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE-301 Power Electronics 1 (3 CR)
This Course has been designed to develop students and graduates' knowledge, understanding and skills in the characteristics and applications of a range of power electronic devices. Students and graduates will also study how these devices are electrically protected and cooled and will also consider a range of single phase AC to DC converter and dc to dc chopper circuits.
Lecture 3 hrs/wk, Lab 2 hrs/wk.

EMEE302 Signals and Systems (3 CR)
This course convers the basic concepts of systems and the different types of signals. The course topics include sampling of continuous time signals to form discrete time signals, the transformation of continuous time signals to the frequency domain and vice versa and the transformation of discrete time signals to the z domain and vice versa.
Lecture 3 hrs/wk, Lab 2 hrs/wk.

EMEE206 Introduction to Power Systems (3 CR)
This Course is designed to provide students and graduates with knowledge and understanding of electrical power systems and the concept of power transmission. Students and graduates will also be provided with the opportunity to analyze power system operation and explain methods of load flow analysis.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX303 Health, safety and Environment (3 CR)
This course is designed to enable students to understand all relevant health and safety legislation, management, control of workplace hazards and complete basic risk assessment on the equipment, environment and methods relating to the engineering sector.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEC303 Control System Technologies II (3 CR)
This course will enable candidates to describe mathematical modeling of different control systems including, mechanical, electrical, fluid and thermal. Topics would also include different compensators design based on root locus, and frequency response analysis. Candidates will be able to describe mathematical modeling of different control systems in state space.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE304 Power Transmission (3 CR)
This unit aims to introduce students to the fundamentals of analyzing transients in electric power circuits. Topics include: transient analysis of RL (resistive-inductive) circuits under AC/DC supply, transient analysis of RC (resistive-capacitive) circuits under AC/DC supply, transient analysis of RLC (resistive-inductive-capacitive) circuits under AC/DC supply, application of step forcing function and superposition principle in transient analysis, per-unit conversion in three-phase circuits, equivalent circuits and their simplifications and superposition principle in transient analysis of three-phase circuits.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE305 Communications (3 CR)
This course aims to introduce students to the fundamental concepts of communication systems. The course topics include overview of system types, amplitude modulation and angle modulation both frequency and phase. It introduces students to sampling and pulse code modulation and develop their knowledge of performance parameters of a communication system. Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX301 Applied Engineering Mathematics (3 CR)
This course provides mathematical concepts and techniques that are most relevant to engineering disciplines. It is designed for students gain necessary math skills to study engineering topics such as circuit analysis, signal processing, electromagnetic fields and waves, etc. Topics include matrix algebra, first and second order differential equations, Laplace transform, complex numbers and functions, Fourier series and transform, partial differential equations. For each of these topics, engineering applications will be emphasized in the course.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE390 Graduation Project I (3 CR)
The aims of this course are to develop a project concept, partnership, and plan; projects will be implemented in the last semester of the fourth academic year, EMEE 490 Graduation Project II. In developing this project, students are expected to utilize their learning throughout the core courses in electrical engineering technology. Students are encouraged to assist each other, and working groups will be established to support student collaboration. Projects may be undertaken with an industry and/or

community partner. The graduation project is a significant component of EMET engineering technology work that is aimed to be conducted in a professional and technical engineering manner and is professionally documented in a comprehensive report and presentation. The aims of the graduation project are to provide an opportunity for the student to demonstrate their capacity to bring together their advanced skills and knowledge that have been gained as part of their coursework and apply these to a real-world technical engineering problem.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE303 Power Systems Protection (3 CR)
This unit aims to introduce students to the fundamentals of analyzing applications of power system protection. Topics include: components of system protection, instruments transformers, overcurrent relays, protection of radial systems, symmetrical components, per-unit sequence models of three-phase transformers and study cases on unsymmetrical faults. Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX-302 Quality Management (3 CR)
This Course is designed to allow students to explain and distinguish between different quality approaches. The course also provides students with opportunities to examine different quality management tools and techniques and analyze quality costs. This course supports the development of quality management standards and quality assurance and control practices suitable to the various needs of the workplace.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEE399 On-Job-Performance 1 (3 CR)
This training course module aims to assess trainee's competence in completing safe and effective on-site hands-on training in disciplines related to Electromechanical Engineering Technology. It includes to identifying hazards, assessing the risks involved, minimizing the risks by implementing control measures and providing ongoing monitoring of plants, equipment and processes. Trainee will be following trainee's organization's safe working practices at all times and working within the work permit procedures. During this work trainee must take account of the relevant worksite operational requirements, procedures and safe working practices.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE402 Power Systems Operation and Control (3 CR)
This course introduces students to the fundamentals of analyzing the operation of power systems and systems control. Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEX401 Engineering Economics (2 CR)
This course provides an understanding of the theory and methods of economic analysis especially needed for engineering. Topics include cost concepts, the time value of money, comparison of alternative investments, depreciation and income tax, replacement analysis, decision making under risk and uncertainty, and break-even analysis.
Lecture 2 hrs.

EMEE306 Electronic Devices 2 (3 CR)
This course is designed to provide students the skills and competence in the operation of more complex electronic circuits.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEC301 Motor Drives Control (3 CR)
This course covers principles of motor control in part as a continuation on Mechanical Components and Electric Drives. In the first part of the course, General Machine Operation, different types of braking and loads on a motor are addressed, as well as questions of improving motor efficiency and power. Different control techniques are then discussed, including different methods of starting a motor, controlling voltage and frequency, and the role of different sensors in relation to motor operation. Troubleshooting techniques and an examination of the various causes of motor failure are discussed; preventive measures that can be taken in order to protect motors are also taught.

Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE499 On-Job-Performance 2 (3 CR)
This second training course module aims to assess trainee's competence in completing safe and effective on-site hands-on training in disciplines related to Electromechanical Engineering Technology. It has a strong focus on building and maintaining working relationships and building on corporate communication skills. It includes to identifying hazards, assessing the risks involved, minimizing the risks by implementing control measures and providing ongoing monitoring of plants, equipment and processes. Trainee will be following trainee's organization's safe working practices at all times and working within the work permit procedures. During this work trainee must take account of the relevant worksite operational requirements, procedures and safe working practices.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX201 Introduction to Mechatronics (3 CR)
This course covers the basics of the electrical and mechanical components in a complex mechatronic system. Based upon a physical system, students will learn the basic functions and physical properties of both electrical and mechanical components, and the roles they play within the system. They will also learn AC and DC electrical drives, mechanical components which lead and support the energy through a mechanical system to increase efficiency and to reduce wear and tear, materials, lubrication requirements, and surface properties. Technical documentation such as data sheets, schematics, timing diagrams and system specifications will also be covered. By understanding the complete system, the flow of energy through it and measurements on the components, students will learn and apply troubleshooting strategies to identify, localize and (where possible) correct malfunctions. Preventive maintenance and safety issues for electrical components within the system will be discussed.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX202 Pneumatic and Hydraulic Systems (3CR)
This course covers the basics of pneumatic, electro-pneumatic and hydraulic control circuits in a complex mechatronic system. Students will learn the functions and properties of control elements based on physical principles, and the roles they play within the system. Technical documentation such as data sheets, circuit diagrams, displacement step diagrams and function charts will also be covered. By understanding and performing measurements on the pneumatic and hydraulic control circuits, students will learn and apply troubleshooting strategies to identify, localize and (where possible) correct malfunctions. Preventive maintenance of (electro) pneumatic and hydraulic components, as well as safety issues within the system, will be discussed.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM205 CAD/CAM Technologies (3CR)
This course emphasizes the development of skills in computer aided design (CAD) and computer aided manufacturing (CAM). The student will design and program parts to be machined on computer numerical controlled machines. Topics include drawing manipulations, tool path generation and program posting, This course also will enable students to explore and gain further understanding of how the computers can be used in Manufacturing Industry.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM203 Heat Transfer (3CR)
The Heat transfer is the study of thermal energy transfer between materials due to a temperature difference. It involves heat propagation through solids and fluids, or can take place through a vacuum. The course will enable students to gain the necessary knowledge in the Fundamentals of heat transfer mechanisms.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM201 Dynamics (3 CR)
This course aims to educate students in their basic understanding of the mechanics of physical bodies under the action of dynamic force systems. The student will apply a working knowledge of the basic laws of motion and the concepts of force, work, impulse, momentum and energy to particles and rigid bodies associated with dynamic behavior. The following topics will be dealt with: Plane particle

kinematics, including curvilinear and relative motion; Plane particle kinetics, including equations of motion, work-energy, impulse-momentum, impact; Kinetics of systems of particles; Introduction to plane kinematics of rigid bodies, types of rigid body motion (translation, rotation about a fixed axis); mass moment of inertia.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM302 Kinematics of Machinery (3 CR)
This course aims to educate students in concepts of the dynamics of machines. Students will acquire the skills and ability to solve machine dynamics problems involving: kinematic analysis of mechanisms; kinematic analysis of cam-follower motion and gear train configurations; balancing of rotating and reciprocating masses; analysis of flywheel, governor and gyroscopic effect. The knowledge gained in this course will be used extensively in later engineering design and analysis courses.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX402 Mechatronics System Design (3 CR)
This course presents specifics in the mechanical design of mechatronic systems. Its main foci are problem analysis, conceptualization & drawing, design/material selection, and performance analysis to create complete functional mechatronic systems. Topics include requirements of mechanical subsystems as components of the whole and design methods. Components like bills of materials and economic analysis will also be covered in lecture.

This study is oriented towards a design project with the goal of developing a complete dynamic mechatronic system based upon optimal solution and materials considerations, economic considerations, quality and reliability.

Projects and assignments are therefore essential elements of this course. Students will carry out a design project from start to finish, which can be geared toward any application of mechatronics, such as robotics and manufacturing systems. These deliverables are a great opportunity to gain a hands-on experience in designing and building a mechatronic system. The intent of this course is also to provide the student with a cooperative working experience within a team.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEX403 Robotics (3 CR)
This course aims to provide an introduction to the mechanics of robots. The theoretical focus is on kinematics and dynamics of robotic manipulators and control design for nonlinear mechanical systems. Topics covered include homogeneous coordinate transformations, representation of spatial orientation, Denavit-Hartenberg link descriptions, forward and inverse kinematics, Jacobian rate and static force relations, and singularities. The applied component of the unit includes experimental work with robotic manipulators and a mechatronic design and build project.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM307 Machine Design 1 (3 CR)
This course aims to educate students in the fundamentals of machine design. The student will acquire basic understanding of the parameters and procedures involved when designing commonly used machine elements. The following topics will be dealt with: tolerances and fits; simple, variable, torsional and bending stresses in machine parts; shaft, keys and couplings.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM204 Material Science (3 CR)
This course is designed to enable students to develop knowledge and understanding of material properties and testing and to apply basic material selection concepts for a range of components.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM301 Heating, Ventilating, and Air Conditioning (HVAC) (3 CR)
This Course is designed to allow students to develop knowledge and understanding of the principles of operation of refrigeration and HVAC (Heating, Ventilation and Air Conditioning) systems. Students will also develop the knowledge and understanding of the criteria used to select suitable system courses

and the skills to test the performance of systems. The topics covered include thermodynamic relations, psychrometry, HVAC processes, cooling and heating loads, and air duct design.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEM303 Manufacturing Process (3 CR)
This course aims to introduce the fundamentals of manufacturing processes (metal forming, forging, metal cutting, welding, and joining etc.); selection of metals, ceramics and other materials relative to the design and choice of manufacturing processes.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEM202 Fluid Mechanics (3 CR)
Introduction to Fluid Mechanics (3 semester hours) Lecture course. Course material includes an introduction to the concepts and applications of fluid mechanics and dimensional analysis with an emphasis on fluid behavior, internal and external flows, analysis of engineering applications of incompressible pipe systems, and external aerodynamics, ideal fluid flow including potential flow theory, and computer solutions in ideal fluid flow.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEM305 Applied Industrial Maintenance (3 CR)
This Course has been designed to allow Mechanical Engineering students to develop, implement and evaluate a CMSS (Computerized Maintenance Management System) solution to a plant maintenance schedule for a new or existing plant installation. In order to achieve this, students will be required to develop a knowledge and understanding of general approaches to plant maintenance and the factors associated with devising a maintenance schedule.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEM405 Thermodynamics II (3 CR)
The overall objective of this module is to allow students to develop knowledge and understanding of the thermodynamic systems that operate on power cycles and refrigeration cycles. The course introduces the fundamental concepts of thermodynamics cycles, the different cycle's classifications such as desired output (power refrigeration), working fluid (Gas or Vapor), etc... It also demonstrates the difference between Carnot, ideal and actual cycles. As well as illustrating open and close combustion heat engines.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC302 Distributed Control System-1 (3 CR)
This course is designed to enable graduates to gain knowledge and understanding and apply Distributed Control Systems (DCS) in Industrial Measurement and Control Engineering, construction and operation of a DCS controller, operator interface, and CS applications and implementation.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC305 Distributed Control Systems II (3 CR)
This Unit is designed to enable graduates to gain advanced knowledge and understanding and apply Distributed Control Systems (DCS) in Industrial Measurement and Control Engineering.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC390 Graduation Project I (3 CR)
Upon successful completion of this course, a student will be able to safely complete a weekly PM on a AMAT Producer CVD The aims of this course are to develop a project concept, partnership, and plan; projects will be implemented in the last semester of the fourth academic year, EMEC490 Graduation Project II. In developing this project, students are expected to utilize their learning throughout the core courses in their specializations. Students are encouraged to assist each other, and working groups will be established to support student collaboration. Projects may be undertaken with an industry and/or community partner. The graduation project is a significant component of EMET engineering technology work that is aimed to be conducted in a professional and technical engineering manner and is professionally documented in a comprehensive report and presentation. The aims of the graduation project are to provide an opportunity for the student to demonstrate their capacity to bring together their

advanced skills and knowledge that have been gained as part of their coursework and apply these to a real-world technical engineering problem.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC399 ON JOB TRAINING 1 (6 CR)
The main purpose of 'on-the-job training' is to acquaint the students formally to a real life work place environment. This will help to explore the relationship between the knowledge & skills acquired in AD Poly with those required in the working situations. This enables students to understand and respond better to the market demand of I&C engineering. Students will be trained on different control systems and process instrumentation techniques besides training on HSE from I&C engineering prospective.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC401 Feedback Control Systems (3 CR)
This course will introduce students to modern control theory based on state-space methods. The focus will be primarily on modeling, analysis and controller design of continuous-time, Linear Time Invariant (LTI) systems. The course will emphasize, through examples, how to apply modern control techniques to system models using the MATLAB and Simulink software environments.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC 404 DCS and SCADA (3 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of DCS and SCADA technologies, using Siemens HMI SIMATIC basic panels with WinCC flexible software to create simple projects. By integrating the HMI with a S7- 300 SIMATIC PLC to control a flexible manufacturing system.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC490 Graduation Project II (3 CR)
The purpose of this course is to execute the project planned and conceptualized in EMEC390 Graduation Project I. This unit is a team-based, self-directed project where student groups design and build a fully functional electro-mechanical system. Working in a cooperative learning environment student groups work on their project throughout the semester while reporting to the project supervisor(s). Student groups are responsible for all project activities and project management phases in order to ensure that the design, fabrication, assembly, testing, debug, and operations of the system are fully functional and completed in a timely manner. Effective utilization of all resources including people, materials, and time is strategically planned by the team in order to optimize project outcomes and delivery. The student group delivers a complete functional electro-mechanical system supported by a complete technical report and a brief video compilation which highlights the main features of the project.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEC499 ON JOB TRAINING 2 (OJP2) (3 CR)
This training is a completion of on job training one, it concentrate on developing the students' skills in planning, designing and analyzing of control systems, besides enhancing their capabilities in troubleshooting and management of I&C engineering. This will help them to explore the relationship between the knowledge & skills acquired in AD Poly with those required in the working situations. This enables students to understand and respond better to the market demand of I&C engineering. students will be trained on different control systems and process instrumentation techniques besides training on HSE from I&C engineering prospective.
Lecture 2 hrs/wk, Lab 2 hrs/wk

Engineering Fundamentals (ENG)

ENG-111 Industrial Safety and Professional Ethics. (2 CR)
This course is a study of safety and health management in the workplace as it related to hazard identification and control, accident investigation and prevention, emergency planning and moral responsibilities to society. It introduces the students to profession, professional ethics, various moral

issues and uses of ethical theories, and codes of ethics in professional engineering societies.
Lecture 2 hrs / wk,

ENG-113 Engineering Drawings (ENG113) (2 CR)
This course will introduce students to engineering drawings, diagrams and schematics that are used in various industries. Students will learn how to read, interpret and decipher the various graphic symbols, components, systems, and abbreviations found on various engineering drawings categories; Fluid Power Diagrams and Schematics, Process and Instrumentation Diagram (P&ID) and loop diagrams, Electrical / Electronic diagrams and schematics, Logic Circuits and Diagram and Engineering Fabrication Drawings. In addition to that, students will learn how to use Auto-Computer –Aided Design (AutoCAD) software in engineering drawings.
Lecture 1 hrs / wk, 2 lab 2hrs / wk

ENG-121P Mechanical Workshop (1 CR)
This course is a hands-on course covering mechanical shop safety procedures and use of manual and automated mechanical machining processes. It provides the student with skills and knowledge of hand tools, drill presses, mills, lathes, welding and precision measuring instruments.
3 hrs Lab/wk,

ENG-123 Mechanical Technology (3 CR)
This course covers the operating principles and types of valves, pumps, heat exchangers, steam traps, filters and strainers, air compressors, refrigeration machines, heating, ventilation, and air conditioning systems, steam turbines, diesel engines, hangers and snubbers. The course also covers the principles of lubrication.
Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk
Pre-requisite: MATH111 or MATH103; PHYS 111, PHYS111P

ENG-124 Thermodynamics (3 CR)
This course covers thermodynamics units, important thermodynamics properties, application of thermodynamics to flow systems (steam engines, turbines), and volumetric properties of pure fluids.
Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk
Pre-requisite: MATH111 or MATH103; PHYS 111, PHYS111P; CHEM111 and CHEM111P

ENG-125 Introduction to Computer Electronics
Electronics is an integral part of computers; hence students of computer engineering and information technology need to know the fundamental of analog and digital electronics circuits. This course has been designed to provide the needful inputs to handle simple electronic components and circuits. Students after studying this course will be able to understand the basics of analog and digital electronics, various electronics components, and develop skills to use simple electronic instruments needed for computer-based working environment. The student will become familiar with the use of computer design aids software for electronics such as PSPICE and to learn to use it to assist them in the analysis of circuits. By using PSPICE, the students will be able to design and draw circuits, simulate circuits, and analyze the simulation results.
Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk
Pre-requisite: MATH111 or MATH103; PHYS 112, PHYS112P

ENG-141 Instrumentation and Controls I (3 CR)
This course provides the knowledge and understanding of basics instrumentation and control in the manufacturing industries. A student who completed this course will be equipped with basic knowledge of process variables and sound theoretical background of instruments and its measuring techniques.
Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk
Pre-requisite: MATH111 or MATH103; PHYS 112, PHYS112P

ENG-224 Statics and Strength of Materials (3 CR)
This course is to develop knowledge and understanding of the principles and laws that relate to material strengths, stress and strain concepts, loading on materials, deflection of beams and shafts, and statically indeterminate beams and shafts.
Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk

Pre-requisite: MATH111 or MATH103; PHYS 112, PHYS112P

ENG-225 Heat Transfer and Fluid Flow (3 CR)

The course explores introductory concepts of fluid mechanics and fluid statics. Also, the course covers mechanisms of heat transfer by conduction, convection, and radiation. It also introduces heat exchanger design and sizing.

Lecture 2 hrs / wk, 2 Tutorial, 2hrs lab/ wk
Pre-requisite: ENG124, MATH111 or MATH103

29.6 Information Technology

ICT-112 Introduction to Programming and Problem Solving (3 CR)

This introductory course in engineering problem solving and computer programming is for all undergraduate engineering students without prior programming experience in any language. The course covers the fundamentals of computer programming and its underlying principles using the Java programming language. Concepts and methods are illustrated by examples from various engineering disciplines. Useful numerical techniques and their applications to real world problems in science and engineering are also discussed. Weekly laboratory required.

Lecture 2 hrs / wk, 2Lab 2hrs/wk

29.7 English Course Description

ENGL-100A English Foundation A (3 CR)
This course enables students to develop their language skills in listening, speaking, reading, and writing to help them cope with other advanced courses. It focuses on analyzing texts, inferring meanings, as well as building and organizing effective arguments. This course also covers a variety of relevant skills, such as categorizing, describing, sequencing events, comparing and contrasting, and explaining causal relationships. Students learn to express ideas effectively in a variety of sentence structures, paragraph types, and spoken interactions while building knowledge of English grammar and lexical items. Toward that end, students will learn to incorporate the material appropriately into clear, complex, and coherent academic essays.

Lecture 3 hrs / wk,

ENGL-100B English Foundation B (3 CR)
This course enables students to further develop their language skills with an emphasis on reading, writing, and critical thinking in preparation for other advanced courses. It focuses on analyzing texts, inferring meanings, as well as building and organizing effective arguments. As an extension of Foundation English Communications–A, this course will also cover a variety of relevant skills, including using graphical organizers, drawing on outside resources for background information, as well as using contextual information to highlight the relationship between text purpose, audience type, and content. Students will further develop their ability to express ideas effectively in a variety of language structures, essay types, and spoken interactions while continuing to build knowledge of more advanced English grammar and lexical items.

Lecture 3 hrs / wk,

ENGL-111 English Communication Skills (3 CR)
This course enables students to develop their language skills to communicate effectively for lifelong learning. This course covers a variety of relevant topics and skills, such as engineering, technology, health and safety issues; English grammar and lexical items; and effective writing for industry.

Lecture 3 hrs / wk,

ENGL-112 Technical English Skills (3 CR)
This course focuses on developing students' language skills in technical communication genres. It is designed to introduce students to information and language specifically for future technical careers. Covered in this course are the following: the importance of Technical Communication (TC); the goals of TC, ethical and legal considerations; verbal and nonverbal communication; features of effective oral presentations; routine correspondence; document design; descriptions and process analyses; long, formal reports; short, informal reports; and evaluation of criteria and reasons for conducting research in TC.

Lecture 3 hrs / wk,

ENGL-113 English for Oil & Gas (3 CR)
This course provides petroleum engineering students with the language, information, and skills that they need in their field of study and future careers. It enables them to learn and practice the English language and specialist terms they need in real work situations. Consequently, this course develops the students' lexical items, language skills, and knowledge to understand the oil and gas industries, so they can then apply this knowledge practically. It covers a range of subjects, such as historical developments of the oil & gas industries, upstream, midstream, downstream processes, sedimentation and hydrocarbons, as well as product distribution and principles of supply and demand.

Lecture 3 hrs / wk,

ENGL-114 English for Electromechanical Engineering (3 CR)
This English for Electromechanical Engineering course develops students' English language competencies in preparation. English for a career in electromechanical engineering, students will explore engineering lexicon and refine their written communication skills while evaluating and creating technical reports on a variety of current topics related to the electromechanical engineering industry. To complete these tasks, students will also acquire an upper-intermediate level of knowledge in grammar and research techniques. Finally students will hone in on their verbal and non-verbal communication skills for a more polished presentation of current electromechanical engineering topics.

Lecture 3 hrs / wk,

ENGL-115 English for IT (2 CR)
In addition to refining students' competencies in grammar, ICT vocabulary, and oral and written comprehension and expression, this course endeavors to apply students' knowledge in the exploration of current topics of critical interest in the ICT sector. Students will also hone their mastery of professional communication skills through hands-on exercises in customer care, project management, meeting and presentation facilitation, research, and report writing.

Lecture 2 hrs / wk,

ENGL-116 English for Aviation (3 CR)
This course is designed to introduce students to the domain-specific terms and skills. Throughout this course, students will be trained to give descriptions, explanations, and information using aviation specific topics and vocabulary. They will also be able to use the language skills they have picked up in previous English courses within aviation context.

Lecture 3 hrs / wk

ENGL-117 English for Meteorology (3 CR)
This course focuses on developing students' English language skills in preparation for a career in Meteorology Sciences. It introduces students to information and language specific to Meteorology. Covered in this course are the following: Meteorology careers and relevant topics; technology and equipment used in Meteorology; analytical thinking; formal, oral presentations; writing and editing relevant short reports; lexical items in relevant contexts; and English grammar.
Lecture 3 hrs / wk,

ENGL-117 Technical Writing (3 CR)
Technical Writing aims to develop students' skills to be skilled writers in their chosen career. This course covers a variety of topics, such as appropriate usage of tools for professional writers, using international business English, writing and editing emails for various audiences, writing reports for industry, and an intermediate knowledge of grammar and writing.

Lecture 3 hrs / wk

29.8 Flightline Maintenance-Course Description

FLM 1013 – General Safety, Human Factors, Fire Protection and Control (2,6,2-4)
The course provides an understanding and practical skills of personal and workshop safety, evaluating incidents attributable to human factors and human errors, human performance and limitations, social psychology, environmental influences, errors and their effects on human performance, determine fire classes, decide measures of firefighting, and handle aircraft fire extinguishing equipment,
Pre-requisite: None
Co-requisite: None

FLM 1023 - Workshop Practices, Quality Assurance and GSE Maintenance (2,6,3-4)
The course provides understanding and practical skills to operate hand and power tools, interpret engineering drawings , apply methods of joining aircraft structural members, introduces to regulations related to aircraft quality assurance and quality control procedures, enables to operate and maintain aircraft Ground Support Equipment (GSE) such as hydraulic test benches, ground power units, stairs, ladders, and aircraft towing bars, carry out minor fault diagnosis and defect rectification such as leaks, and loose connections.
Pre-requisite: None.
Co-requisite: None

FLM 1033 – Aircraft Electric and Hydraulic/Pneumatic Power Generation (2,6,2-4)
The course provides a basic overview of aircraft electrical equipment, the generation of different types of current (AC/DC) and their control, safety precautions while handling with electrical or hydraulic power, aircraft electrical power management, types of batteries, charging, loads, systems maintenance, principles of hydraulic and pneumatic aircraft systems, including components such as valves, motors, high pressure and low pressure systems, related power generation and control.
Pre-requisite: None
Co-requisite: None

FLM 1044 – Fundamentals of Turbine and Piston Engines (2,6,2-4)
The course provides basic knowledge of gas turbines and piston engines and their principles of operation, introduces to the various types of engine components and accessories like: fuel system, hydraulic system, lubrication system, starting system, ignition systems, indication systems, and fire-protection system.
Pre-requisite: None
Co-requisite: None

FLM 1054 - Aircraft Fuel & Lubricants and Electrical Ground Power Supply (2,6,3-4)
The course covers the various types of fuels and lubricants used in aviation, identification, properties, calorific values and uses, aspects related to storage, handling and required safety precautions. The course provides a basic overview of aircraft electrical ground supply units, and their basic principles of operation, introduces to aircraft ground power management, aircraft electrical distribution systems, aircraft lighting systems, batteries, Ground Power Units (GPUs), and safety precautions.
Pre-requisite: None
Co-requisite: None

FLM 1064 - Flight Line Operations, Aircraft Documentation (2,6,2-4)

The course provides knowledge and practical experience in aircraft handling and flight line operations like: aircraft taxiing, towing, marshalling, parking and mooring, jacking, tire mounting, flight line inspections, operational testing and troubleshooting as well as consumables replenishment. The course introduces to the various aircraft maintenance documents and applied maintenance procedures. It covers the range of aircraft related documentation such as aircraft log books, manuals, SI, STI, amendments, IPC, and explains how the respective forms have to be filled in.
Pre-requisite: None, Co-requisite: None

29.9 Humanities (HUM)

Course Description

HUM-111 Islamic Civilization (3 CR)

This Islamic culture course deals with the foundation of Islam and its current challenges. Various lectures look at general Islamic regulations and the main issues related to Islamic civilization. Important intellectual issues in religion, Sharia law, worship, ethics and contemporary ideologies are addressed while focusing primarily on aspects of Islamic civilization, its effects and contributions to knowledge and science which have had a clear impact on the rebirth and progress of mankind. The course highlights the problems and challenges facing humanity in general, and Arabic and Islamic nations in particular. Moreover, it discusses the issue of how Islamic nations keep pace with modernity, and how to live and communicate with other cultures in harmony.
Lecture 3 hrs / wk

HUM-112 National Culture and Society (3 CR)

This course is a study of human societies in general, and in particular the general features and main ingredients of the UAE society, geographic location, population development and composition, and economic and geographic aspects. It deals with family and tribal systems and the nature of governance in a tribal society. The nature of services provided to the community before and after the introduction of oil will be discussed, plus the role of cultural, educational and media institutions and the services they contribute to the community. Students will also be provided with a comprehensive and integrated understanding of UAE society and various aspects of social and economic life, political and cultural rights, with particular reference to modern society-building since the establishment of the Union and foreseeing the future. This course aims to strengthen the sense of national belonging, loyalty and pride through consolidation of national culture and social concepts, by student participation in a research project during the semester covering all topics associated with the course

Lecture 3 hrs / wk

HUM-211 Arabic Communication Skills

The communication process of the Arabic language is essential in everyday life, and, based on it, we build our decisions on an individual, collective and international level. This course aims to develop students' capabilities in listening, reading, writing and speaking in their native language. It also helps students to gain linguistic abilities to communicate professionally and socially. In addition, it trains students in different communication skills to avoid common mistakes that can arise from miscommunication. Linguistic performance is developed through a solid and clear understanding of the meanings of different types of texts, which are relevant to the students' environment. Students will navigate through a variety of texts from the Quran, , poetry, prose and short stories.

Lecture 3 hrs / wk

29.10 Information Technology and Security Fundamentals

ICT-112 Introduction to Programming and Problem Solving (3 CR)

This introductory course in engineering problem solving and computer programming is for all undergraduate engineering students without prior programming experience in any language. The course covers the fundamentals of computer programming and its underlying principles using the Java programming language. Concepts and methods are illustrated by examples from various engineering disciplines. Useful numerical techniques and their applications to real world problems in science and engineering are also discussed. Weekly laboratory required.

Lecture 2 hrs / wk, 2Lab 2hrs/wk

29.11 Mathematics and Sciences (MAS)

MATH-100 Precalculus (4 CR)
This course covers basic algebraic operations on numbers, exponents, roots and radicals, equations, inequalities, scientific notations, algebraic operations on expressions, solving formulas and literal equations. It also covers geometry, functions and its graphs, solving system of linear equations and quadratics equations algebraically and graphically, matrix and its determinant, solving linear equations using the determinant (Cramer's rule), factoring and fractions, exponents and radicals, solving logarithmic and exponential equations, trigonometry, radian measure, vectors and oblique triangles, law of sines and law of cosine, plotting trigonometric functions.

Lecture 4 hrs/wk, Tutorial 1 hrs /wk

MATH-111 Calculus I (3 CR)
This course is an introduction to single variable calculus. Topics include: limits and continuity, derivatives of algebraic, trigonometric, exponential, logarithmic and transcendental functions, implicit differentiation, techniques of differentiation and applications of the derivative in optimization, engineering applications and sketching graphs, L'Hospital rule, the concept of antiderivative and integral, definite and indefinite integrals, fundamental theorem of calculus, simple integration techniques, applications of integration in engineering and geometry.

Lecture 3 hrs
Pre-requisite: MATH100

MATH-112 Calculus II (3 CR)
This course is a continuation of Calculus 1, topics include: Advanced methods of integration using substitution, by parts, or by partial fractions, improper integrals, applications of integration in engineering, infinite sequences, series, power series, the approximation of functions by power series, polar and parametric equations and curves, complex numbers and its forms, functions of two variables, partial derivatives, double integrals

Lecture 3 hrs/wk.
Pre-requisite: MATH111

MATH-211 Linear Algebra (3CH)
The course covers: Systems of linear equations, matrices, algebraic properties of matrix operations, Echelon form of a matrix, solving linear systems by Gauss-Jordan reduction, finding the inverse of a matrix by row reduction, equivalent matrices, determinants, properties of determinants, cofactor expansion, inverse of a matrix (via its determinant), other applications of determinants (Cramers rule), vectors in the plane and in 3-space, vector space, subspaces, span and linear independence, basis and dimension, row space, null space, nullity and rank of a matrix, homogeneous systems, change of basis, transition matrices, orthogonalization, linear transformations, kernel and range of a linear transformation, eigenvalues and eigenvectors of a matrix.

Lecture 3 hrs/wk,
Pre-requisite: MATH100

MATH-212 Probability and Statistics (3 CR)
This course covers the principal concepts in statistics and probability. Topics in probability include: discrete random variables and probability distributions, continuous random variables and probability distributions. Topics in statistics include: random sampling and data description, point estimation of parameters, statistical intervals for a single sample, and tests of hypotheses for a single sample, correlation and regression. The course will include the use one of the following software packages (Excel, Matlab or R) for implementing the above-mentioned concepts.
Lecture 3 hrs/wk
Pre-requisite: MATH111

MATH-213 Differential Equation for Engineering (3 CR)
Differential equations are fundamental tools for scientists and engineers in modeling any physical system. The course covers: first order differential equations, exact and linear equations, second order equations, higher order equations, solving system of ODE, Laplace transform solutions of differential equations and Finally, partial differential equations and its classification.

Lecture 3 hrs /wk
Pre-requisite: MATH112

MATH 214 Calculus III (3 CR)
This course deals with Calculus (differentiation and integration) of functions of several variables. Topics include the study of Euclidian space, dot product, cross product, lines, planes, surfaces, tangent planes, gradient vector, linear approximation, multivariable chain rule, directional derivative, triple integrals, line integrals, spherical and cylindrical coordinates, vector fields, divergence, gradient, curl, theorem of Gauss, Stokes and Green, applications in engineering.

Lecture 3 hrs / wk
Pre-requisite: MATH 112

29.12 Physics

PHYS-111 Physics I (3 CR)
This course enables students to develop their skills in understanding physical concepts. It helps students approach questions in a logical and systematic manner. This course covers a variety of topics in mechanics that are relevant for the degrees offered at the polytechnic.

Lecture 3 hrs/wk, , Tutorial 1 hrs/wk.

PHYS-111P Physics Lab I (1 CR)
This Lab is an experimental course intended to complement Physics I. The purpose of the lab course is to explore some of the main concepts experimentally, which are covered in the Physics I course. Students will conduct, analyze and interpret experiments on timing, motion, forces and energy, rotational motion, forces and rotational energy and analyze and prepare lab reports working either individually or in teams. This course is to run alongside Physics I.

Lab 3 hrs/wk.

PHYS-112 Physics II (3 CR)
This course enables students to develop their skills in understanding physics concepts of electricity and magnetism. It helps students approach questions in a logical and systematic manner. This course covers a variety of topics in electromagnetism that are relevant for the degrees offered at the polytechnic. Lecture 3 hrs/wk, Tutorial 1 hrs/wk.

PHYS-112P Physics Lab II (1 CR)
This Lab is an experimental course intended to complement Physics II. The purpose of the lab course is to explore some of the main concepts experimentally, which are covered in the Physics II course. There will be experiments that include aspects of electric field, Ohm's law, resistors and capacitors in series and parallel, charging discharging the RC circuit, resonant frequency of LRC circuit, magnetic field, Magnetic through a coil (induction) and magnetic field in a current-carrying coil.

Lab 3 hrs/wk

29.13 Chemistry

CHEM-111 Chemistry I (3 CR)
Chemistry I is 4 credit hours course consisting of 3 credits for Chemistry I (Chem111) and Chemistry Lab (Chem111P) for 1 credit hour. The Chemistry I course introduces the elementary principles of chemistry and enables students to develop their problem solving skills and understanding the basic fundamentals of chemistry including SI units, unit conversions, significant figures, and periodic table. Emphasizes on chemical reactions and the use of symbolic representation and nomenclature, the mole concept and its applications and molecular structure, stoichiometry and solution stoichiometry, gases law and ideal gas law, and atomic structure and periodicity, chemical bonding and orbital hybridization.

Lecture 3 hrs/wk, Tutorial 1 hrs/wk.

CHEM-111P Chemistry Lab I (1 CR)
This Lab is an experimental course intended to complement Chemistry I and designed for students majoring science and engineering technology. The purpose of the lab course is to explore the safety in chemical laboratories and the fundamental chemistry concepts experimentally, which are covered in the Chemistry I course. Students will conduct, analyze and interpret experiments on physical property, resolution of mixture, composition of element, empirical formula, stoichiometry, types of chemical reactions, gas laws and localized electron model. This course runs alongside with chemistry I and continued with chemistry II.

Lab 3 hrs/wk

CHEM-112 Chemistry II (3 CR)
Chemistry II is 4 credit hours course consisting of 3 credits for Chemistry II (Chem112) and Chemistry Lab (Chem112P) for 1 credit hour. This course continues to provide the fundamentals of chemistry after students finished chemistry I. It emphasizes on the following topics thermochemistry, states of matter and their properties, phase diagrams, solutions composition and properties, chemical kinetics, chemical equilibrium, acids and bases and the fundamentals of electrochemistry

Lecture 3 hrs/wk, Tutorial 1 hrs/wk.

CHEM-112 Chemistry Lab II (1 CR)
This Lab is an experimental course intended to complement Chemistry II. The purpose of the lab course is to explore chemistry concepts experimentally, which are covered in the Chemistry II course. Students will conduct, analyze and interpret experiments on calorimetry, phase diagram, colligative properties, rate and catalyst, chemical equilibrium constant, acid-base and electrochemistry. This course is to run alongside with Chemistry II.

Lab 3 hrs/wk

29.14 General Requirements Elective

HUM-110 Life-long Learning Skills
This Life-long Learning Skills course is designed to develop Emirati students' skills essential for success in the university and life. These skills include critical thinking, self-awareness and self-responsibility, problem solving, and soft skills, including teamwork. This course will also give students the information needed to achieve success in their academic life, such as note-taking, critical reading, e-learning, autonomous learning, and effective exam preparation.

Lecture 2 hrs/wk

HUM-404 Leadership Skills (3 CR)
This Leadership Skills course aims to develop students' leadership knowledge and abilities to become effective leaders in their chosen career. This course covers a variety of topics such as the nature of leadership, early theories of leadership, contemporary issues and views of leadership, developing effective leadership skills, leadership in teams and decision groups, strategic leadership in organizations, and ethical and authentic leadership.

Lecture 3hrs/wk

HUM-402 Creativity, Innovation and Entrepreneurship (3 CR)
Creativity and innovation are essential skills in all engineering industries. Not only are AD Poly engineers expected to work at high international industry standards, but they need to find creative and innovative ways to make these same industries prosper in the UAE regardless of challenges that may be present. This course teaches students about the theory and practical aspects of creativity and innovation in a variety of settings.

Lecture 3hrs/wk

HUM-212 Applied Research and Development Skills (3 CR)
Applied Research and Development Skills (HUM-212) introduces students to applied research methods and techniques, and informs them of the relationship between research and development. Students develop applied research skills in engineering, gain knowledge on how to integrate research design and methodology to industrial development, and learn how to write a study plan based on a critical review of scientific reports/projects. Furthermore, students learn how to research new technology and plan R&D projects.

Lecture 3hrs/wk

29.15 Common Courses

ICT 112 Introduction to Programming and Problem Solving (3 CR)
This introductory course in engineering problem solving and computer programming is for all undergraduate engineering students without prior programming experience in any language. The course covers the fundamentals of computer programming and its underlying principles using the Java programming language. Concepts and methods are illustrated by examples from various engineering disciplines. Useful numerical techniques and their applications to real world problems in science and engineering are also discussed. Weekly laboratory required.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT 120 Object Oriented Programming in Java (3 CR)

The course will present concepts of object oriented programming using Java including object-oriented design, encapsulation and information hiding, separation of behavior and implementation, classes and subclasses, inheritance (overriding, dynamic dispatch), polymorphism (subtype polymorphism vs. inheritance) and class hierarchies. Topics include methods, Arrays, Array Lists, String, and String Manipulation, Objects, classes, basic of GUI, Event Handling, GUI components, File I/O, Exceptions, collection classes and iteration. An introduction to programming practice using an IDE (modularity, testing, and documentation).

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-121 Introduction to Computer Networks (3 CR)
This course equips students with the fundamental concepts and skills in data communications, telecommunications, and computer networking, both wired and wireless. Students will learn basic network devices, functions, standards, and protocols, Local Area Networks and OSI layer model, Analog and digital communication systems; Multiplexing, bandwidth and throughput; Modulation techniques; Transmission lines; Switching and routing; Ethernet technologies; Transmission Control Protocol (TCP)/Internet Protocol (IP); wireless standards; network applications. The students will acquire basic networking skills like designing and setting up a local area network.

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

ICT-130 Discrete Mathematics (3 CR)
This course introduces the foundations of discrete mathematics as they apply to computer science. Topics include functions, relations and sets, basic logic, proof techniques, basics of counting, recurrence relationship. combinatorial problems, recursion, and enumeration

Lecture: 3hrs/week; tutorial: 2hrs/week

ICT-131 Logic Design & Computer Organization (3 CR)
This course covers the study of fundamental combinational logic circuit analysis and design. Combinational concepts covered include Boolean algebra, K-maps, basic logic gates, and small/medium scale integrated circuits. Also it provides students with the basic computer organization; memory systems including, computer arithmetic, and design of a simple computer; Microprogramming and instruction sets; Input/Output and Assembly programming techniques.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-132 Fundamentals of Information Security (3 CR)
This course covers basic concepts and techniques in applied information security, e.g., confidentiality, integrity, availability, and current concerns of anonymity, privacy and safety of web-based transactions, forensics investigations, etc. The course also covers the main available safeguards, such as authentication, authorizations, and network security, and shows how these techniques are applied to

address the issues arising in a variety of different domains, ranging from business to health care, and from law to national security. A coverage of ethical and legal issues in information security; electronic privacy & intellectual property protection; social and economic implications of information security will be discussed.

lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-210 Introduction to Software Security (3 CR)
The course introduces basic and fundamental concepts in secure software design, development, and engineering issues. The course starts by describing the software development life cycle; the software design process, the choices of programming languages, operating systems, databases and distributed object platforms for building secure systems. The course then introduce common software vulnerabilities such as buffer overflows and race conditions, auditing software, proving properties of software, software and data watermarking, code obfuscation, tamper resistant software, and the benefits of open and close source development in the context of web technologies and smart phone application development.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-211 Data Structure and Algorithm Design (3 CR)
This course introduces students to the basic data structures, and the analysis and design of basic algorithms and their role in the problem solving process, as well as techniques for developing, testing and debugging typical programs. Data structures to be covered include: arrays, linked lists, stacks, queues, lists, hash table and trees, heaps and graphs. The algorithms covered include recursion, sorting, selection, searching, and strings and text processing including strategies for choosing the right data structure for a certain problem.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-212 Introduction to Database Systems (3 CR)
This course covers concepts for organizing, querying and managing databases; database design and the use of database management systems. It covers the characteristics of Entity Relationship Model, and the relational data model, functions of relational database management system (RDBMS), process of normalization, entity-relationship modeling and Structure Query Language (SQL), limit and sort results, use of SQL functions, use group by functions, user different types of joins, and writes subqueries. The course covers the data manipulation language of SQL and how to create simple tables with different data type and constraints. Students will also be introduced to the concepts of Big Data and its impact to businesses.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

ICT-220 Introduction to Operating Systems Security (3 CR)
This course covers fundamentals with hands-on knowledge of operating systems operations and security with focus on dominant operating systems (e.g. Linux and Windows). The first part focuses on operating systems principles and organization, criteria to select, deploy, integrate and administer platforms or components to support the organization's IT infrastructure. Topics covered will be operating system structures, process control, scheduling, synchronization, memory, Files, input/output management, protection and privacy, securing Linux, Securing Windows Server, OS hardening, the security mechanism used in an operating system, configuring different levels of security measures, best practices and security related tools and utilities.

NCS-210 Network Security (3 CR)
This course will cover the essential issues in computer communication and network security and their protocols. It will also introduce students to basic issues in network protection, resiliency, and hardening; hence securing the organization wired and wireless network infrastructure. Topics include: network worms, web server security, denial of service attacks, authentication protocols, firewalls, Trojan horses, intrusion detection, data encryption methods, public key cryptography (RSA, DES), email viruses. The

topics to be covered will include security protocols like SSL, and IPSEC. It will also discuss network security threats and attacks, designing resilient networks, configuring of network components like firewall, setting up Virtual Private Network (VPN) and secured wireless connections

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-220 Ethical hacking and Digital Forensics (3 CR)
This course introduces students to a wide range of topics related to ethical hacking and penetration testing. The topics cover the tools and penetration testing methodologies used by ethical hackers and provide a thorough discussion role of ethical hacker in protecting corporate and government data from cyber-attacks. Students are taught offensive and defensive skills for the organization's wired and wireless networks in order to protect important assets against hackers. This course will also equip students with the fundamental concepts and techniques of computer forensics. Students will learn to preserve, acquire, analyze and present computer data as evidence. Students will acquire hands-on experience on various forensic investigation techniques and standard tools necessary to successfully carry-out a computer forensic investigation

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-226 Intro to Applied Cryptography (3 CR)
This course is an introduction to the various technical and administrative aspects of modern applied cryptography (e.g. confidentiality, data integrity, authentication, freshness, and non-repudiation). The principles and application of cryptography to secure data and network with different encryption algorithms and techniques (stream/block symmetric key cryptography concepts, protocols and applications, asymmetric (public-key) encryption, authentication, key management, digital signatures, and pseudo-random number generation ciphers, Digital Encryption standard (DES), Advanced Encryption Standard (AES)) will be introduced. Topics include conventional and public-key cryptography, authentication and digital signatures. Students will learn to apply these concepts to secure real-world applications (e.g. authenticate electronic mails and messages). Key management, digital certificates and public-key infrastructure will be discussed to understand the deployment of public-key cryptography. It also provides introduction to the computational complexity requirements of basic cryptographic protocols.

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

SSA-222 Information Systems Security (3 CR)
This course is an introduction to the various technical and administrative aspects of Information Security and Assurance. This course provides the foundation for understanding the key issues associated with protecting information assets, determining the levels of protection and response to security incidents, and designing a consistent, reasonable information security system, with appropriate intrusion detection and reporting features

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-220 Web Programming and Security (3 CR)
This course provides overview of static and dynamic web application development and security using HTML5 and the most recent Cascading Style Sheet versions. Other technologies examined include JavaScript, jQuery and jQuery Mobile. In addition, the course will examine and use available libraries (e.g. Google's Map API using JavaScript) that build upon these technologies to make Web pages more interactive. It will also introduce the necessary knowledge needed for web application security such as http protocol, same origin policy, cookies, and sessions. The integrated development environment (IDE) and enterprise web application development that supports .NET web applications development will also be introduced. Students would also be taught on good practices of secure web coding. The course then presents top 10 OWASP web attacks such as Cross Site Scripting, Session Hijacking, and SQL injection. Further topics such as the security and authentication techniques used in web applications are discussed
Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

29.16 Secure Software Development Specialization

SSD-230 Secure Web Applications Development (OCT-I) (2 CR)
The purpose of this two-week on-campus-training module is to train the students on the tools needed to design and perform penetration testing for web applications security. This module focuses on introducing HTML, JavaScript, and PHP, SQL injection, Cross Site Scripting, Session Hijacking, penetration testing, and penetration testing tools such as Burp Suit. Students would also be taught on good practices of secure web coding

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSD-231 Secure Mobile Applications Development (OCT-I) (2 CR)
The purpose of this on-campus-training module is to give the students the tools to design, implement, test, debug and publish smartphone applications on java based android phones. Students will learn how to take their innovative ideas from conception to the android market through a series of rigorous hands-on programming assignments and group projects Topics covered: the android development environment including the Android Studio IDE; key programming paradigms; UI design including views and activities; data persistence including SQLite; content providers; messaging and networking; phone sensors, location based services (e.g., Google Maps), background services; broadcast receivers; cloud programming using App Engine; and publishing applications to the android market.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSD-232 Web Application Security (OCT-I) (2 CR)
The purpose of this one-week on-campus-training module is to practice hands-on sessions on conducting software security assessment to identify vulnerabilities in web applications, exploit these vulnerabilities, and escalate privileges across the compromised environment. Topics include: security fundamentals, assessment strategies and tools, common vulnerability classes, cryptographic attacks, and privilege escalation. Students will get hands-on experience identifying vulnerabilities in software.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-233 Ethical Hacking and Digital Forensics (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to practice techniques to perform penetration testing/ethical hacking in order to assess vulnerabilities and protect Enterprise information assets. The course will also present techniques to prevent software vulnerabilities from occurring in applications. The training module will develop student skills to bridge the gap between secure software development and practical post-implementation review through auditing and assessment

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one weeks delivery

SSD-234 Secure Windows/Linux OS (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to practice hands-on sessions on securing and hardening Linux and Windows operating systems. Students will be taught on the use of various Linux commands / system tools for user management, security administration, software installation, network administration and configuration of services. The course will also present Hands-on knowledge in securing and hardening a Windows operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-235 Mobile Forensics and Investigation (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to practice techniques and tools to perform forensics investigation for mobile and smart devices. Mobile device forensics is the science of recovering digital evidence from a mobile device under forensically sound conditions using accepted methods. Mobile device forensics is an evolving specialty in the field of digital forensics. This module

will look into mobile devices and explaining technologies involved and their relationship to forensic procedures. The module also discusses procedures for the validation, preservation, acquisition, examination, analysis, and reporting of digital information

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week's delivery

SSD-310 Object Oriented Analysis and Design (3 CR)
The purpose of this course is to introduce students to the fundamentals of analysis and design of computer information systems to meet business requirements. Students will learn and practice various methods, tools and techniques used by the systems analyst at each phase within the systems development cycle. The course will cover object-oriented systems analysis and design techniques. The course also introduces computer aided software development (CASE) technology.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSD 311 Mobile Programming and Security (3 CR)
The goal of this course is to teach students how to design, implement, test, debug and publish smartphone applications (e.g. java based android phones). Students will learn how to take their innovative ideas from conception to the android market through a series of rigorous hands-on programming assignments and group projects Topics covered: the android development environment including the Android Studio IDE; key programming paradigms; UI design including views and activities; data persistence including SQLite; content providers; messaging and networking; phone sensors, location based services (e.g., Google Maps), background services; broadcast receivers; cloud programming using App Engine; and publishing applications to the android market. The course also embarks on concepts of mobile Vulnerabilities; Security threats and problems; Protection techniques, and Specification, design and development of secure systems involving mobility.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-312 Embedded Systems Secure Development (3 CR)
This course introduces the basics of Embedded Systems software developments through the introduction of Raspberry Pi server kit and Python programming. The course will give students experience in programming embedded systems in real world applications with focus on security implications related to hardware devices. The Internet of Things (IoT) concept will also be introduced in this course. Topics include software issues in the design of embedded systems. Microcontroller architectures and peripherals, embedded operating systems and device drivers, compilers and debuggers, timer and interrupt systems, interfacing of devices, communications and networking. Emphasis on practical application of development platforms. Toward the end of the course students will be given overview of control systems (e.g. SCADA) operations and programming

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSA-314 Cloud and Infrastructure Security (3 CR)
This course aims to provide a systems overview and programming perspective of the cloud computing paradigm and critical infrastructure control systems security. The course will develop an understanding of the current challenges and tradeoffs when mapping different application suites to a cloud. Additionally, this course also provides an overview of the challenges associated with the analysis, evaluation of the security related functions, and protection of key national resources. Students will examine vulnerability and risk reduction strategies, contingency planning, and strategic partnership models as they are applied to the critical infrastructure sectors (Water, Power & Energy, Information & Telecommunications, Chemical Industry, Transportation, Banking & Finance, Defense Industry, Postal & Shipping, Agriculture & Food, Public Health, and Emergency Services), and physical tamper resistant and proof systems

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

SSD-320 Multi-Language Secure Coding (3 CR)
The course will cover various topics on the proper use of Java's APIs and security architecture, and considers security concerns pertaining to standard extension APIs. The course covers security issues applicable to different Java libraries including: lang, util, Collections, Concurrency Utilities, Logging, Management, Reflection, Regular Expressions, Zip, I/O, JMX, JNI, Math, Serialization, and JAXP. Special emphasis is given to CERT Oracle Secure Coding Standard for Java, which provides secure coding rules for the Java SE 6 Platform including the Java programming language and libraries, and also addresses new features of the Java SE 7 Platform. The course also covers ASP.NET and the .NET. framework with emphasis on security vulnerabilities and integrating security into the ASP.NET framework

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-321 Malware Analysis: Tools and Techniques (3 CR)
The course equips students with the basic knowledge of malware analysis to reverse-engineer the malware using practical tools and techniques. The three phases of behavioral, code and memory analysis of malware will be taught. Students will learn how to explore and understand the key characteristics of malware and the techniques of reverse-engineering compiled Windows executables and browser-based malware. This course presents key tools and techniques for malware analysis and examines malicious programs. Code analysis focuses on the specimen's code and makes use of a disassembler and a debugger tools such as IDA Pro and OllyDbg. Students will learn how to build a flexible laboratory to perform such analysis in a controlled manner

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSD-322 Software Vulnerability Testing (3 CR)
The course revolves around series of exercises based on "hacking" into a network (penetration testing the network) and then defending against the hacks. This hands-on course focusing on hacking techniques, exploit techniques, vulnerability assessment and penetrating testing techniques. Participants will gain hacking techniques to perform penetration testing for the organization and with the same basis participants can use for countermeasures

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSD-323 Secure Databases Development (3 CR)
The course explore in depth SQL language by introducing PL/SQL, database security principles, database auditing, security implementation and database reliability, identifying database vulnerabilities, exploiting flaws to gain control, database assessment, and virtual private database. The following topics are covered: database security, profiles, password policies, privileges and roles, Virtual Private Databases, and auditing. The course also covers advanced topics such as SQL injection, database management security issues such as securing the DBMS, enforcing access controls, and related issues. The course addresses further database security and gives examples of hacking/prevention techniques in different SQL vendors. The student will be provided with the tools, techniques and industry accepted methodologies (e.g. Oracle) to secure organization database.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-324 InfoSec Project Management (3 CR)
This course provides students a systematic and practical approach for establishing and managing projects. Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives. A project is a unique, transient endeavor, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits. In the project, the students are expected to perform problem analysis, investigation, solution design, and implementation of security related project. In addition, project management will also be taught as part of the course

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0hrs/week

SSD-330 Client Server Security Administration (OCT-II) (2 CR)

The purpose of this two-week on-campus-training module is to practice hands-on sessions on security issues, processes, and solutions, and maps out future directions in the context of today's distributed systems. This insight is elucidated by modeling of modern day distributed systems using a four-tier logical model –host layer, infrastructure layer, application layer, and service layer (bottom to top). The course will cover security threats and issues across these tiers.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-331 Database Programming and Security (OCT-II) (2 CR)

The purpose of this one-week on-campus-training module is to practice hands-on sessions on writing SQL language by introducing PL/SQL. The course introduces the fundamentals of PL/SQL which includes declaring variables, writing executable statements, control structures, handling exceptions, and stored procedures and functions. This course utilizes Oracle scenarios and step-by-step examples. It also teaches a comprehensive understanding of the database server architecture and administration with respect to database and server security, database backup and recovery. Students will experiment common threats to databases, identify and implement appropriate security measures to protect and secure databases and its server. The following topics are covered: security, profiles, password policies, privileges and roles, Virtual Private Databases, and auditing. The course also covers advanced topics such as SQL injection, database management security issues such as securing the DBMS, enforcing access controls, and related issues.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-332 Software Vulnerability Assessment (OCT-II) (2 CR)

The purpose of this two-week on-campus-training module is to practice hands-on sessions on "hacking" into a network (penetration testing) to identify system vulnerabilities and then defending against the hacks. This hands-on course focusing on hacking techniques, exploit techniques, vulnerability assessment and penetrating testing techniques to identify and examine vulnerabilities of computer system software and applications

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-333 Practical Requirements Engineering (OCT-II) (1 CR)

The purpose of this one-week on-campus-training module is to practice hands-on sessions on how to systematically create and maintain requirements and how use those requirements to build more effective, higher-quality software. This course will present a hands-on practice to use RequisitePro in real-world development environments

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-334 Secure Software Design and Implementation (OCT-II) (1 CR)

The purpose of this one-week on-campus-training module is to practice hands-on sessions on practical standards of secure design of software and implementation. The standard provides secure coding rules on prominent Java SE 6 Platform including the Java programming language and libraries, and also addresses new features of the Java SE 7 Platform. The course will give guidance to students in the proper use of Java's APIs and security architecture, and considers security concerns pertaining to standard extension APIs. The course covers security issues applicable to different Java libraries including: lang, util, Collections, Concurrency Utilities, Logging, Management, Reflection, Regular Expressions, Zip, I/O, JMX, JNI, Math, Serialization, and JAXP.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-335 Software Verification and Validation (OCT-II) (1 CR)

The purpose of this one-week on-campus-training module is to practice hands-on sessions on verification and validation strategies and techniques as they apply to the development of quality

software. Topics include test planning and management, testing tools, technical reviews, formal methods and the economics of software testing. The relationship of testing to other quality assurance activities as well as the integration of verification and validation into the overall software development process are also discussed.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

SSD-410 Advanced Cryptography (2 CR)
This course covers advanced topics in Cryptography including: modern methods of public and private key encryption, authentication and digital signatures, hashing, and passwords, Number theory, abstract algebra, combinatorics, and complexity theory necessary for the design and analysis of advanced cryptographic systems
Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0hrs/week

SSD-411 Enterprise Software Architecture & Design (3 CR)
This course is an introduction to Enterprise Architecture (EA), it is designed to be the first exposure to foundational enterprise architecture (EA) concepts and practices. The course sets the "common language" for EA discussions for professionals new to the EA field as well as functional business people, customers, suppliers, and others that desire an overview of enterprise architecture and the benefits it can bring to an organization

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD 412 Advanced Web Security (3 CR)
The course will introduce advanced web application security with coverage of attacks and countermeasures. Topics include Cross Site Scripting, SQL Injection, and Session Security. More advanced web application vulnerabilities will be discussed including: Blind SQL injection, Flash Security, Authentication, Web Service, and XPath injection, back end components, application logic, customized attacks on web technologies. Most of the examples in the course will be introduced in PHP, MySQL, and Apache. Challenges will be provided on Virtual Machine for students to practice during the lab or work on them as assignments.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-413 Risk Analysis and Management (3 CR)
This course gives students guidance on planning and implementing a risk assessment and protecting business information. The course introduces students to the international code of practice for an information security management system (ISMS) ISO27002. This course also provides students with detailed, practical guidance on how to develop and implement a risk assessment in line with the requirements of ISO27001. Students will learn how to measure risk and how to ensure that proper levels of security are maintained for individual technology users, businesses, government, and other organizations. This course will cover different approaches for risk assessment and risk mitigation. Students will learn how to use a risk analysis matrix for performing both quantitative and qualitative risk analysis. Course covers key topics, such as Threat Vulnerability Analysis, risk scales, threats and vulnerabilities, selection of controls, and roles and responsibilities. Risk Management Strategies (Avoidance, Transference, Mitigation, Acceptance), Counter-Measures, and Cost Benefit Analysis of Info Security investments.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 1hrs/week

SSD-414, SSD-423 Graduation Projects I and II (1 & 3 CR)
The Graduation Project I, II courses are Capstone Design courses, which allow students of the program to design, implement, and demonstrate a secure system/solution/product. Student teams of three to four students will work over several semesters on an engineering design projects which might be sponsored internally or by a local company. Students choose the particular design project with approval of appropriate faculty. Each project includes the use of open-ended problems, development and use of design methodology, formulation of design problem statements and specification, consideration of

alternative solutions, feasibility consideration and detailed system descriptions. While individual performance is emphasized and appraised, team work spirit is highly recognized

SSD-420 Incident Handling and Response (3 CR)
The overall objectives of this course help student understand contingency planning and its components. The course will cover fundamental concepts and techniques of Security Information and Event Management (SIEM). Students will learn the basics of correlation of events, real-time monitoring and presentation of information from network and security devices using SIEM technology. Students will understand the key characteristics of log auditing, event management, and how to handle the situation as the incident responders to contain the incident and plan for the recovery steps.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSD-421 Information Assurance & Security Management (3 CR)
This course provides students a systematic and practical approach for establishing, managing, and operating a comprehensive Information Assurance program at an Organization. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies. Current software exploitation issues and techniques for information assurance will be investigated. Topics include: Security Management Practices, Business Continuity Planning (BCP), Disaster Recovery Planning (DRP), Commercial and legal implications, Introduction to ISMS standards, Accreditation, Policy, Risk Management, and auditing and reporting.

Lecture: 2hrs/week; tutorial (optional): 2hrs/week; Lab: 1hrs/week

SSD-422 Ethics, Law and Policy in Cyberspace (3 CR)
The course provides an overview of the ethical challenges faced by individuals and organizations in the information age and introduces the complex and dynamic state of law as it applies to behavior in cyberspace. The course also highlight the bit falls and dangers of doing business in an interconnected world, and provide understanding how to ethically and legally operate and use modern computer systems and networks. Policies and standards such as Sarbanes Oxley, HIPAA, Gramm, Leach, Bliley, will be introduced. The course introduces the entire lifecycle of security policy creation and development including issue specific policies in different domains of security. The course teaches students how to allocate the appropriate security techniques needed to satisfy a specific security policy in context of real life situations.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSD-430 Field Training (3 CR)

This course shall be conducted collaboratively with AD Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure networking and web space. Students spend one full semester as interns in a company, government agency, or business. Under faculty supervision, students fulfill various assignments to acquire first-hand knowledge of a working environment. Students are required to write a final report detailing the technical aspects of their internship. This course is graded on a Pass/Fail scale
Department Approval is required

Elective SSD 415 Homeland Security (3 CR)
In the aftermath of 9/11, many law enforcement agencies (LEAs) shifted more resources toward developing counterterrorism (CT) and homeland security (HS) capabilities. This course examines the effects the focus on CT and HS has had on law enforcement, including organizational changes, funding mechanisms, how the shift has affected traditional crime-prevention efforts, and an assessment of benefits, costs, and future challenges.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 416 Security Governance and Compliance (3 CR)
This course provides a detailed knowledge of IT Governance principles and procedures, and the basic concepts of the ISO 27001 / ISO 27002 standard. The student possesses thorough knowledge about the overall process for establishment and maintenance of an Information Security Management Systems (ISMS). The student possesses detailed knowledge about the role of policies, standards and guidelines for controls and is capable of applying his/her knowledge in case studies

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 417 Security Architectures and Models (3 CR)
The course covers the broad domain of security architecture and models, access control systems and methodology, OM-AM framework, security architectures and mechanisms, security infrastructure, reusable infrastructures, public-key centric architectures, consumer-oriented public-key infrastructure, coupled and de-coupled authentication and authorization architectures and multilevel security architectures. The course will also demonstrate advanced Internetworking concepts, and security and administration. The course will serve as a prerequisite to the CISSP certification.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 418 Security as Continuous Improvement (3 CR)
This course covers the quality improvement paradox in security and quality improvement processes. It will also cover how to ensure the improvement of the performance of computer security incident Response teams (CSIRTs). It will give students direction on how to implement incident reporting systems and learn from incidents

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 419 Human-Computer Interface Design (3 CR)
This course introduces methods and principles of human-computer interaction (HCI), user-centered design (UCD), and usability evaluation. Provides broad overview of HCI and how HCI informs UCD processes throughout product development lifecycle.

Lecture: 1hr/week; tutorial: 1hrs/week; Lab: 4hrs/week

Elective SSD 425 Critical Software Security Controls & Standards (3 CR)
This course will demonstrate the techniques and tools needed to implement and audit the critical security controls. It helps students to master specific, proven techniques and tools needed to implement and audit the Twenty Critical Security Controls. These Top 20 Security Controls of OWASP are rapidly becoming accepted as the highest priority list of what must be done and proven before anything else at nearly all serious and sensitive organizations.

lecture: 2hr/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

Elective SSD 426 Data Mining and Machine Learning (3 CR)
This course introduces and studies the concepts, issues, tasks and techniques of data mining and information retrieval. Topics include data preparation and feature selection, association rules, classification, clustering, evaluation and validation, scalability, spatial and sequence mining, and data mining applications. The course mainly focuses on data mining issues such as data selection and cleaning, machine learning techniques to ``learn'' knowledge that is ``hidden'' in data, and the reporting and visualization of the resulting knowledge. The course illustrates data mining process by examples of practical applications from the life sciences, computer science, and commerce. Several machine learning topics including classification, prediction, and clustering will be covered

Lecture: 2hr/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 310 Privacy in a Networked World (3 CR)
This course focuses on both the technical challenges of handling sensitive data and the policy and legal issues facing data subjects, data owners, and data users. The students will recognize, analyze, and manage privacy challenges created by technology. Topics include privacy concepts, policies, and mechanisms; identity, anonymity, and confidentiality; private data analysis and database sanitization; privacy-preserving data mining techniques; privacy issues in social networks, RFID, and healthcare applications. The course includes a privacy-related project

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0 hrs/week

Elective SSD 428 Advanced Mobile Application Development (3 CR)
This course focuses on advanced Mobile application programming constructs will be covered. In addition, students will learn how a cross-platform development tool such as PhoneGap can be set up and used with JavaScript to create mobile applications. The process of deployment and publishing of mobile applications will also be taught. Students will learn to develop apps which utilize mobile interface components, use geolocation and maps, store data in device, and import web content. Examples of cross-platform tools to be used are JQuery Mobile and Phonegap

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0 hrs/week

29.17 Network and Cyber Security Specialization

NCS-230 Routing and Switching (OCT-I) (2 CR)
The purpose of this on-campus-training module is to give the students the tools to design hands on and practice concepts covered in the prerequisite course(s) in the Cisco training academy and other specialized labs. Topics include routing and switching fundamentals of computer networks and would be the best routing protocols and switching fabrics to achieve certain performance

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

NCS-231 Secure Network Design (OCT-I) (2 CR)
The course provides a two-week hands-on and practice on concepts covered in the prerequisite course(s) in the training academies and specialized labs. Topics include LAN design and analysis, implementation of routing protocols, WAN technologies and telecommunications industry standards with special emphasis on Cisco equipment and protocols.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

NCS-232 Network Security (OCT-I) (2 CR)
The course provides two-weeks hands on and practice on concepts covered in the prerequisite course(s) in the training academies and specialized labs. Topics include: viruses, Internet worms, computer crime, web server security, denial of service attacks, authentication protocols, firewalls, Trojan horses, intrusion detection, data encryption methods, public key cryptography (RSA, DES), email viruses, attachments, spyware, digital homeland security.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

NCS-233 Ethical Hacking and Digital Forensics (OCT-I) (1 CR)
The purpose of this one week on-campus-training module is to give the students the tools to introduce students to a wide range of topics related to ethical hacking and penetration testing. The course provides an in-depth understanding of how to effectively protect computer networks. The topics cover the tools and penetration testing methodologies used by ethical hackers and Security Professionals to conduct high-value penetration testing focused on discovering and exploiting vulnerabilities to determine and reduce business risk. The goal is protecting corporate and government data from cyber-

attacks

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one weeks delivery

NCS 234 Mobile Programming and Security (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to practice hands-on sessions on how to design, implement, test, debug and publish smartphone applications (e.g. java based android phones). Students will learn how to take their innovative ideas from conception to the android market through a series of rigorous hands-on programming assignments and group projects The course also embarks on concepts of mobile Vulnerabilities; Security threats and problems; Protection techniques, and Specification, design and development of secure systems involving mobility.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

NCS-235 Penetration Testing in-Depth (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to provide students with technical skills, tools and techniques that they can use to perform penetration testing to improve the security of organization. The goal is to identify security problems, implement appropriate defenses and respond to attacks immediately with the skills to contain, mitigate and remediate the identified issues.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one weeks delivery

NCS-310 Fundamentals of Storage Networking (3 CR)
The overall objective of the course is to develop student capabilities (skills) of Information Storage System Environment: Information Storage, Evolution of Storage Technology and Architecture, Data Center Infrastructure, Key Challenges in Managing Information. Advanced concepts in Storage Area Networks (SAN) including building blocks, architecture; protocols and mechanisms; and the different Standardization Bodies and Industry Organizations concerned with SAN.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

NCS-313 Wireless Networks Security (3 CR)
This course covers security and privacy issues in wireless networks and systems, such as cellular networks, wireless LANs, wireless PANs, mobile ad hoc networks, vehicular networks, satellite networks, wireless mesh networks, sensor networks and RFID systems. Security problems of MAC and especially upper layers will be emphasized.
This course will address various issues (attacks and defense strategies) in wireless and mobile security, including WEP and WPA, wireless jamming attacks, and mobile privacy. The course will also demonstrate wireless Internetworking concepts, and security and administration including WEP, IEEE 802.11i, RADIUS, WPA, WPA2, and related encryption algorithms.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-315 Cloud and Infrastructure Security (3 CR)
This course aims to provide a systems overview and programming perspective of the cloud computing paradigm. The course will develop an understanding of the current challenges and tradeoffs when mapping different application suites to a cloud. Additionally, this course also provides an overview of the challenges associated with the protection of key national resources. Students will examine vulnerability and risk reduction strategies, contingency planning, and strategic partnership models as they are applied to the critical infrastructure sectors (Water, Power & Energy, Information & Telecommunications, Chemical Industry, Transportation, Banking & Finance, Defense Industry, Postal & Shipping, Agriculture & Food, Public Health, and Emergency Services).

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

NCS-320 Perimeter Protection (3 CR)
This course is an introduction to the various technical and administrative aspects of perimeter

protection. This course provides the foundation for understanding the key issues associated with modern networks and protection of the perimeter using various technologies including Firewalls, proxies, application firewalls, virtual firewalls, deep packet inspection and UTM.

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

NCS-321 Malware Analysis: Tools and Techniques (3 CR)
The course equips students with the basic knowledge of malware analysis to reverse-engineer the malware using practical tools and techniques. The three phases of behavioral, code and memory analysis of malware will be taught. Students will learn how to explore and understand the key characteristics of malware and the techniques of reverse-engineering compiled Windows executables and browser-based malware. This course presents key tools and techniques for malware analysis and examines malicious programs. Code analysis focuses on the specimen's code and makes use of a disassembler and a debugger tools such as IDA Pro and OllyDbg. Students will learn how to build a flexible laboratory to perform such analysis in a controlled manner.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

NCS-322 Advanced Network Security (3 CR)
The overall objective of the course is to develop advanced student capabilities (skills) in network security This course covers techniques and mechanisms for network intrusion detection and prevention both in wired and wireless networks. Topics covered mainly include: configuring intrusion detection systems, generating common attacks, Intrusion detection based network architectures, attack signatures, filtering rules for network monitoring, Snort IDS, denial of services (DoS) attacks, distributed DoS attacks, buffer overflow attack, Man-in-the-Middle attacks, ARP cache poisoning attacks, common mobile and wireless network attacks, IP spoofing based attacks, malicious sniffing attacks in wired and wireless networks, NIC promiscuous mode detection, common attacks on firewalls and network devices.
Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-323 Advanced Web Security (3 CR)
The course will introduce advanced web application security threats, such as hackers, masqueraders, information spoofing, sniffing, and distribution of damaging software, the associated security risks, and prevention/detection/response techniques. The course will cover three areas of Web Security: 1) Internet Communication Security, 2) Web Application Vulnerabilities 3) Web Application Exploitation

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-324 InfoSec Project Management (3 CR)
This course provides students a systematic and practical approach for establishing and managing projects. Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives. A project is a unique, transient endeavor, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits. In the project, the students are expected to perform problem analysis, investigation, solution design, and implementation of security related project. In addition, project management will also be taught as part of the course.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 1hrs/week

NCS-33 Linux/Unix Operating Systems Security Administration (OCT-II) (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on the use the tools provided by Linux/Unix. Students will become comfortable with using a Linux/Unix system and will become familiar with many of the Linux/Unix design paradigms. The module will also equip the students with hands-on knowledge in securing and hardening a Linux operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.
Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

NCS-331 MS Windows Server Security Administration (OCT-II) (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on Configuring Windows Server and Directory Domain Services by providing in-depth training on implementing, configuring, managing and troubleshooting Active Directory Domain Services (AD DS) in Windows Server environments. The module will provide hands-on knowledge in securing and hardening a Windows operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

NCS-332 Advanced Routing and Switching (OCT-II) (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on advanced topics in routing and switching in wired and wireless computer networks. Such training contributes to students being able to manage today's complex while keeping key applications secure and performing efficiently. The training helps for preparation of students for CCNP certification.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

NCS-334 Intrusion Detection & Response (OCT-II) (1 CR)
The purpose of this one-weeks on-campus-training module is to practice hands-on sessions on setup and configuration of intrusion detection and response systems in a network; Attack generation (e.g. denial-of-service and sniffing attacks) and configuration of the intrusion detection system (IDS) to detect the attacks; Misuse and anomaly detection; Network attacks (e.g. denial of service, sniffing attacks, buffer overflow.); Fundamental limits of intrusion detection; Statistical techniques; Signature and pattern matching techniques; Artificial intelligence techniques

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

NCS-334 Intrusion Detection & Response (OCT-II) (1 CR)
The purpose of this one-weeks on-campus-training module is to practice hands-on sessions on setup and configuration of intrusion detection and response systems in a network; Attack generation (e.g. denial-of-service and sniffing attacks) and configuration of the intrusion detection system (IDS) to detect the attacks; Misuse and anomaly detection; Network attacks (e.g. denial of service, sniffing attacks, buffer overflow.); Fundamental limits of intrusion detection; Statistical techniques; Signature and pattern matching techniques; Artificial intelligence techniques

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

NCS-335 Database Server Security (OCT-II) (1 CR)
The purpose of this one-week on-campus-training module is to practice hands-on sessions on comprehensive understanding of the database server architecture and administration with respect to database and server security, database backup and recovery. Students will experiment common threats to databases, identify and implement appropriate security measures to protect and secure databases and its server. The following topics are covered: security, profiles, password policies, privileges and roles, Virtual Private Databases, and auditing. The course also covers advanced topics such as SQL injection, database management security issues such as securing the DBMS, enforcing access controls, and related issues.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one week delivery

NCS-410 Advanced Cryptography (2 CR)
This course covers advanced topics in Cryptography including: modern methods of public and private key encryption, authentication and digital signatures, hashing, and passwords, Number theory, abstract

algebra, combinatorics, and complexity theory necessary for the design and analysis of advanced cryptographic systems

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0hrs/week

NCS-411 Firewall and Intrusion Analysis (3 CR)
This course introduces network firewall security. It will cover basic installation techniques, discuss how to make an intelligent choice of firewall technology and present basic firewall troubleshooting. Moreover, it will cover different intrusion detection systems and their signatures. Students will complete hands-on exercises and case projects for testing and evaluating various firewall techniques

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-412 Advanced Penetration Testing & Ethical Hacking (3 CR)
This course focuses on network and information systems security from an offensive point of view. Students will learn technical testing and examination techniques used to identify, validate and assess technical vulnerabilities within and enterprise. Topics include penetration testing methodology, foot printing and reconnaissance, scanning and enumeration, vulnerability validation, data collection and reporting.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-413 Risk Analysis and Management (3 CR)
This course gives students guidance on planning and implementing a risk assessment and protecting business information. The course introduces students to the international code of practice for an information security management system (ISMS) ISO27002. This course provides students with detailed, practical guidance on how to develop and implement a risk assessment in line with the requirements of ISO27001. Course covers key topics, such as risk scales, threats and vulnerabilities, selection of controls, and roles and responsibilities.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 1hrs/week

NCS-414, NCS-423 Graduation Projects I and II (1 & 3 CR)
The Graduation Project I, II courses are Capstone Design courses, which allow students of the program to design, implement, and demonstrate a secure system/solution/product. Student teams of three to four students will work over several semesters on an engineering design projects which might be sponsored internally or by a local company. Students choose the particular design project with approval of appropriate faculty. Each project includes the use of open-ended problems, development and use of design methodology, formulation of design problem statements and specification, consideration of alternative solutions, feasibility consideration and detailed system descriptions. While individual performance is emphasized and appraised, team work spirit is highly recognized

NCS-420 Incident Handling and Response (3 CR)
The overall objectives of this course help student understand contingency planning and its components. This includes the role of policies and procedures as well as risk assessment, business impact analysis, incident reporting and response and business resumption planning

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

NCS-421 Information Assurance & Security Management (3 CR)
This course provides students a systematic and practical approach for establishing, managing, and operating a comprehensive Information Assurance program. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies. Current software exploitation issues and techniques for information assurance will be investigated. The course is aimed at imparting knowledge and skill sets required to assume the overall responsibilities of administration and management of security of an enterprise information system

Lecture: 2hrs/week; tutorial (optional): 2hrs/week; Lab: 1hrs/week

NCS-422 Ethics, Law and Policy in Cyberspace (3 CR)
The course provides an overview of the ethical challenges faced by individuals and organizations in the information age and introduces the complex and dynamic state of law as it applies to behavior in cyberspace. The course also highlight the bit falls and dangers of doing business in an interconnected world, and provide understanding how to ethically and legally operate and use modern computer systems and networks.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

NCS-430 Field Training (3 CR)
This course shall be conducted collaboratively with AD Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure networking and web space. Students spend one full semester as interns in a company, government agency, or business. Under faculty supervision, students fulfill various assignments to acquire first-hand knowledge of a working environment. Students are required to write a final report detailing the technical aspects of their internship. This course is graded on a Pass/Fail scale
Department Approval is required

Elective NCS 415 Homeland Security (3 CR)
In the aftermath of 9/11, many law enforcement agencies (LEAs) shifted more resources toward developing counterterrorism (CT) and homeland security (HS) capabilities. This course examines the effects the focus on CT and HS has had on law enforcement, including organizational changes, funding mechanisms, how the shift has affected traditional crime-prevention efforts, and an assessment of benefits, costs, and future challenges.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective NCS-416 Security Governance and Compliance (3 CR)
This course provides a detailed knowledge of IT Governance principles and procedures, and the basic concepts of the ISO 27001 / ISO 27002 standard. The student possesses thorough knowledge about the overall process for establishment and maintenance of an Information Security Management Systems (ISMS). The student possesses detailed knowledge about the role of policies, standards and guidelines for controls and is capable of applying his/her knowledge in case studies
Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective NCS-417Hardware Based Security (3 CR)
The course will cover the security measures embedded into digital systems for reliable, safe, and secure operation. The course introduces methods of design and evaluation of secure and trustworthy hardware. It also teaches the concepts of tamper-proof, tamper-resistance, and trusted platform modules. Topics covered include: Identity Management, Smartcards, TPM management and deployments, Rootkit and APT detection, event logging, RFIDs, cryptographic processor analysis, physical and invasive attacks, side-channel attacks, hardware-based true random number generators, watermarking of Intellectual Property (IP) blocks, FPGA security, passive and active metering for prevention of piracy, access control, hardware Trojan detection and isolation.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective NCS-418 Security Architectures and Models (3 CR)
The course covers the broad domain of security architecture and models, access control systems and methodology, OM-AM framework, security architectures and mechanisms, security infrastructure, reusable infrastructures, public-key centric architectures, consumer-oriented public-key infrastructure, coupled and de-coupled authentication and authorization architectures and multilevel security architectures. The course will also demonstrate advanced Internetworking concepts, and security and administration. The course will serve as a prerequisite to the CISSP certification.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective NCS-425 Wireless Ethical Hacking and Defense (3 CR)
This course will use hacking techniques on wireless networks used by malicious, black hat hackers as a means to learn best defense from these same hackers the course is an in-depth study using hands-on lab exercises. While these hacking skills can be used for malicious purposes, this class teaches you how to use the same hacking techniques to perform a white-hat, ethical hack, on the organization.
Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective NCS-426 Network Security Trends (3 CR)
This course will offer participants advanced topics in network and cyber security, which is related to new technology, solutions, models, and approaches. With a focus on the latest trends in Network Security, the objective is to help students explore advancement, state-of-the-art technology, solutions, methods, processes, and approaches in order to cope with technology evolution.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

Elective NCS-427 Privacy in a Networked World (3 CR)
This course focuses on both the technical challenges of handling sensitive data and the policy and legal issues facing data subjects, data owners, and data users. The students will recognize, analyze, and manage privacy challenges created by technology. Topics include privacy concepts, policies, and mechanisms; identity, anonymity, and confidentiality; private data analysis and database sanitization; privacy-preserving data mining techniques; privacy issues in social networks, RFID, and healthcare applications. The course includes a privacy-related project

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0 hrs/week

Elective NCS-428 Security Protocols in-depth (3 CR)
This course focuses on the design, analysis, and evaluation of various security protocols and mechanisms including but not limited to: basic symmetric and asymmetric cryptography protocols, SSL/TLS, WEP/WPA, IPSec, S/MIME, PGP, SSH, X.509 and Kerberos. This course focuses on discussing the pros and cons of various security trade-offs involved in the design of such protocols, and describes vulnerabilities that some of these protocols are susceptible to, Cryptographic Algorithms & Protocols (Encryption and data authentication; Algorithms related to cryptographic operations; Key management and key generation; Implementation of algorithms

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0 hrs/week

29.18 Systems and Servers Security Administration Specialization

SSA-230 MS Windows Server Security (OCT-I) (2 CR)
The purpose of this on-campus-training module is to give the students the skills and tools to install, configure, and administer Windows Server and Security by providing in-depth training on implementing, configuring, managing and troubleshooting Active Directory Domain Services (AD-DS) in Windows Server environments. It covers core AD-DS concepts and functionality as well as implementing Group Policies, performing backup and restore and monitoring and troubleshooting Active Directory and security related issues

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA-231 MS Exchange Server Security (OCT-I) (2 CR)
The purpose of this on-campus-training module is to give the students the skills and tools to configure and manage a messaging environment in accordance with technical requirements. Students will learn how to install Microsoft Exchange Server and manage routing, client access, and the backup and restore of databases. They will also learn how to manage addressing and recipient objects such as mailboxes, distribution groups, and contacts

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA-232 Linux/UNIX Operating Systems Security (OCT-I) (2 CR)
The purpose of this on-campus-training module is to give the students the skills and tools to use manage security of Linux/Unix operating system. Students will become comfortable with using a Linux/Unix system and will become familiar with many of the Linux/Unix design paradigms. Apart from basic Linux/Unix proficiency, this course is designed to give students a working knowledge of security basics in Linux/Unix based work environments

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA-233 Microsoft SharePoint Server Security (OCT-I) (1 CR)
The overall objective of the course is to teach give student practice on how to install, configure, and administer Microsoft SharePoint and also how to manage and monitor sites and users by using Microsoft SharePoint 2010 or later. It will also cover the new features and functionality introduced with SharePoint 2010 Sp1 or later

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA-234 Physical Security and Biometrics (OCT-I) (1 CR)
The purpose of this on-campus-training module is to give the students the skills and tools to handle Physical (Environmental) Security and Biometrics control. The Physical (Environmental) Security domain provides protection techniques for the entire facility, from the outside perimeter to the inside office space, including all of the information system resources. In particular, development of site Physical Security Program will be demonstrated. The student will learn to apply a research methodology for gathering information, conducting investigations Personnel access, traffic control and other mitigation measures will be covered

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA- 235 Ethical Hacking (OCT-I) (1 CR)
The purpose of this one-week on-campus-training module is to practice techniques to perform penetration testing/ethical hacking in order to assess vulnerabilities and protect Enterprise information assets. The course will also present techniques to prevent software vulnerabilities from occurring in applications. The training module will develop student skills to bridge the gap between secure software development and practical post-implementation review through auditing and assessment

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one weeks delivery

SSA 310 Virtualization Technology and Security (3 CR)

Cloud computing is a relatively new phenomenon that provides for distributed computing and data storage capabilities. There is a continuous trend of dependency on virtual networks and private/public clouds for running businesses today. This course will present state of the art security trends and issues in cloud security and identify opportunities for useful security solutions

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 1hrs/week

SSA 311 Client/Server Security Administration (3 CR)
This course will provide students an insight into current security issues, processes, and solutions, and maps out future directions in the context of today's distributed systems. This insight is elucidated by modeling of modern day distributed systems using a four-tier logical model –host layer, infrastructure layer, application layer, and service layer (bottom to top). The course will cover security threats and issues across these tiers with case studies from Linux and Windows operating Systems.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 312 Securing Linux/UNIX Server (3 CR)
This course focuses on Linux/UNIX system security administration. Topics include system administration concepts, system installation and configuration, Access control lists, secure communication, NTP Infrastructure, Mapping attacks, logging, malware detection, and secure configurations. Additional topics include understanding the Unix file system, configuring basic system hardware and services, managing user accounts, basic system security, and backups. Major Unix variants will also be covered. This course continues with (Unix/Linux Administration II).

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA-313 Cloud and Infrastructure Security (3 CR)
This course aims to provide a systems overview and programming perspective of the cloud computing paradigm. The course will develop an understanding of the current challenges and tradeoffs when mapping different application suites to a cloud. Additionally, this course also provides an overview of the challenges associated with the protection of key national resources. Students will examine vulnerability and risk reduction strategies, contingency planning, and strategic partnership models as they are applied to the critical infrastructure sectors (Water, Power & Energy, Information & Telecommunications, Chemical Industry, Transportation, Banking & Finance, Defense Industry, Postal & Shipping, Agriculture & Food, Public Health, and Emergency Services).

Lecture: 2hrs/day; tutorial: 2hrs/day; Lab: 3hrs/day

SSA 320 Penetration And Vulnerability Analysis (3 CR)
This course introduces students to a wide range of topics related to ethical hacking and penetration testing. The course provides an in-depth understanding of how to effectively protect computer networks. The topics cover the tools and penetration testing methodologies used by ethical hackers and provide a thorough discussion of what and who an ethical hacker is and how important they are in protecting corporate and government data from cyber-attacks.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 321 Malware Analysis: Tools and Techniques (3 CR)
The course equips students with the basic knowledge of malware analysis to reverse-engineer the malware using practical tools and techniques. The three phases of behavioral, code and memory analysis of malware will be taught. Students will learn how to explore and understand the key characteristics of malware and the techniques of reverse-engineering compiled Windows executables and browser-based malware. This course presents key tools and techniques for malware analysis and examines malicious programs. Code analysis focuses on the specimen's code and makes use of a disassembler and a debugger tools such as IDA Pro and OllyDbg. Students will learn how to build a flexible laboratory to perform such analysis in a controlled manner.
Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSA 322 Security Tools and Technologies: Windows (3 CR)
This course Provides hands-on experience in configuring and experimenting with security software in widows environment through live laboratory environment, with the purpose of understanding real-world security threats. Also, discussed possible mitigation and defending mechanisms, such as monitoring and intrusion detection software.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 323 Database Server Security Administrations (3 CR)
This course is about database security and auditing. You will learn many methods and techniques that will be helpful in securing, monitoring and auditing database environments. It covers diverse topics that include all aspects of database security and auditing - including network security for databases, authentication and authorization issues, links and replication, database Trojans, etc. You will also learn of vulnerabilities and attacks that exist within various database environments or that have been used to

attack databases

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 324 InfoSec Project Management (3 CR)
This course provides students a systematic and practical approach for establishing and managing projects. Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives. A project is a unique, transient endeavor, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits. In the project, the students are expected to perform problem analysis, investigation, solution design, and implementation of security related project. In addition, project management will also be taught as part of the course.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 1hrs/week

SSA 330 Linux/Unix Operating Systems Security Administration (OCT-II) (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on the use the tools provided by Linux/Unix. Students will become comfortable with using a Linux/Unix system and will become familiar with many of the Linux/Unix design paradigms. The module will also equip the students with hands-on knowledge in securing and hardening a Linux operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA 331 MS Windows Server Security Administration (OCT-II) (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on Configuring Windows Server and Directory Domain Services by providing in-depth training on implementing, configuring, managing and troubleshooting Active Directory Domain Services (AD DS) in Windows Server environments. The module will provide hands-on knowledge in securing and hardening a Windows operating system. The course will cover the security mechanism used in the operating system, configuring different levels of security measures, best practices and security related tools and utilities.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA 332 Database Server Security Administrations (OCT-II (2 CR)
The purpose of this two-week on-campus-training module is to practice hands-on sessions on database security and auditing. Students will learn many methods and techniques that will be helpful in securing, monitoring and auditing database environments. It covers diverse topics that include all aspects of database security and auditing - including network security for databases, authentication and authorization issues, links and replication, database Trojans, etc. You will also learn of vulnerabilities and attacks that exist within various database environments or that have been used to attack databases.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, two weeks delivery

SSA 333 Microsoft SharePoint Server Security Administration (1 CR)
The overall objective of the course is to teach students how to install, configure, and administer Microsoft SharePoint and also how to manage and monitor sites and users by using Microsoft SharePoint 2010 or later. It will also cover the new features and functionality introduced with SharePoint 2010 Sp1 or later

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 334 MS Exchange Server Security Administration (OCT-II) (2 CR)
The overall objective of the course is to develop student capabilities (skills) on how to configure and manage a messaging environment in accordance with technical requirements. Students will learn how

to install Microsoft Exchange Server latest release and manage routing, client access, and the backup and restore of databases. They will also learn how to manage addressing and recipient objects such as mailboxes, distribution groups, and contacts

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 335 Mobile Programming and Security (OCT-II) (1 CR)
The purpose of this one-week on-campus-training module is to practice hands-on sessions on how to design, implement, test, debug and publish smartphone applications (e.g. java based android phones). Students will learn how to take their innovative ideas from conception to the android market through a series of rigorous hands-on programming assignments and group projects The course also embarks on concepts of mobile Vulnerabilities; Security threats and problems; Protection techniques, and Specification, design and development of secure systems involving mobility.

Lecture: 1hrs/day; Practical: 3hrs/day; Lab: 3hrs/day, one-week delivery

SSA 410 Advanced Cryptography (2 CR)
This course covers advanced topics in Cryptography including: modern methods of public and private key encryption, authentication and digital signatures, hashing, and passwords, Number theory, abstract algebra, combinatorics, and complexity theory necessary for the design and analysis of advanced cryptographic systems

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 0hrs/week

SSA 411 Advanced Web Security (3 CR)
The course will introduce advanced web application security with coverage of attacks and countermeasures. Topics include Cross Site Scripting, SQL Injection, and Session Security. More advanced web application vulnerabilities will be discussed including: Blind SQL injection, Flash Security, Authentication, Web Service, and XPath injection, back end components, application logic, customized attacks on web technologies. Most of the examples in the course will be introduced in PHP, MySQL, and Apache. Challenges will be provided on Virtual Machine for students to practice during the lab or work on them as assignments.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 412 Identity Management (3 CR)
This course provides students with necessary tool for understanding the complexity of identity in a virtual world. The course describes the key issues of identity management as well as appropriate strategies and preventative measures for ensuring personal safety in the virtual world. The course discusses how to identify and control the way in which the organization deals with customers, suppliers, employees, and other users who may interact with the information systems of the company. Also, the course provides strategies for overcoming this task in real-world terms as well as questions that assist in focusing on the key issues ranging from role-based access control to single sign-ons and electronic identity smart cards.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA 413 Risk Analysis and Management (3 CR)
This course gives students guidance on planning and implementing a risk assessment and protecting business information. The course introduces students to the international code of practice for an information security management system (ISMS) ISO27002. This course also provides students with detailed, practical guidance on how to develop and implement a risk assessment in line with the requirements of ISO27001. Students will learn how to measure risk and how to ensure that proper levels of security are maintained for individual technology users, businesses, government, and other organizations. This course will cover different approaches for risk assessment and risk mitigation. Students will learn how to use a risk analysis matrix for performing both quantitative and qualitative risk analysis. Course covers key topics, such as Threat Vulnerability Analysis, risk scales, threats and

vulnerabilities, selection of controls, and roles and responsibilities. Risk Management Strategies (Avoidance, Transference, Mitigation, Acceptance), Counter-Measures, and Cost Benefit Analysis of Info Security investments

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 1hrs/week

SSA-414, SSA-423 Graduation Projects I and II (1 and 3 CR)
The Graduation Project I, II courses are Capstone Design courses, which allow students of the program to design, implement, and demonstrate a secure system/solution/product. Student teams of three to four students will work over several semesters on an engineering design projects which might be sponsored internally or by a local company. Students choose the particular design project with approval of appropriate faculty. Each project includes the use of open-ended problems, development and use of design methodology, formulation of design problem statements and specification, consideration of alternative solutions, feasibility consideration and detailed system descriptions. While individual performance is emphasized and appraised, team work spirit is highly recognized.
Coordination meetings are held once a week. Two additional team meetings per week are required with the advisor

SSA 420 Incident Handling and Response (3 CR)
The overall objectives of this course help student understand contingency planning and its components. The course will cover fundamental concepts and techniques of Security Information and Event Management (SIEM). Students will learn the basics of correlation of events, real-time monitoring and presentation of information from network and security devices using SIEM technology. Students will understand the key characteristics of log auditing, event management, and how to handle the situation as the incident responders to contain the incident and plan for the recovery steps.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

SSA-421 Information Assurance & Security Management (3 CR)
This course provides students a systematic and practical approach for establishing, managing, and operating a comprehensive Information Assurance program at an Organization. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies. Current software exploitation issues and techniques for information assurance will be investigated. Topics include: Security Management Practices, Business Continuity Planning (BCP), Disaster Recovery Planning (DRP), Commercial and legal implications, Introduction to ISMS standards, Accreditation, Policy, Risk Management, and auditing and reporting.

Lecture: 2hrs/week; tutorial (optional): 2hrs/week; Lab: 1hrs/week

SSA 422 Ethics, Law and Policy in Cyberspace (3 CR)
The course provides an overview of the ethical challenges faced by individuals and organizations in the information age and introduces the complex and dynamic state of law as it applies to behavior in cyberspace. The course also highlight the bit falls and dangers of doing business in an interconnected world, and provide understanding how to ethically and legally operate and use modern computer systems and networks. Policies and standards such as Sarbanes Oxley, HIPAA, Gramm, Leach, Bliley, will be introduced. The course introduces the entire lifecycle of security policy creation and development including issue specific policies in different domains of security. The course teaches students how to allocate the appropriate security techniques needed to satisfy a specific security policy in context of real life situations.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab: 2hrs/week

SSA 430 Field Training (3 CR)
This course shall be conducted collaboratively with AD Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure

networking and web space. Students spend one full semester as interns in a company, government agency, or business. Under faculty supervision, students fulfill various assignments to acquire first-hand knowledge of a working environment. Students are required to write a final report detailing the technical aspects of their internship. This course is graded on a Pass/Fail scale.
Department Approval required

Elective SSA 415 Homeland Security (3 CR)
In the aftermath of 9/11, many law enforcement agencies (LEAs) shifted more resources toward developing counterterrorism (CT) and homeland security (HS) capabilities. This course examines the effects the focus on CT and HS has had on law enforcement, including organizational changes, funding mechanisms, how the shift has affected traditional crime-prevention efforts, and an assessment of benefits, costs, and future challenges.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 416 Hardware Based Security (3 CR)
The course will cover the security measures embedded into digital systems for reliable, safe, and secure operation. The course introduces methods of design and evaluation of secure and trustworthy hardware. It also teaches the concepts of tamper-proof, tamper-resistance, and trusted platform modules. Topics covered include: Identity Management, Smartcards, TPM management and deployments, Rootkit and APT detection, event logging, RFIDs, cryptographic processor analysis, physical and invasive attacks, side-channel attacks, hardware-based true random number generators, watermarking of Intellectual Property (IP) blocks, FPGA security, passive and active metering for prevention of piracy, access control, hardware Trojan detection and isolation.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 417 Security Governance and Compliance (3 CR)
This course provides a detailed knowledge of IT Governance principles and procedures, and the basic concepts of the ISO 27001 / ISO 27002 standard. The student possesses thorough knowledge about the overall process for establishment and maintenance of an Information Security Management Systems (ISMS). The student possesses detailed knowledge about the role of policies, standards and guidelines for controls and is capable of applying his/her knowledge in case studies

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 418 Advanced Secure Database Administration (3 CR)
This course is an advanced course for Oracle DBA (continuing to SSA-144). The overall objective of the course is to develop student of in-depth understanding of Oracle architecture and internal mechanisms such that the student is able to perform basic DBA tasks such as database creation, startup and shutdown, and database management. The course also covers Oracle networking basics and the Oracle utility programs. It serves as preparatory course for the Oracle Certified Professional (OCP) program

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 425 Security Architectures and Models (3 CR)
The course covers the broad domain of security architecture and models, access control systems and methodology, OM-AM framework, security architectures and mechanisms, security infrastructure, reusable infrastructures, public-key centric architectures, consumer-oriented public-key infrastructure, coupled and de-coupled authentication and authorization architectures and multilevel security architectures. The course will also demonstrate advanced Internetworking concepts, and security and administration. The course will serve as a prerequisite to the CISSP certification.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 426 System Security Intelligence (3 CR)

This course provides detailed coverage of key enterprise security topics while demystifying technologies such as Next Generation Firewall. Through an in-depth look at proxy design and its policy enforcement engine, malware, malnets, and application proxies, you'll easily discover the foundation needed for a careful analysis while gaining deeper comprehension of security policies for application-specific proxies, application classification and control, security data analysis, and mobile security. You will learn the most effective solutions, technologies, and methodologies that can be implemented to monitor for, guard against, and mitigate security threats.

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSA 427 Systems/ Servers Security Trends (3 CR)
This course module, emerging technological and social trends will have far-reaching implications for enterprise security. This course outlines the Information technology trends that organizations can expect to see in the next several years, the catalysts behind those trends and the ways in which various solutions can help organizations strategically balance risk with opportunity

Lecture: 2hrs/week; tutorial: 2hrs/week; Lab: 2hrs/week

Elective SSD 428 Security Protocols in-depth (3 CR)
This course focuses on the design, analysis, and evaluation of various security protocols and mechanisms including but not limited to: basic symmetric and asymmetric cryptography protocols, SSL/TLS, WEP/WPA, IPSec, S/MIME, PGP, SSH, X.509 and Kerberos. This course focuses on discussing the pros and cons of various security trade-offs involved in the design of such protocols, and describes vulnerabilities that some of these protocols are susceptible to, Cryptographic Algorithms & Protocols (Encryption and data authentication; Algorithms related to cryptographic operations; Key management and key generation; Implementation of algorithms.

Lecture: 2hrs/week; tutorial: 2hrs/week (optional); Lab:

29.19 Petroleum Engineering Technology

PET-110 Introduction to Petroleum Engineering (3 CR)
Overview of petroleum industry and petroleum engineering including nature of oil and gas reservoirs, petroleum exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, and improved oil recovery.

Lecture 3 hrs/wk.

PET-111 Introduction to Gas Production (3 CR)
The aims of the course are to give an understanding to the technology of gas production, processing and sulphur recovery systems. General as well as specific concepts will be introduced which will enable students to have a basic comprehension of the needs and requirements of gas production systems. Topics: natural gas origin, drilling and well completion, gas behavior, gas recovery, gas liquefaction, treating, gathering systems, and storage.

Lecture 3 hrs/wk.

PET-120 Introduction to Petroleum Geology (4 CR)
This course is an introduction to petroleum geology for petroleum Engineering students. The objectives of the course are to provide petroleum Engineering students with a basic understanding of the concepts and methods in petroleum geology, exploration and development found in today's major integrated oil companies.

Lecture 3 hrs/wk; lab: 3 hrs/wk.

PET-209 Reservoir Rock Properties (3 CR)

Basic petrophysical properties of reservoir rocks including porosity, permeability, fluid saturation, electrical conductivity, capillary pressure, and relative permeability. Laboratory measurement of the reservoir rock characteristics mentioned above.

Lecture 2 hrs/wk; lab: 3 hrs/wk,

PET-216 Reservoir Fluid Properties (3 CR)
Study of the phase behavior of hydrocarbon systems as related to petroleum recovery. Ideal and real gas behavior, single and multicomponent two-phase systems, properties of reservoir fluids under various conditions of pressure and temperature. Laboratory tests on reservoir fluids.

Lecture 2 hrs/wk, Lab 3 hrs/wk

PET-217 Reservoir Engineering I (3 CR)
The course includes application of reservoir engineering data to calculation of recovery potentials and to analysis and prediction of reservoir performance under a variety of production methods to effect maximum conservation.

Lecture 3 hrs/wk

PET-225 Drilling Technology I (4 CR)
This course introduces basic drilling techniques and drilling fluid properties. This is the first of two courses in drilling technology. This course covers all aspects of rig construction and, operation and fundamental operations associated with drilling a well for petroleum exploration and production.

Lecture 3 hrs/wk; lab: 3 hrs/wk

PET-271 Pumps and Valves (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to different equipment such as valves and pumps. The overall course objective is to develop student basic knowledge in: Valves and Pumps

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-272 Heat Exchangers & Steam Traps (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to different equipment such as heat exchangers and steam traps. The overall course objective is to develop student basic knowledge in: Heat exchangers and Steam traps

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-273 Air Compressors (PET-273) (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to different equipment such as heat exchangers and steam traps.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-274 Experimental Fluid Mechanics (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to fluid mechanics.
1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-275 Oil and Gas Testing (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to fluid mechanics.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-276 DC Machines (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to direct current (DC) machines.
1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-277 AC Machines (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to alternating current (AC) machines.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-278 Instrumentation and Control (1 CR)
On-Campus-Training I (OCT-I)
This course provides the basics of petroleum (oil & gas) instrumentation and measurement. Oil and gas operations have a sensitive and critical importance as it deals with very high temperature and pressure and extreme natural conditions. A student geared towards this industry should be equipped with sound theoretical background of measurement instruments and measuring techniques. The safety in the oil and gas industry is of paramount. This course also imparts basics knowledge of process variables as related to measuring instruments and their control.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-279 Process Fundamentals Simulation (PET-279) (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students with basic concepts related to fluid hydraulics.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-326 Numerical Methods (3 CR)
Use of numerical methods in a variety of petroleum engineering problems; numerical differentiation and integration; root finding; numerical solution of differential equations; curve fitting and interpolation.

Lecture 3 hrs/wk,

PET-319 Well Testing (2 CR)
Introduce the students to the theory of well testing and its applications, emphasize the importance of well testing as a tool for reservoir description and evaluation, emphasize the importance of well testing as a diagnostic tool for evaluating the ability of a formation to produce reservoir fluids and monitoring well performance, emphasize the importance of properly designed, executed, and analyzed well tests to provide reservoir parameters and providing students the skills to integrate well testing with other petroleum disciplines.

Lecture 2 hrs/wk.

PET-305 Petroleum Production (3 CR)
The upstream of the petroleum industry involves itself in the business of oil and gas exploration and production (E&P) activities. While the exploration activities find oil and gas reserves, the production activities deliver oil and gas to the downstream of the industry (i.e., processing plants). The petroleum production is definitely the heart of the petroleum industry. The course contains eight topics covering petroleum production engineering fundamentals. It presents an introduction to the petroleum production system, documents properties of oil and natural gases that are essential for designing and analyzing oil and gas production systems, covers in detail the performance of oil and gas wells, presents techniques used to forecast well production for economics analysis, and describes empirical models for production decline analysis.
Lecture 3 hrs/wk.

PET-310 Project Management (2 CR)
This course will provide a comprehensive presentation and discussion of modern project management principles and practices as they relate to design; procurement; construction activities, maintenance; and upgrade turnarounds at facilities in the oil and gas industry. The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using "real-world" project examples related to facilities design, procurement, construction, and turnarounds. The exercises will include both individual and group activities that will provide each student with a visual application of the principles and practices discussed throughout the course.

Lecture 2 hrs/wk

PET-314 Well Logging (4 CR)
This course introduces the various well logging methods, tools and their principles of operation with emphasis on the relationship between measurements and reservoir petrophysical properties. Conditions and limitations for applications of various logs are discussed. Graphical and analytical methods used to determine formation composition, contents, and its potential for production are developed and applied. Computer and commercial software packages are used to handle data, create graphs and log traces, and determine reservoir parameters.

3 hrs/wk; Lab: 3 hrs/wk.

PET-315 Geomechanics (2 CR)
This course provides an understanding of the fundamentals of rock mechanics. It introduces important concepts such as elasticity and failure mechanics, borehole stresses, poroelasticity, and acoustic wave propagation. In addition, the course also discusses the important parameters in rock mechanics and the application of rock mechanics in borehole stability, hydraulic fracturing, and reservoir subsidence.

Lecture 2 hrs/wk.

PET-317 Reservoir Engineering II (3 CR)
The course includes application of reservoir engineering data to calculation of recovery potentials and to analysis and prediction of reservoir performance under a variety of production methods to effect maximum conservation.

Lecture 3 hrs/wk

PET-330 Health and Safety at workplace (HSW) (2 CR)
This course is designed to equip students with the knowledge and skills needed to identify and deal with hazards at workplace, helping to reduce accidents and delivering cost savings to the organization or company.

Lecture 2 hrs/wk

PET-335 Drilling Technology II (2 CR)
This course deals with additional topics in drilling engineering, namely design of directional and horizontal wells; casing and cementing specifications and strengths, casing sizing, prediction of casing loads and resistances, design of different casing strings; HTHP wells; Managed pressure drilling; subsea well control; and well planning.

Lecture 2 hrs/wk.

PET-345 Well Completion & Workover (3CR)
The course presents a review of well completion and workover techniques. The objectives and optimum solutions of well completions for different field conditions are discussed including technical and economic considerations. The design of the tubing string, the most important downhole equipment of any hydrocarbon well, is discussed in detail. The ways of opening the formation for production are detailed and the different types of perforating oil and gas wells are analyzed. Workover procedures

including remedial cementing, well stimulation methods are studied along with the required design procedures. Lecture

3hrs/wk

PET-340 Unconventional Resources Completion & Stimulation (3 CR)
Horizontal wells have become the industry standard for unconventional and tight formation gas reservoirs. Because these reservoirs have poorer quality pay, it takes a good, well-planned completion and fracture stimulation(s) to make an economic well. Even in a sweet spot in the unconventional and tight gas reservoir, good completion and stimulation practices are required; otherwise, a marginal or uneconomic well will result. This course will address few questions related to the course title such as: what are good completion and stimulation practices in horizontal wells in these unconventional reservoirs? What are the objectives of horizontal wells and how do we relate the completion and stimulation(s) to achieving these goals? How many completions/stimulations do we need for best well performance and/or economics? How do we maximize the value from the horizontal wells? When should a horizontal well be drilled longitudinally or transverse?

Lecture 3 hrs/wk.

PET-371 Rig Safety (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The rig safety module overall objectives are to teach safety aspects of an oil/gas rig and raise the students awareness of possible solutions to overcome them. In addition to this, to develop student's skills such as analysis, communication, and technical report writing.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-372 Drilling (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The drilling module overall objectives are to teach drilling practices and problems from spud to completion and raise the students awareness of drilling operations and well problems. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application in the art of drilling engineering.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-373 Well Control (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using

state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The well control module overall objectives are to teach concepts and equipment of well control and raise the students awareness of well problems. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application in the art of drilling engineering by the application of different well control methods.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-374 Stuck Pipe Prevention (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The stuk pipe prevention module overall objectives are to teach mechanisms of stuck pipes and techniques of freeing pipes while drilling, logging or during any well intervention. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application in the art of special operation of whole problems related to stuck pipe prevention and jarring.

1 Week, lecture: 5 hrs, practical training: 30 hrs.

PET-375 Cementing (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The cementing module overall objectives are to teach the students the important cement properties that we measure before doing the cementing job. These properties include.
Cement rheology, thickening time, permeability and compressive strength. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing.
1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-376 Well Head /Christmas tree (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The Well Head /Christmas Tree module overall objectives are to teach the logic sequence of wellhead construction and Xmas tree production and intervention purposes. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report

writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application in understanding the engineering of wellhead and Xmas tree.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-377 Workover (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The module overall objectives is to teach remedial work done on the well (production stopped) to maintain, restore, or improve production by a workover. This includes both solving mechanical problems and cleaning out the well. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application in the art of workover engineering.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-378 Formation Evaluation (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The formation evaluation module overall objectives are to teach determination of permeability changes of a formation sample as it is exposed to a variety of test fluids and raise the students awareness of all types of formation treating. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing. Ultimately, the training goal is to narrow the gap existing between the theoretical approach and practical application.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-379 Matrix Acidization (1 CR)
On-Campus-Training II (OCT-II)
The On-Campus-Training II (OCT-II) modules, using state of the art walk-in drilling simulator 5000 (DS 5000) and portable drilling & well control simulator (CS inc.) provides hands-on actual drilling operations and well control equipment (drilling gauges, remote choke, standpipe manifold, choke manifold), training on well head/Christmas tree, workover and cementing, stuck pipe, and rig safety. Also using state of the art formation evaluation system (FES 350), formation damage and well treatment system (FDS 350), and matrix acidizer (Mat 700). The training is designed for Petroleum Engineering Technology students.
The module's overall objectives are to familiar students with the theory and practices matrix acidization for the damaged reservoirs, the types of acids used and which acid is suitable for the particular formation. In addition to this, to develop student's skills such as observation, data acquisition and analysis, communication, and technical report writing.

1 Week, lecture: 5 hrs, practical training: 30 hrs

PET-394; OGP-394 Graduation Project (2 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Students should use available design and simulation software. Final technical written report is submitted by the end of the semester (week 15) and presented by the group in the same week or during the examination week (16).
Lecture 2 hrs/wk

PET-409 Equipment Design and Selection (3 CR)
The course includes three topics presenting principles and rules of designing and selecting the main components of petroleum production systems. These topics are designed for senior level petroleum Engineering students. The topics address tubing design, present rule of thumbs for selecting components in separation and dehydration systems, and details principles of selecting liquid pumps, gas compressors, and pipelines for oil and gas transportation.

Lecture 3 hrs/wk

PET-410 Gas Production Engineering (3 CR)
Reservoir performance covers the fundamentals of reservoir gas flow and details the best methods for testing wells, according to the time and money available. The importance of flow regime and non-Darcy flow on test design and interpretation is emphasized for new wells and for the possibility of improving the performance of older wells. Also discussed are performances of tight formations, horizontal wells, fractured wells, and methods for estimating gas reserves. Calculation and determination of the effect of each system component on total well performance, which permits optimum sizing of tubing, flow-lines, separators, and compressors. Formation damage, gas well de-watering, hydrate formation, water influx, and abnormal reservoir pressure problems are reviewed. Relate reservoir and well performance to time, as well as calculate cash flow and compression requirements. Discuss the best procedures to predict when liquid loading will make a well nonproductive. Field gas processing, including dehydration and condensate recovery, is briefly reviewed. Gas production is emphasized, although an overview on field gas processing is presented.

Lecture 3 hrs/wk.

PET-411 Petroleum Economics (2 CR)
The course will provide students with the fundamentals necessary to enable them to answer some questions about planned oil and gas projects such as: what will it cost? what is it worth? will it earn sufficient profit? Contractual arrangements, which also significantly impact the economic viability of a project, are covered. Students will practice cash flow techniques for economic evaluations and investigate frequently encountered situations.

Lecture 2 hrs/wk,

PET-420 Artificial Lift & Production Enhancement (3 CR)
This is the last course in petroleum production engineering and is composed of three topics introducing artificial lift methods and four advanced topics addressing production enhancement techniques. The artificial lift method topics present an introduction to the sucker rod pumping system and its design procedure, describe gas lift method, and provide an overview of all other artificial lift methods and their design procedures. While the production enhancement topics start with identifying well production problems, deal with designing acidizing jobs, provide a guideline to hydraulic fracturing and job evaluation techniques, and the last topic presents some relevant information on production optimization techniques.

Lecture 3 hrs/wk,

PET-415 Enhanced Oil Recovery (3 CR)
One-third to one-half of the original oil-in-place may remain in a reservoir as it reaches abandonment due to its economic limit. The primary reasons are heterogeneity of the reservoir, unfavorable fluid properties, inefficient nature of the displacement process, oil price and production cost considerations. The secondary reasons, however, are: inappropriate development, inefficient reservoir management practices, and escalating costs of remedial interventions/corrective measures and producing operations. The oil recovery is generally lower than expected due to some combination of the above reasons. Gaining a better understanding of the reservoir fundamentals and the important variables that influence the recovery process can enhance it. This course covers the recovery improvement possibilities that present themselves at all stages in the reservoir life cycle. It thereby enables one to timely select the most beneficial method and set realistic expectations on production behavior changes and recovery improvement.

Lecture 3 hrs/wk

PET-417 Reservoir Simulation (3 CR)
Solution of production and reservoir engineering problems using state-of-the-art commercial reservoir simulation software, using data commonly available in industry. Emphasis on reservoir description, reservoir model design and calibration, production forecasting and optimization, economic analysis and decision making under uncertainty.

Lecture 3 hrs/wk,

PET-422 Applied Water Technology & Corrosion (2 CR)
This course will provide the student with the knowledge to identify various types of corrosion, the causes of corrosion and the susceptible locations of corrosion in petroleum industry. This course provides an overview of the main water handling systems typically encountered in upstream (E&P) drilling operations, both onshore and offshore. The chemistry of the main water related problems of mineral scales, corrosion, bacteria, and oily water will be reviewed both from the theoretical and practical aspects.

Lecture 2 hrs/wk.

PET-425 Water Treatment and Injection (3 CR)
Secondary Recovery schemes, including pressure maintenance, have become almost standard in the development of oil fields throughout the world in an effort to increase recoveries at a minimum cost. The primary mechanism used is water injection - water is cheap, readily available and immiscible with the oil - but requires specific treatments to ensure reservoir problems are minimized. Furthermore as water is injected water will be produced in increasing amounts leading to additional (or different) treatment prior to injection or disposal. The course provides coverage of the theory and practice of water treatment for injection as part of a secondary recovery scheme or disposal of produced waters.

Lecture 2 hrs/wk Lab: 3 hrs/week

PET-435 Applied Environment (2 CR)
This course provides opportunities to apply the tools, techniques and management systems of environmental management in petroleum industries. The course is designed to introduce students to a range of environmental challenges, including policy development, conducting environmental reviews, tackling environmental issues including waste management, energy efficiency, pollution control and emergency planning, environmental monitoring and becoming an ‘agent for change’ in their company. A well-blended variety of exercises, problems and case study scenarios are used to practice the application of learning.

Lecture 2 hrs/wk,

PET-450 Special Topic in Petroleum Engineering Technology (3 CR)
The course will cover a special topic in one or more of the areas of the petroleum engineering discipline.

The special topics course series presents selected current and emerging topics in petroleum engineering depending on need as determined by the department faculty. Topic(s) will be selected according to the faculty expertise and the students' interest and enrollment.
Lecture 3 hrs/wk

PET-494; OGP-494 Graduation Project (3 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Some students groups might decide to continue working on the same project started in PET-394 or OGP-394 and add advanced design components to it. Students should use available design and simulation software. Final technical written report is submitted by the end of the semester (week 15) and presented by the group in the same week or during the examination week (16).

Lecture 3 hrs/wk,

PET-495; OGP-495 Internship (3 CR)
PET-495 and OGP-495 are required on the job training for petroleum Engineering technology and oil and gas process engineering technology students, respectively. On-the-Job-Training will take place during the fourth year for AB students. Abu Dhabi Polytechnic will arrange with ADNOC, service companies and international operating companies, operating in UAE, to allocate training place for course students ahead of time. Each student must participate in an approved training/performance (internship) program in either upstream (petroleum Engineering technology) or downstream (oil and gas process engineering technology) industries depending on his/her specialization. The program must contain practical elements of the courses in the AB programs. At the end of the training period, a formal written report must be submitted; student grade will be either P OR NP (Pass or Non-Pass).

Practical Training of 8-10 weeks.

Oil and Gas Process Engineering Technology

OGP-120 Organic Chemistry (3 CR)
This is an introductory course in organic chemistry designed to give petroleum engineering technology students a knowledge and understanding of the fundamental chemical concepts of organic products and derivatives which are prominent in the petroleum industry.

Lecture 2 hrs/wk; Lab 2 hrs/wk,

OGP-211 Fundamentals of Pipeline Engineering (3 CR)
This course will provide an overview over history of pipelines, types of pipelines and basics of pipeline engineering, introduction to pipeline welding, corrosion and coatings, introduction to pipeline engineering design and codes, introduction to offshore construction, basics of inspection, principles of pressure regulators, instrumentation and control, pipeline routing and construction offshore and onshore, pipeline materials selection.

Lecture 3 hrs/wk,

OGP-213 Introduction to Surface Production Operations (2 CR)
This course presents a basic overview of all typical surface production equipment. Students should learn not only the purpose of each piece of equipment but how each works. Emphasis is on gaining a basic understanding of the purpose and internal workings of all types of surface facilities and equipment. A major goal of this course is to improve communication among all disciplines, the field, and the office to have safe operations.

Lecture 2 hrs/wk,

OGP-215 Equilibrium Thermodynamics (2 CR)
Provide students with an understanding of the basic laws and principles of equilibrium thermodynamics. To develop students' ability to undertake thermodynamic analysis in various applications.

Lecture 2 hrs/wk,

OGP-216 Introduction to Gas Processing and Treatment (3 CR)
Natural gas must be processed to convert it into a commercial commodity and stabilize its form into a stored or transportable liquid. The process must be fully understood and each part of the process as to the removal and separation of certain elements and the conversion specifications for plant operators. The course is designed for oil and gas processing technology students to enhance their understating about gas processing and treatment.

Lecture 3 hrs/wk,

OGP-218 Fluid Mechanics (3 CR)
This is an introductory course in fluid mechanics designed to develop both the knowledge of the laws and principles governing fluid mechanics and the ability to apply this knowledge in analyzing related petroleum engineering applications. The course also provides a base for advanced courses in piping design, ducting design, and fluid power systems.

Lecture 2 hrs/wk; Lab 2 hrs/wk,

OGP-220 Mass Transfer (3 CR)
The course introduces the fundamental aspects of basic unit operations used in petroleum and oil and gas industry and the concept of equilibrium staged separations. It provides sufficient understanding of the size calculations required for design of unit equipment.

Lecture 3 hrs/wk,

OGP-222 Elementary Principles of Process Engineering (2 CR)
Solution of elementary problems by application of mass balances, energy balances, and equilibrium relationships. This course intends to introduce students to the basic principles of process engineering.

Lecture 2 hrs/wk

OGP-223 Physical Chemistry (3 CR)
An overview of some of the topics in Physical Chemistry – Atomic and Molecular Structure, Spectroscopy, Statistical Thermodynamics and Electrochemistry.

Lecture 2 hrs/wk; Lab 2 hrs/wk,

OGP-224 Pipelines Installation and Operation Management (3 CR)
This course will provide an understanding of management operations, practical aspects of pipeline design, operating and maintaining of gas pipelines, quality control, troubleshooting, review of risk management concepts and methodologies, and pipeline economic importance.

Lecture 3 hrs/wk.

OGP-225 Chemical Reactors and Mixing (4 CR)
OGP-225P Chemical Reactors and Mixing Lab
In oil and gas industries, chemical reactions take place in chemical reactors. A variety of chemical reactors will be examined and in in-depth study of batch, and continuously stirred tank reactors will take place. Simulation and laboratory work will be used to teach students the fundamentals of safe and correct start-up, shut down, and control and troubleshooting of mixing tanks and reactors.

Lecture 3 hrs/wk; Lab 3 hrs/wk.

OGP-228 Heat Transfer (3 CR)
This course deals with underlying theories and applications of heat transfer. These principles are then related to the unit processes involved in petroleum industry.

lecture: 2 hrs/wk and lab: 2 hrs/wk.

OGP-295 Internship (OGP-295) (3 CR)
OGP-295 is required on the job training for oil and gas process technology students only. On-the-Job-Training will take place during the second year for Diploma students. Abu Dhabi Polytechnic will arrange with ADNOC and/or Dolphin Energy, service companies and international operating companies, operating in UAE, to allocate training place for course students ahead of time.
Each student must participate in an approved training/performance (internship) program in either upstream (petroleum Engineering technology) or downstream (oil and gas process engineering technology) industries depending on his/her specialization. The program must contain practical elements of the courses in the Diploma program. At the end of the training period, a formal written report must be submitted; student grade will be either Pass OR Non-pass (P or NP).

On-the-Job Training (Industrial Practical Training) 8-10 weeks

OGP-314 Analytical Chemistry (3 CR)
The course will define and illustrate the analytical approach to chemical analysis, in particular environmental analysis. The theoretical principles of classical and instrumental analysis will be reinforced by means of a laboratory and tutorial program. Students will be encouraged to develop problem solving skills and apply these to the solution of real chemical problems.

Lecture 2 hrs/wk; Lab 2 hrs

OGP-313 Surface Production Operation (2 CR)
This course deals with underlying theories and applications of surface production facilities. Understanding of production aspects such as well stimulation, secondary and tertiary recovery methods applied to reservoirs to increase their productivity are addressed as well.

Lecture 2 hrs/wk.

OGP-316 Gas Processing and Treatment (3 CR)
The course is designed for petroleum engineering technology students to enhance their understating about gas processing and treatment.
Lecture 3 hrs/wk.

OGP-340 Petroleum Storage and Loading (2 CR)
Oil and gas storage and loading belongs the oil and gas process which takes the product from the wellhead manifolds and delivers stabilized marketable products, in the form of Crude Oil, Condensate or Gas to the market.

Lecture 2 hrs/wk.

OGP-345 Petroleum Refining & Processing (3 CR)
OGP-345P Petroleum Refining & Processing Lab
This course focuses on the core building blocks of the refining process systems, equipment and economics. The course will emphasize refining process unit operation fundamentals and safe utilization of these fundamentals by operations and maintenance personnel.

lecture: 2 hrs/wk; Lab: 3hrs/wk.

OGP-338 Process Equipment Drawing (1 CR)
This course covers an introduction and anatomy of process equipment drawing. It will integrate the materials cover in the prerequisite (schematic and mechanical drawing). Different process equipment

schematics and components will be covered as shown in the course topics.

Lecture 1 hrs/wk.

OGP-371 Process Engineering Drawing (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
The overall objectives of On-Campus Training II modules are to develop student practical skills by "learning while doing" and provide hands-on training with machine equipment and systems. In addition to this, to develop student's skills such as observation, measurement, recording data, data analysis, technical report writing and presentation. And also to develop student team working skills.
The objective of this module is to provide the student with the necessary fundamentals and basic understanding of process engineering equipment drawing and schematics. Free-hand and computer drawing and sheets will be taught and utilized

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-372 Oil Handling Systems & Facilities (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
The course provides an overview of the various Utility Systems, key selection considerations and how they are integrated into oil and gas facilities. Individuals will develop a basic understanding of the wide variety of utility systems and components and how they integrate with the process facilities and overall operation. System selection, costs and other managerial decisions pertinent to utility operations are covered.

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-373 Gas Handling Systems & Facilities (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
The course provides an overview of the various Utility Systems, key selection considerations and how they are integrated into oil and gas facilities. Individuals will develop a basic understanding of the wide variety of utility systems and components and how they integrate with the process facilities and overall operation. System selection, costs and other managerial decisions pertinent to utility operations are covered.

1 week, lecture: 5 hrs, practical training: 30 hrs.

GP-374 Separation Processes (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering

Technology students. The overall objectives of On-Campus Training II modules are to develop student practical skills by "learning while doing" and provide hands-on training with machine equipment and systems. In addition to this, to develop student's skills such as observation, measurement, recording data, data analysis, technical report writing and presentation and to develop student team working skills. The training module will help the students to understand the basic principle of Oil and Gas separation.

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-375 Oil and Gas Distillation (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students
The training module will help the students to understand the basic principle of petroleum distillation processes.

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-376 Reactors Engineering (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
To provide a thorough understanding of reactor engineering and the use of reactors in processing plants.
1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-377 Pipeline Pigging & Inspection (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
To provide a thorough understanding of pipeline pigging and inspection.

1 week, lecture: 5 hrs, practical training: 30 hrs

OGP-378 Tank Farm Operations (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
This training module will provide an understanding of pipeline operations and inspection procedure.
The overall objectives of On-Campus Training II modules are to develop student practical skills by "learning while doing" and provide hands-on training with machine equipment and systems. In addition to this, to develop student's skills such as observation, measurement, recording data, data analysis, technical report writing and presentation. And also to develop student team working skills. Correct management and operation of an Oil & Gas terminal is essential for a successful business. The processing, transporting and storing of crude oil or refined petroleum products in tank farms involve custody transfers of partner and commingled stock, significant volumes of data from various sources

and blending complexities.

In addition, as these liquids are loaded and offloaded in bulk quantities, there is a large transfer of high value that makes it imperative for tank farm operators to efficiently manage their inventory and maximize their return on investment.

The tank farm's mission is to perform its daily operations while maintaining a safe storage terminal.

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-379 Control Room Operations (1 CR)
OCT-II OGP On-Campus Training II
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.
This course will give students the knowledge necessary to understand the control room operation as found in the oil and gas industry today. They will learn the purpose of a control room is to serve as an operations center where a service or facility can be monitored and controlled. At any time it can be designated as an area of refuge in high-risk facilities during emergency situations.

1 week, lecture: 5 hrs, practical training: 30 hrs.

OGP-394; PET-394 Graduation Project (2 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Students should use available design and simulation software. Final technical written report is submitted by the end of the semester (week 15) and presented by the group in the same week or during the examination week (16).

Lecture 2 hrs/wk

OGP-415 Chemical Reactor Design (4 CR)
OGP-415P Chemical Reactor Design Lab
The On-Campus-Training II (OCT-II) provides hands-on training on process drawing, utility systems and operations, start-up, shut-down, safety procedures, P&ID building, separation processes, distillation, reactors, pipe pigging and flaring, control room and tank farm safety issues related to various oil and gas process equipment. The training is designed for Oil and Gas Process Engineering Technology students.

Lecture: 3 hrs/wk; Practical: 3hrs/wk.

OGP-417 Process Modeling & Simulation (3 CR)
OGP-417P Process Modeling & Simulation Lab
The course is designed for OGP technology students to enhance their process units modeling and simulation knowledge and skills.
Process Modeling and Simulation. Introduction: uses and classification of mathematical models; a unified approach for formulation, solution and validation of mathematical models; numerical methods (review of techniques for solving systems of linear and nonlinear algebraic equations, systems of ODEs, applications to chemical engineering problems); introduction to MATLAB and available process simulation packages; modeling and simulation of chemical engineering systems (fundamental laws and concepts, modeling and simulation of typical examples with/without controllers). Process optimization. Essential features of optimization problems; necessary and sufficient conditions for an extremum; unconstrained single variable and multivariable search methods; nonlinear Programming with

constraints; applications.

Lecture: 2 hrs/wk; Practical: 3hrs/wk.

OGP-430 Petrochemicals (3 CR)
In this course students will be introduced to the building blocks of petrochemicals, the nine key hydrocarbon compounds that form the basis for the petrochemicals industry. The course covers these important hydrocarbons one by one, sharing knowledge of how they're derived, the technology employed to produce them, and some of the many products manufactured using them.

Lecture 3 hrs/wk

OGP-464 Process Dynamics and Control (3 CR)
This is a three-hour course which is intended to introduce students to the fundamentals and applications of process dynamics and control. The course reinforces controllers design of common process equipment. Practical problems are used as examples.

Lecture 3 hrs/wk

OGP-465 Plant and Equipment Design (4 CR)
OGP-465P Plant and Equipment Design Lab
In this course the students will apply the legislation and codes necessary for Process Engineering design. The course also covers design procedures for some equipment involved in a chemical/oil and gas/ process engineering plant.

Lecture 3 hrs/wk; Lab 3 hrs/wk,

OGP-494; PET-494 Graduation Project (3 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Some students groups might decide to continue working on the same project started in PET-394 or OGP-394 and add advanced design components to it. Students should use available design and simulation software. Final technical written report is submitted by the end of the semester (week 15) and presented by the group in the same week or during the examination week (16).

Lecture 3 hrs/wk,

OGP-495; PET-495 Internship (3 CR)
PET-495 and OGP-495 are required on-the-job training for petroleum engineering technology and oil and gas process engineering technology students, respectively. On-the-Job-Training will take place during the fourth year for AB students. Abu Dhabi Polytechnic will arrange with ADNOC, service companies and international operating companies, operating in UAE, to allocate training place for course students ahead of time. Each student must participate in an approved training/performance (internship) program in either upstream (petroleum Engineering technology) or downstream (oil and gas process engineering technology) industries depending on his/her specialization. The program must contain practical elements of the courses in the AB programs. At the end of the training period, a formal written report must be submitted; student grade will be either P OR NP (Pass or Non-Pass).

Practical Training of 8-10 weeks.

29.20 Meteorology Specialization

MET-111 Introduction to Meteorology (3CH)
This course covers introduction to meteorology science, the Earth atmosphere, Earth's radiative balance, air temperature, atmospheric pressure, winds, humidity, condensation, clouds, fog, precipitations, thunderstorms and atmospheric optics.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-221 Meteorological Instruments & Observations Workshop (1CH)
This course covers introduction to weather observation systems, instruments and observations of air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, radiation, visibility, evaporation, clouds, measurements of upper-air pressure, temperature, humidity and wind, measurements at automated weather stations, and balloon techniques.

Lecture: 0 hrs, Tutorial: 2 hrs, Lab: 3 hrs. Tutorial: 1 hr.

MET-222 Atmospheric Thermodynamics (3CH)
This course covers basic concepts, gases laws, 1st law of thermodynamics, enthalpy and specific heat, thermodynamics processes, air stability, 2^{d} law of thermodynamics, thermodynamics diagrams.

Lecture: 3 hrs, Tutorial: 1 hr, Lab: 0 hrs.

MET-223 Atmospheric Dynamics I (3CH)
This course covers math review, forces and Newton's 2nd law, pressure, total derivatives, scale analyses, continuity equation, balanced flow, thermal wind, and vertical motion.

Lecture: 3 hrs. Tutorial: 1 hrs, Lab: 0 hrs.

MET-224 Aviation Meteorology (3CH)
This course covers fundamentals of aerodynamics, aircraft performance, altitude, thunderstorms, icing, turbulence, wind shear, aviation weather services.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-225 Physical Meteorology (4CH)
This course covers
Part A (Radiation): introduction to radiation, the sun, properties of radiation, the EM spectrum, radiative properties of natural surfaces, thermal emission, absorption spectra, terrestrial radiation.
Part 2 (Cloud Physics): clouds properties, formation of cloud droplets, diffusion growth of water droplets, collision-coalescence growth of rain drop, growth of ice-crystal, precipitation and clouds modification.

Lecture: 4 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-226 International Meteorological Code Workshop (1CH)
This course covers variety of meteorological codes, Surface Synoptic Code (FM 12-XIV SYNOP), Upper-Level Report (FM 35-XI Ext. Temp), Aerodrome Routine Meteorological Report (FM 15-XIV METAR), Aerodrome Special Meteorological Report (FM 16-XIV SPECI), and Report of Monthly Values from a Land Station (FM 71-XII CLIMAT).

Lecture: 0 hrs, Tutorial: 1 hrs, Lab: 3 hrs.

MET-227 Climatology (3CH)

This course covers climate and weather, the climate system, energy, matter, and momentum exchanges in the atmosphere, climate analysis methods, general circulation, regional climates, climate classifications, aerosols and climate, biogeophysical cycle.
Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-232 Meteorology and Computing Workshop (1CH)

a. **MS Excel** In this introductory course to Excel, participants will explore Excel activities that go beyond the basic. After successful completion of this session, participants can expect to have the skills required to work efficiently in an existing worksheet and to also create new worksheets from a template and from scratch. The purpose of this course is provide students the necessary skills to use MS Excel in the workplace as an analysis and presentation tool,
b. **LINUX:** This module introduces the Linux operating system and the underlying Unix platform. For this course, the goal is to introduce the basic operating system commands, editing tools, and the program execution environment.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs.

MET-228 Synoptic Meteorology I (3 CH)

This course covers introduction to synoptic meteorology, quasi-geostrophic theory, the formation of surface pressure systems, the movement of surface pressure systems, the formation of upper level systems, the movement of upper level systems, instability, cyclogenesis and anticyclogenesis, the classical Midlatitude cyclone.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-229 Introduction to Weather Charts analysis Workshop (1CH)

This course covers variety of weather charts, meteograms, decoding SYNOP, TEMP and METAR reports station plotting techniques: station model and reading, plotting of weather elements on the weather station. samples of analyzed weather charts, introduction to surface weather chart analysis.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs.

MET-321 Atmospheric Dynamics II (3 CH)

This course covers circulation, mathematical concepts in barotropic and baroclinic fluids, types of vorticity and vorticity equation, ageostrophic wind, quasi-geopotential geostrophic tendency equation, quasi-geopotential omega equation, barotropic and baroclinic instability.

Lecture: 3 hrs, Tutorial; 1 hrs, Lab: 0 hrs.

MET-322 Weather Charts Analysis Workshop (1CH)

This course covers analysis of upper air charts, analysis of surface weather chart.

Lecture: 0 hrs, Tutorial: 1 hrs, Lab: 3 hrs.

MET-323 Synoptic Meteorology II (3CH)

This course covers analysis of Midlatitude systems using the balance equation, the height tendency equation, omega equation and isentropic potential vorticity, fronts and jets, precipitation systems in the Midlatitudes.

Lectures: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-324 Numerical Weather Prediction and Numerical Analysis (3CH)

Part 1- NWP**:** This course covers dynamic review, finite difference, the barotropic model, boundaries, spectral models, the effects of discretization, data assimilations,

Part 2- Numerical Analysis**:** model verification, NW process, leading forecast centers, forecast models, details about WRF model.

Lecture: 2 hrs, Tutorial: 1 hrs, Lab: 3 hrs.

MET-325 Satellite Meteorology (3CH)
This course covers introduction to satellite meteorology, orbits and navigations, sensors and platforms, radiative transfer, meteorological satellite instrumentation, image interpretation of clouds, ozone, SST and rain.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-326 Marine Meteorology (3CH)
This course covers introduction to marine meteorology, ocean water motions, sea and swell waves, avoidance of tropical storms, weather forecasts for seafarer, ocean surface currents, sea ice, weather routing, meteorological factors of planning an ocean passage, observations and instruments, problems associated with route ships and oil tankers.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-327 Radar Meteorology (3CH)
This course covers introduction to radar, radar hardware and operations, the simple Double Side Band-Suppressed Carrier Transmitter and generation of DSB-SC/AM signals, sinusoidal voltages and currents. Signal Amplitude and rms values. Phase angle, phase difference, time period and frequency, electromagnetic waves, radar equation, distributed targets, radar reflectivity, Doppler radar, Doppler spectrum, meteorological targets, dual-polarimetric radar theory, observations and applications.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-328 Mod. 1: Computer Programing (C++) – OCT (1CH)
This training course covers introduction to computer programming, writing, compiling, and debugging programs, data types, operators and expressions, program control statements, functions, arrays, strings, and pointers, classes and objects, object oriented programming, he C++ I/O system, pointers revisited, programming applications and software design.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 2 hrs.

MET-329 Mod. 2: WRF Model – OCT (1CH)
This training course covers WRF model overview, soft installation, processing system, initialization, WRF model, data assimilation and case study.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 2 hrs.

MET-330 Mod. 3: Weather Broadcast– OCT (2CH)
Besides forecasting ability, this training course covers broadcasting preparation; a minor in broadcast journalism/communication is ideal, including work on broadcast newswriting, broadcast reporting, and television/radio production. Students must be able to prepare high-quality demonstration weathercasts, and an internship at a television/radio station is strongly recommended.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 4 hrs.

MET-331 Mod. 4: Weather Charts Analysis - OCT (1CH)
This training course covers analysis of upper air charts, analysis of surface weather chart.

Lecture: 0 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-332 Mod. 5: Weather Forecasting Techniques – OCT (1CH)
This course covers the nature of weather forecasting problem, the role of human forecaster, weather forecasting methods, application of theories for furcating, practical forecasting techniques, forecast verification.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-333 Mod. 6: Numerical Computing Using MATLAB – OCT (1CH)
This training course covers introduction to MATLAB, simple calculations and graphs, programming in MATLAB, matrix computations, advanced graphs, solving nonlinear problems in MATLAB, efficiency in MATLAB, and advanced data types in MATLAB.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 2 hrs.

MET-334 Mod. 7: Satellite & Radar Analyses - OCT (1CH)
This training course covers practical use of water vapor imagery of interpretation of synoptic scale systems and for assessing NWP model and weather radars: the polarimetric basis for characterizing precipitation, radar rainfall estimation.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 2 hrs.

MET-335 Mod. 8: Synoptic Met & Tephigram– OCT (1CH)
This training course covers pressure gradient force, Coriolis force, geostrophic wind , thermal wind, gradient wind, ageostrophic wind, pressure at various levels, geopotential, geopotential heights and thermal advections calculations using weather charts, finding areas of divergence/convergence and positive/negative vorticity using upper weather charts, relation between jet streams and weather activities, full picture of cyclone/ anticyclone activities, thermodynamics diagrams: tephigram, the skewT/Log P diagram and Stuve diagram, case study.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 2 hrs.

MET-421 Air Pollution (3CH)
This course covers introduction to air pollution, the physics and chemistry of air pollution, risks from air pollution, the measurement and monitoring of air pollution, the meteorological bases of atmospheric pollution, air pollution modeling and prediction, air quality and plume dispersion, the regulatory criteria and standards, preventing air pollution.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-422 Atmospheric Waves (3CH)
This course covers introduction to waves, linear waves, shallow-water gravity waves, waves in a two-layer fluid, sound waves, inertial waves, topographic waves, Rossby waves, inertial-gravity waves.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-423 Tropical Meteorology (3CH)
This course covers main characteristics of tropical regions, general circulation, seasonal mean wind fields, local and diurnal circulations, zonally asymmetric features of tropics, tropical weather systems, the tropical oceans, tropical cyclones, monsoons.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-424 Project 1 (2CH)

This course is aims to introduce to the students the concept of developing a project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the years of study and training. The project scope could be outlined by an industrial sponsor towards real life technical applications. The graduation project is a significant component of MET work that is aimed to be conducted in a professional and scientific manner and is professionally documented in a comprehensive report and presentation. The aims of the graduation project are to provide an opportunity for the student to demonstrate their capacity to bring together their advanced skills and scientific knowledge of the atmospheric science that have been gained as part of their coursework and apply these to a real-world problem. Open-ended design projects ideas are highly encouraged to motivate students' innovation and critical thinking.

In addition to understand and apply the concept and significance of research, aspects of research, writing research document, class presentation of research area, research data, developing a research proposal, and class presentation of research proposal, student shall in a new way to solve a real-world scientific problem in one of meteorological aspects or related fields.

The subject of the study will be discussed and defined with one of the faculty members in the MET department. Students will undertake research projects under supervision by academic member(s) of staff. The results of the study will be defined in an open presentation with a least of two faculty members.

MET-425 Planetary Boundary Layer Meteorology (3CH)

This course covers the atmospheric boundary layer, basic equations for mean and fluctuating quantities, scaling laws for mean and turbulent quantities, surface roughness and local advection, energy fluxes at the land surface, the thermally stratified boundary layer, and the cloud-topped boundary layer.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-426 Climate Data Management Workshop (1CH)

This course covers introduction, climate data management, characterizing climate from data sets, statistical methods for analyzing climate data, services and products.

Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs.

MET-427 Global Climate Changes (3CH)

This course covers introduction to climate changes, climate history of the Earth, the scientific method and its use, causes of climate change, climate change trends, atmospheric circulation and climate change, ocean and climate change, projections of the future climate.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-412 Project 2 (1CH)

Concept and significance of research, aspects of research, writing research document, class presentation of research area, research data, developing a research proposal, and class presentation of research proposal.

MET-429 Meteorological Instruments & Observations – OJT (1CH)

The training course module aims to assess trainee's competence in meteorological instruments. During this work trainee must take account of the relevant worksite operational requirements, procedures and safe working practices. This training course module aims to assess trainee's competence in working

safely. This module continues the recognition of meteorological instruments. Instruments of measuring: precipitation, radiation, sunshine duration, visibility, evaporation and upper-air pressure, temperature, humidity and wind. Training on taking weather elements measurements at automated weather stations, and observations at weather stations of: air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, visibility, evaporation, clouds, balloon techniques, radiation observations. (2.5 Weeks)

MET-430 International Meteorological Code OJT (1CH)
This training course covers training of variety of meteorological codes, Surface Synoptic Code/Decode (FM 12-XIV SYNOP). (2.5 Weeks)

MET-431 Weather Charts Analysis & Forecasting - OJT (1CH)
This training course covers analysis of upper air charts, analysis of surface weather chart and forecasting techniques. (2.5 Weeks)

MET-432 Numerical Weather Analysis – OJT (1CH)
This training course covers model verification, NW process, leading forecast centers, forecast models, NW products. (2.5 Weeks)

MET-433 Sat & Radar Analyses II – OJT (1CH)
This training course covers overview of types, imagery, and interpretations of satellite, and radar operations, types of radar data, radar displays, radar interpretations and products. (2.5 Weeks)

MET-419 Weather Forecasting Techniques II– OJT (1CH)
This training course covers weather forecast techniques and tools, weather forecasting methods, analyzing of Midlatitude weather, upper ridges and troughs, jet streams and jet streaks, weather analysis for tropics, practical forecasting techniques. (2.5 Weeks)

Electives A (Student can choose 2 courses out of 5):

MET-501 Mapping and GIS (3CH)
This course covers introduction to GIS, data model and structure, projections and coordinate system, visualization of spatial data, querying a map, creating and editing feature data, raster basics and analysis, single map analysis. Lecture: 2 hrs, Tutorial: 0 hrs, Lab: 3 hrs.

MET-502 Oceanography (2CH)
This course covers introduction to oceanography, atmospheric influences, the oceanic heat budget, physical properties of seawater, response of upper ocean to wind, geostrophic currents, coastal processes and tides, circulation and water masses of the oceans, use of chemical traces in oceanography. Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-503 Environmental Issues (3CH)
This course covers pollution and environmental ethics, ecosystems, natural biogeochemical cycles, population, water pollution, solid waste, hazardous waste, radioactive waste, air pollution, noise pollution, environment impacts, ozone problem and global change, biological indicators of the environment quality. Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-504 Agrometeorology (3CH)
This course covers introduction to agricultural meteorology, response of plants to radiation, effect of temperature on crops, weather and crops, evapotranspiration, drought, weather abnormalities, climatological methods for managing farm water resources. Lecture: 2 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-505 Hydrology & Water Resources (3CH)
This course covers
Part A: introduction to hydrology, water balance, precipitation, evaporation, soil-water, groundwater, runoff, estimates of rainfall by remote sensors.
Part B: basic parameters of water, surface water, groundwater, water measurements, flood events, water quality, irrigation, dams, water treatment, international, regional, and local water allocation laws.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

Electives B (Student can choose 1 course out of 3):

MET-511 Mesometeorology (3CH)
This course covers introduction, mesoscale instability, lower tropospheric mesoscale systems, deep convective systems, orographic mesoscale phenomena, and project.
Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-512 Regional Synoptic Meteorology (3CH)
This course covers introduction to regional synoptic meteorology, Mediterranean lows, Red Sea trough, Siberian high, monsoon, air masses, pressure systems, and frontal systems affecting the UAE.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET-513 Long Range Weather Forecasts (3CH)
This course covers introduction to long range forecasts, the use of El Nino/La Nina oscillations used in seasonal forecasts, the Southern Pacific Oscillation impacts, the use of Arctic and North Atlantic oscillations for seasonal forecasts, Rossby waves effects, intraseasonal weather analysis for tropics, inter-tropical convergence zone effects.

Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

30. Student Information and Services

30.1 Academic Advising/ Counselling

Students can obtain academic advice from their course instructors and their technical department faculty. In addition, tutors and learning advisers are available and can advise students on issues related to academic writing, exam preparation, time management, and other academic skills. Learning advisers can help students improve the structure of written assignments, organize ideas, develop arguments, and understand the expectations of Abu Dhabi Polytechnic. Their focus is on helping students develop strategies to independently revise their own work and manage their study.

30.2 Personal and Career Counselling

All students are given advice on careers at the orientation session administered early in their enrollment and throughout their tenure at Abu Dhabi Polytechnic. Students are given opportunities to discuss their careers with sponsors visiting Abu Dhabi Polytechnic on frequent basis.

Abu Dhabi Polytechnic has career advisers, counselors, and other administrative staff whose primary focus is to help students overcome their academic and social problems and to be aware of other programs at Abu Dhabi Polytechnic. Counseling may be offered to students who have academic or personal problems that might interfere with their classroom performance or social functioning. Counselors will be able to help students find solutions to their problems and enhance their development at the academic and/or personal level.

30.3 Dining

Abu Dhabi Polytechnic Abu Dhabi campus offers a variety of food outlets for students and staff. Abu Dhabi Polytechnic understands that everyone has different tastes, appetites, and eating habits. Therefore, Abu Dhabi Polytechnic offers an extensive variety of menus and venue options to best fit each individual lifestyle, schedule, budget, and dietary need. A catering service is also available for Abu Dhabi Polytechnic functions and conference groups of all sizes. Abu Dhabi Polytechnic aims to offer fresh, safe, innovative, and quality food products in modern surroundings which reflect current market trends while ensuring value for money.

At the Al Ain campus there is a Canteen or a Cafeteria that will serve food, drinks, salads and fruits during the two breaks. The canteen is obviously a place that serves food and drink and as such is required to meet the stringent health and hygiene requirements of the UAE. The Management expects you, the student, to play a full part in assisting in keeping this environment free from unnecessary rubbish and waste.

30.4 Dress Code

Staff and students are expected to dress modestly at all times. Clothing must be clean, neat and tidy. Female staff are expected to wear blouses/tops that cover their shoulders and upper arm, and to wear skirts or trousers where the hem is at the mid-calf or ankle. Female staff are expected to leave their face uncovered while in class and the staff rooms. Male staff are expected to wear shirts that cover their shoulders and upper arm, and to wear trousers where the hem is at the ankle. Male UAE Students and staff have to wear a kandoora.

Staff and students are expected to wear clothes that are appropriate for the activities they will be undertaking. Staff and students must wear closed shoes for all classes in laboratories for safety. Staff and students must wear sleeves that can be folded back so that hands can be washed thoroughly and safety ensured in the laboratories.

At the Al Ain campus students are required to wear the Aviation uniform every day of the academic week, unless told otherwise. Students need to be aware that all academic and non-academic activities

are directed towards helping them prepare to enter the workforce and to be responsible UAE citizens. It is important for students to act as ambassadors of the Al Ain campus and their sponsors and so they should always present themselves smartly.

30.5 Extracurricular Activities and Groups

The Student Council (described below) is officially recognized by Abu Dhabi Polytechnic to organize students to work with staff to enrich Abu Dhabi Polytechnic's extracurricular activities such as coordinating athletic and cultural activities and forming organized groups of students for particular purposes. Examples, Abu Dhabi Polytechnic sponsors an annual 'Aircraft Pulling Competition' in which teams of students pulled our Bell helicopter around a track on National Day. Abu Dhabi Polytechnic also sponsors field trips to air shows and aviation related events. Our students get a look into the business they are choosing as their career.

A variety of physical, social, and cultural activities are planned during the academic year. Students may organize events through the Student Council. Activities are also planned to complement classroom activities and develop leadership skills and teamwork.

In addition, Abu Dhabi Polytechnic provides opportunities for youngsters to experience aviation first hand. Abu Dhabi Polytechnic sponsors a summer program for all 9th, 10th, 11th grades that exposes them to the aviation field. Groups of Students from IAT schools learned skills in the assembly of model aircraft to build up an appreciation of the principles of flight and gain an insight into the basics of aircraft engineering.

30.6 Health Services

Abu Dhabi Polytechnic provides medical care for students during the day. Minor complaints are attended to by the Abu Dhabi Polytechnic nurse. Injuries and major complaints are sent to a nearby hospital.

30.7 Housing

On the main campus in Abu Dhabi students from other cities are given the opportunity of residence in Abu Dhabi. The Student Support services unit arranges furnished residence to all students that travel from other cities. Student support services unit is working on providing the residence hall with computer facilities.

At the Al Ain campus students from other cities are given the opportunity of residence in Al Ain. The Student Support Services Office arranges furnished residence to all students that travel from other cities to enroll at Abu Dhabi Polytechnic.

30.8 Library and Academic Resources

Abu Dhabi Polytechnic has a well-equipped library and study hall with a growing collection of resources. The library is designed to support the Diploma, Higher Diploma, and Applied Bachelor technical programs through a wide collection of books, journals, electronic resources, and on-line databases which provide links to full text articles. The library information technology infrastructure includes work stations connected to the internet to allow students to access the most recent articles. The library is staffed by well qualified and experienced library professionals who work with the Heads of the technical programs to identify the needs of the students for a wide range of books and other resources, conduct information skills programs to enable students to find, retrieve, and use the academic resources efficiently, and encourage and teach students to access and research scholarly journals and resources. See the section entitled Library Policies and Procedures for more information.

30.9 Mobile Phones and Electronic Devices

Abu Dhabi Polytechnic expects students to behave in such a way as to optimize learning. Mobile phones and other electronic equipment (iPods, MP3 players, mini disc players, radios, etc.) that are likely to be disruptive are not to be brought into class.

Students are to turn their mobile phones off and store them out of sight. Answering, texting, or using either a telephone or electronic device in class will be viewed as misconduct and disciplinary action will be taken.

30.10 Office Hours

Students may access Abu Dhabi Polytechnic faculty and staff during usual business hours by making an appointment or dropping in during posted Office Hours – 8am – 4pm.

30.11 Privacy and Confidentiality

Student information and academic performance is confidential material and will only be disclosed to staff who need to know. In addition, a student's academic performance will only be discussed with the student concerned and their parents, guardians or sponsor.

Parents and family play an important role in supporting students enrolled in tertiary studies. Parents are able to meet with staff and discuss their child's academic life. Parents, guardians and sponsors should contact the Abu Dhabi Polytechnic receptionist for advice about who it is best to speak with and to make an appointment. In the case of an emergency, parents, guardians and sponsors should contact the Abu Dhabi Polytechnic receptionist who will assist with finding the students. Parents, guardians and sponsors should not enter a classroom or any other teaching area without first making contact with the receptionist.

30.12 Smoking Policy

Abu Dhabi Polytechnic is a smoke free zone at both campuses. There is no smoking on or immediately outside the premises.

30.13 Student Council

The Student Council is an officially recognized organization that advises the Abu Dhabi Polytechnic administration on the enhancement of student facilities and activities to enhance the student experience in terms of both teaching & learning and cultural enrichment.

The Student Council is a self-governed advisory committee to the Abu Dhabi Polytechnic and all recommendations are submitted to the Executive Committee and other relevant committees. All students are encouraged to participate in the election of their representatives to the Student Council.

The Student Council organizes students to work with staff to enrich Abu Dhabi Polytechnic's athletic, cultural, and organizational activities. The Student Council also addresses and manages student issues pertaining to resources and the learning environment.

Students are encouraged to form and join clubs recognized by the Student Council such as professional and scientific societies, debate clubs, intramural sports, etc., depending on the student's interest.

30.14 Transportation

Details are to be determined.

30.15 Work Experience/On the Job Training Policy

On the Job Training/Work Experience is the term used to describe work that has to be carried out by students in order to complete the requirements of the course in which they are enrolled. Work experience could include activities such as field studies, practical experience in manufacturing companies, EASA part 145 organizations, aviation companies, etc. For the most part, the experience of on the Job Training for EASA 66/147 seekers must be completed at an EASA part 145 organization.

30.16 Personal Behavior

Students of Abu Dhabi Polytechnic undertaking a period of work experience are required to be aware of their personal responsibility to:

- obey the lawful and reasonable instructions of the organization with which they are undertaking the

work experience program;

- respect the security and confidentiality of any information that they may receive from that organization in the course of the work experience program;
- maintain a standard of conduct befitting a student of Abu Dhabi Polytechnic.

31. Library Policies and Procedures

31.1 The Abu Dhabi Polytechnic Library (Learning Resource Center)

The libraries of the Abu Dhabi Polytechnic, at both campuses, are seen more as a learning resource centers than a traditional library, where students will have the opportunity to use resources, borrow material, and indulge in silent study.

31.2 Vision

The vision of the library is to take a leading role in the fulfillment of the Abu Dhabi Polytechnic's mission, vision and goals through:

- Developing education and training programs to equip staff and students with the skills for lifelong learning
- Structuring systems and developing gateways to provide integrated, convenient and client-friendly access to resources
- Developing staff to become innovative information specialists, skilled in providing exceptional service
- Contributing to the development and enhancement of a knowledge based society

31.3 Mission

The library's mission is to facilitate access to quality resources and services for excellence in research, teaching and learning by delivering a range of services and technologies to enable the retrieval of needed resources, irrespective of their format or location, and providing leadership and expertise in navigating an increasingly complex and diverse information environment.

31.4 Evaluation Process

The Abu Dhabi Polytechnic library will evaluate its collection and services on an ongoing basis through daily statistics that are to be kept to assist in the planning and management of the library and will be collated on a monthly basis.

31.5 Annual Survey

An annual student survey is to be undertaken to evaluate client satisfaction. Results will be collated and stored by library staff and a report on findings submitted to the AD Poly Director and the Librarian will be responsible for recommending any changes to current practice in response to survey findings.

31.6 Ongoing Training Sections Input

The library staff shall welcome input for both acquisition and weeding of material. This is done on an ad hoc basis as well as a formal basis periodically. The library staff also collaborates with the academic sections on an ongoing basis to identify material that is in high demand to ensure that students have access to these resources.

31.7 Student Requests

Students may request additions to the collection. Forms for "Requests and Recommendations" are to be made available for students and all requests will be considered.

31.8 Library Hours

The Library is open for students, staff and training sections for the majority of the teaching day at the Abu Dhabi Polytechnic.

31.9 Eligibility of Borrowers

The following persons are eligible users of the library and its facilities. This includes the right to borrow materials, subject to the rules set in this policy document:

- Any person enrolled in a course at Abu Dhabi Polytechnic.
- Staff members of Abu Dhabi Polytechnic.

31.10 Student Borrowers

Students must present their Abu Dhabi Polytechnic ID card in order to borrow books or materials. This card is not transferable. Students are responsible for all items borrowed using their ID card, and must pay for any lost or damaged items borrowed in their name.

31.11 Orientation/Educational Programs

Identified as one of their priorities, the library staff will strive to provide students and training sections with information on the library and information literacy on an ongoing basis. This is done in the following ways:

- The Librarian provides a brief overview of the library for all new students attending on Orientation Day. All new students and staff are given a copy of the library brochure as part of their Abu Dhabi Polytechnic orientation pack.
- Brochures will be available for users to assist them with procedures and location of materials and other general information about the library (hours, staff, etc.).
- Reference assistance will be provided for users on an ongoing basis. This includes assistance with identifying appropriate material for studies/assignments and then locating this material within the library; accessing electronic resources such as the electronic database system as well as locating good information on the internet.
- Library shelving will be clearly marked with Dewey decimal classification to assist with easy location of materials for our students.
- Librarian staff will assist our users with locating information that is appropriate to their information needs.
- Students are encouraged to use information in a variety of formats depending on information needs. Formats include: books, journals, newspapers, online databases, e-books, Internet resources, video cassettes, and audio cassettes.

31.12 Circulation of Materials (Borrowing)

Circulation of materials is a basic function of the Library. All students and staff of the Abu Dhabi Polytechnic have borrowing privileges. Items are due for return on the date shown on the date due slip.

All returning items must be handed to a staff member at the circulation desk or placed in the return chute. Returning material should not be placed on shelves.

31.13 Renewal of Loans

Borrowers may renew loans twice in addition to the original loan, provided the material is not overdue, or reserved for another user.

31.14 Inter-library Loan and Cooperative Agreements between Libraries

While the Abu Dhabi Polytechnic Library aims to build a strong resource library for its students and training sections, it is important to have links with other institutions in order to fully support users.

The librarian maintains contact with other academic libraries in the region through both formal and informal networks.

31.15 Library Current Awareness Services

The Library aims to provide current awareness to support the information needs of staff and students at the Abu Dhabi Polytechnic.

E-mail messages are sent to the relevant person when new books they requested have arrived and are ready to borrow.

Each month a list of all new acquisitions is emailed to all staff. This list is also posted on the library website. New books are prominently displayed.

Individual staff may be placed on email notification lists to be notified when journals relevant to their academic or research needs are received.

31.16 Copyright

The library abides by the fair use clause that states that 10 percent of any given work may be photocopied. With this in mind, the library does not condone the photocopying of entire works of books or journals. The library collection does not include any illegally photocopied text or journal.

31.17 Code of Conduct for Library Users

The rights and responsibilities of all Library patrons are as follows:

- All users have a right to use the facilities of the Library without undue distraction or disturbance.
- Within the precincts of the library, no person shall act in a manner that interferes with the comfort or convenience of other users.
- Abu Dhabi Polytechnic identification cards must be shown in response to any reasonable request from any member of staff who might require such identification in the course of their duties. Any library user, whether or not a member of Abu Dhabi Polytechnic, shall produce identification on request from a member of Library staff.
- It is a condition of entry into the library that staff may inspect all bags, folders or other receptacles capable of containing library materials and their contents.
- No food is allowed in the library. Drinking water is allowed on the proviso that no damage is caused and all rubbish is deposited in bins provided.
- Talking is not permitted in reading areas: quiet conversation is allowed for the purpose of seeking assistance in the use of the catalogues or the collection.
- The reservation of seats or computers is not permitted.
- The library staff may remove books and other articles left unattended on chairs or tables in the library for more than twenty minutes. Articles left in these areas at closing time will be cleared away and sent to the Student Services lost property section. The Abu Dhabi Polytechnic accepts no responsibility for personal belongings left in the building.
- No user shall deface, mutilate or destroy library materials: in addition to any penalty that may be imposed for such conduct; the person concerned shall be liable to pay for the full cost of repair or replacement of damaged materials.
- Users are responsible for all library materials borrowed in their name until such time as the items are returned to the library and deleted from the loans register. Borrowers will be charged the replacement cost of any item that is not returned.
- Users should obey any reasonable directions of library staff in enforcing this Code of Conduct.

31.18 Code of Conduct in the Libraries and Other Public Space

Users of the library and other public space should behave in a manner that does not inconvenience, offend or limit the rights of other users to have access to library materials, study space, and other information technology facilities and services.

This policy applies to all categories of users, including external borrowers and casual visitors.

Standards to be observed within Information Services public spaces

The Code of Conduct sets out the standards of behavior that members of the Abu Dhabi Polytechnic community can reasonably expect when engaged in Abu Dhabi Polytechnic activities.

Users of the Library facilities and services expect an environment that is conducive to study and research. Activities that disrupt such an environment are not acceptable. Such activities include:

- Creation of noise through loud conversations, use of mobile phones, etc.;
- Eating and drinking beverages other than water;
- Smoking;
- Theft of equipment or the property of others;
- Movement of furniture;
- Vandalism;
- Posting of notices without permission; and,
- Unauthorized presence in non-public or restricted areas.

Users of the library and services expect equitable access to equipment and facilities. Improper use or obstruction of access to such equipment and/or facilities, including the reservation of seats in study areas and the library, is not acceptable.

Users of library collections expect equitable and open access to these resources. Unauthorized removal, misplacement or mutilation of library resources or retention of overdue material is not acceptable.

Users leaving the library may be required to present for inspection any item in their possession or any bags, cases or other material brought into the Library.

Users are expected to provide identification to staff acting in the course of their duties where a violation of the Abu Dhabi Polytechnic policy is in question.

Exclusion from the Library

A person who breaches the above standards may be requested to leave the library. Persistent poor behavior may lead to exclusion from the library for one week or longer.

Imposition of Penalty relating to Conduct

In addition to exclusion from a library facility, a person may be penalized according to the misconduct procedures for staff.

Appeals

Any person upon whom a penalty has been imposed may appeal against that penalty using the appeal procedures for staff.

31.19 Library Lending Policy

Definitions

"Item" includes any book, pamphlet, periodical issue (bound or unbound), newspaper, manuscript, film, videotape, CD, DVD, microfilm, microfiche, photograph, print, slide, monograph, thesis, cassette, photocopy, sound recording, musical score, map, laptop, DVD player, musical instrument, plan or any

other recorded material, regardless of physical form, under the control of the Librarian. In the Abu Dhabi Polytechnic the terms Library and Learning Resource Center are interchangeable.

Eligibility

The Abu Dhabi Polytechnic staff and students are registered to borrow from the library. An Abu Dhabi Polytechnic Student/Staff Card is also a library card.

Staff and students of other tertiary institutions and members of the public may make application to be registered as borrowers by completing and signing a registration form undertaking to comply with Library Lending Policies, and by providing identification, proof of address and where appropriate, proof of eligibility for a particular borrower category.

Upon acceptance of an application, a library card, identifying the holder's category as a borrower, will be issued. The card must be kept in a safe place and ensured that it is not used by any other party.

Registrations must be renewed annually. Registration may be cancelled or suspended before the expiry date for breaches of Library Lending Policies.

The Librarian or their representative may refuse an application for registration as a user when in the judgment of the Abu Dhabi Polytechnic Director or that officer, such a registration would adversely affect services to Abu Dhabi Polytechnic staff and students.

General Conditions of Loan

The Librarian has discretionary power to lend or refuse to lend any item at any time.

The Librarian may alter the loan period of any item at any time.

No person may remove an item from the Library without a proper loan transaction having first been made. A valid Abu Dhabi Polytechnic Student/Staff or Library card is required before any loan transaction is made.

Library cards are not transferable. In exceptional circumstances (e.g. a lecturer's research assistant or a representative of a borrower with a disability or illness) an authorized representative may borrow on a library cardholder's behalf, upon receipt of written authorization, and subject to the discretion of the librarian.

The library collects stores and uses borrower information for administrative purposes only. The information collected is confidential and will not be disclosed to third parties without the borrower's consent, except to meet government, legal and other regulatory authority requirements.

A borrower is responsible for the safe keeping and return of all items borrowed from the Library and for the cost of repair or replacement of any item damaged or not returned.

Restrictions are placed on the number of loans a user may have at any one time.

Responsibilities of Library Borrowers

The Abu Dhabi Polytechnic staff and students are responsible for maintaining accurate contact details through the Abu Dhabi Polytechnic Portal. As in compliance with the contractual agreements, the affiliated Abu Dhabi Polytechnic email is the main channel for communication concerning library borrowing.

All other borrowers need to notify the Library of any change of address (postal and email) at the earliest opportunity.

The library should be notified immediately of the loss of an Abu Dhabi Polytechnic Student/Staff or Library Card.

Loan Policies

Loan policies are shown in the following table. Overnight loans for 2 Hour Loans are not available during Study and Examination weeks.

Loan policies for different borrower categories and different loan categories.

	Staff	Student
Maximum Number of Loans (all types)	10	6
Standard Loans Loan Period	28 days	14 days
Number of Renewals	5	3
Short Loans Loan Period	4 days	4 days
Number of Renewals	5	3
2 Hour Loans Number of Loans	3	2
Loan Period	2 Hours Also available for overnight loan 2 hours before closing	2 Hours Also available for overnight loan 2 hours before closing
Number of Renewals	0	0
Holds	5	3

Overnight loans or 2 Hour Loans are not available during Examination weeks.

Renewals

Short and standard loan items may be renewed for a maximum of five additional loan periods. The new due date is calculated from the date on which the renewal is made.

The Librarian has the option of denying a renewal but will usually only refuse a request for such a renewal if:

- The item has been or is about to be recalled, or
- A hold has been placed by another borrower, or
- The maximum number of renewals permitted has been reached.

Recall on Borrowed Items

At the discretion of an officer authorized by the Librarian any item on loan may be recalled at any time, if it is required for the Reserve Collection or for another borrower. Recall notices specify a new due date for the item on loan, allowing a minimum seven-day loan period.

Penalties for Overdue and Lost Items

When an item is returned after the due date, penalties apply as shown in the following table.

Penalties for Overdue Items.

Loan Category	Penalty
2 hour loans	Suspension of borrowing rights immediately the item is overdue, plus a maximum of AED 50.00.
4 day loans	Suspension of borrowing rights immediately the item is overdue, plus a maximum of AED 25.00 per item.
14 day loans	Suspension of borrowing rights immediately the item is overdue, plus a maximum of AED 25.00 per item.
28 day loans	Same as for 14 day loans.
Recalled loans	Suspension of borrowing immediately the item is overdue, plus a maximum of AED 25.00 per item.

The penalty for items that are not returned or are lost is suspension of borrowing rights plus replacement costs.

Suspension of borrowing rights remains in effect until either all overdue items are renewed or returned and any outstanding debts are paid; or, replacement costs are paid for any item declared lost.

Borrowers are notified of overdue items.

Appeals

Persons to whom penalties are applied may appeal either orally, or in writing, to the Librarian to waive or reduce the penalty, or to defer payment of any fine.

A person making such representations may appeal to the Librarian against a decision relating to a penalty made by another library officer, and may appeal against a decision made by the librarian to the Abu Dhabi Polytechnic Director whose decision shall be final.

32. Work Experience Policy

32.1 Work Experience

Work Experience is the term used to describe work that has to be carried out by students in order to complete the requirements of the course in which they are enrolled. Work experience could include activities such as apprenticeships, field studies, practical experience in manufacturing companies, electricity generation sites, airport or automotive companies, etc.

32.2 Personal Behavior

Students of the Abu Dhabi Polytechnic undertaking a period of work experience are required to be aware of their personal responsibility to:

- Obey the lawful and reasonable instructions of the organization with which they are undertaking the work experience program.
- Respect the security and confidentiality of any information that they may receive from that organization in the course of the work experience program.
- Maintain a standard of conduct befitting a student of the Abu Dhabi Polytechnic.

32.3 Public Liability

Students are indemnified for their legal liability in respect of third party claims for damages to property or injury to persons while undertaking approved work experience.

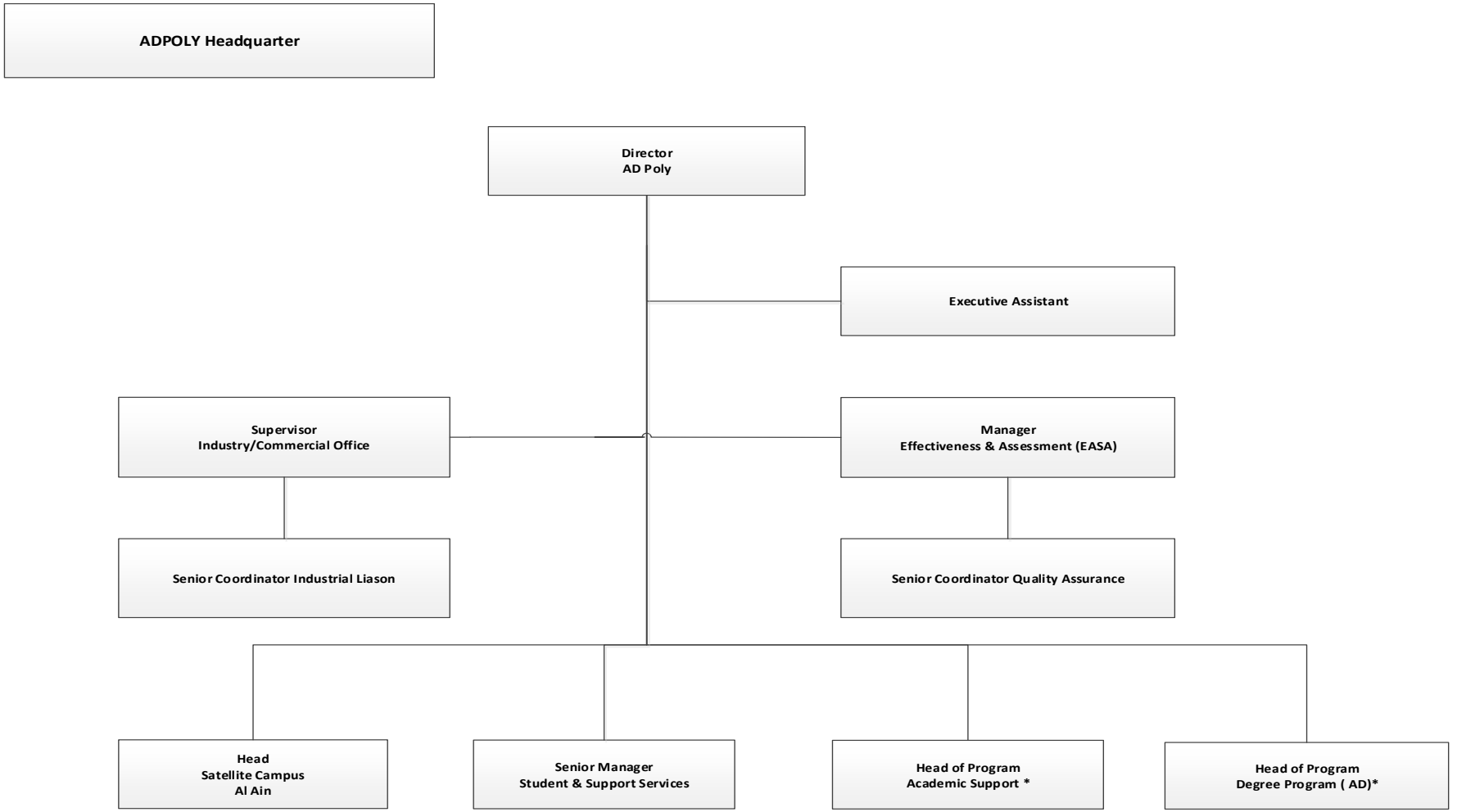
32.4 Personal Property

A student's personal property is not covered by Abu Dhabi Polytechnic's Insurance at any time. If a student wishes to arrange cover for personal items they must do so at their own expense.

32.5 Personal Health and Accidents

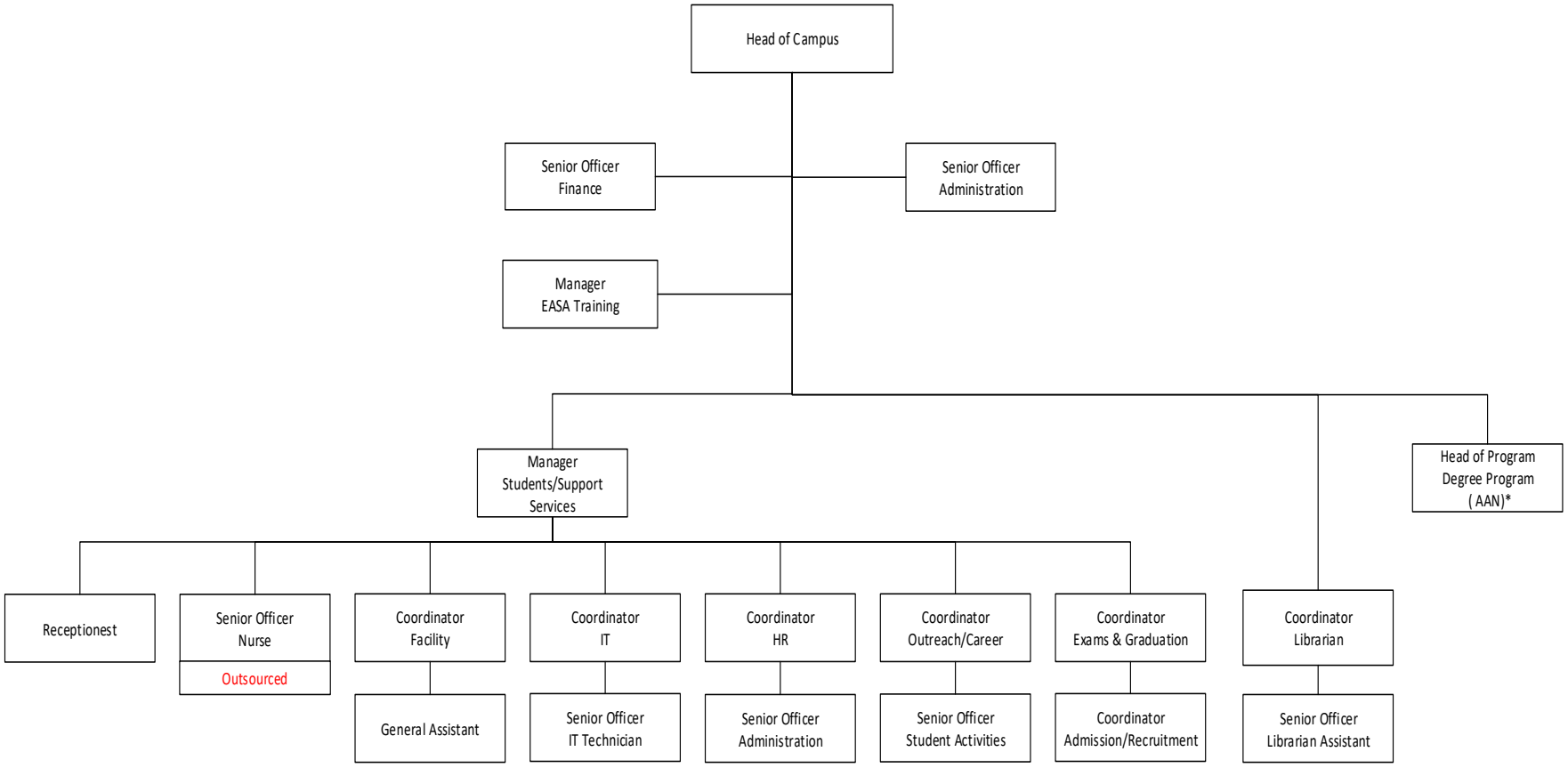
Abu Dhabi Polytechnic does not provide any medical insurance cover for students travelling abroad for work experience.

Appendix A – Abu Dhabi Polytechnic Organization Chart

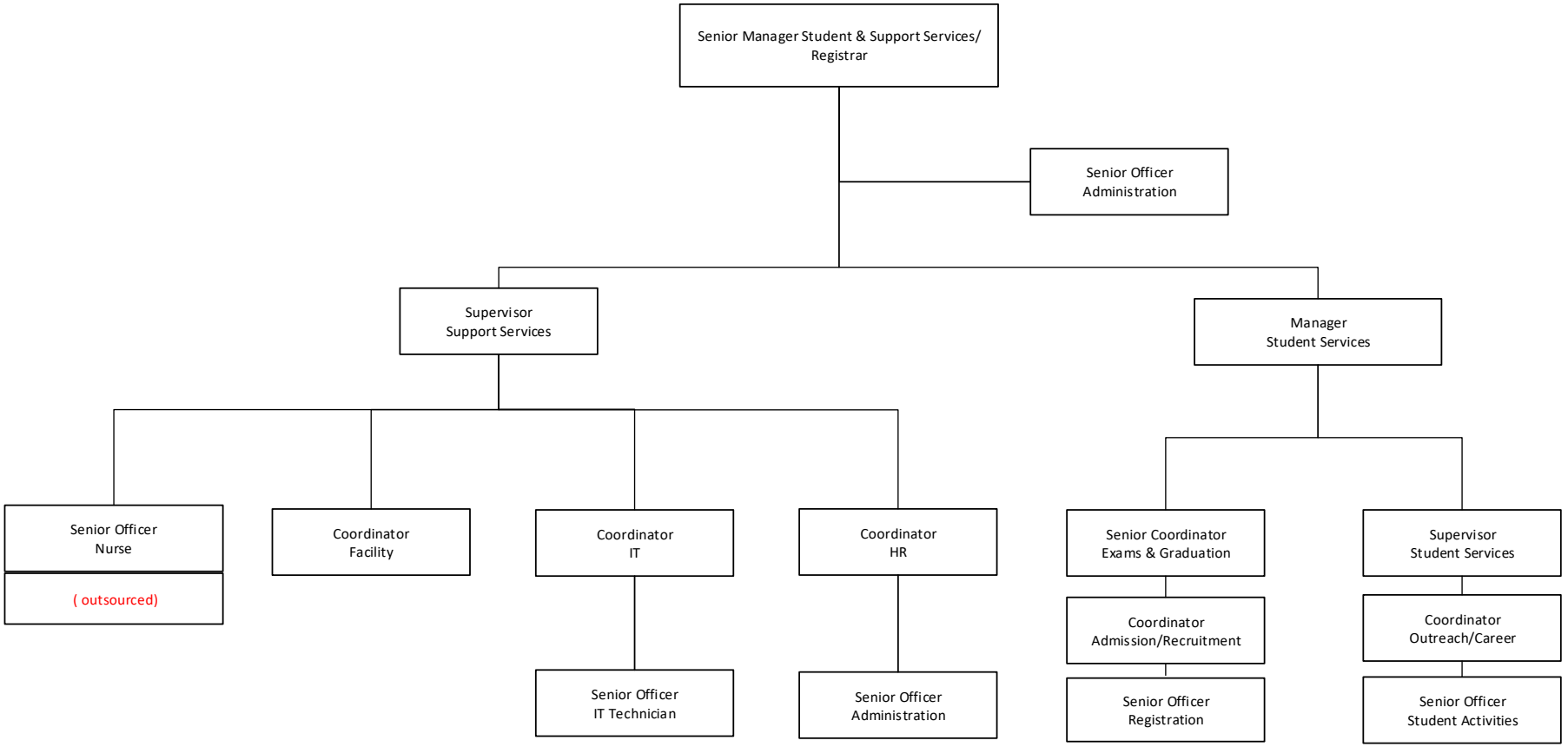


* Assignment role

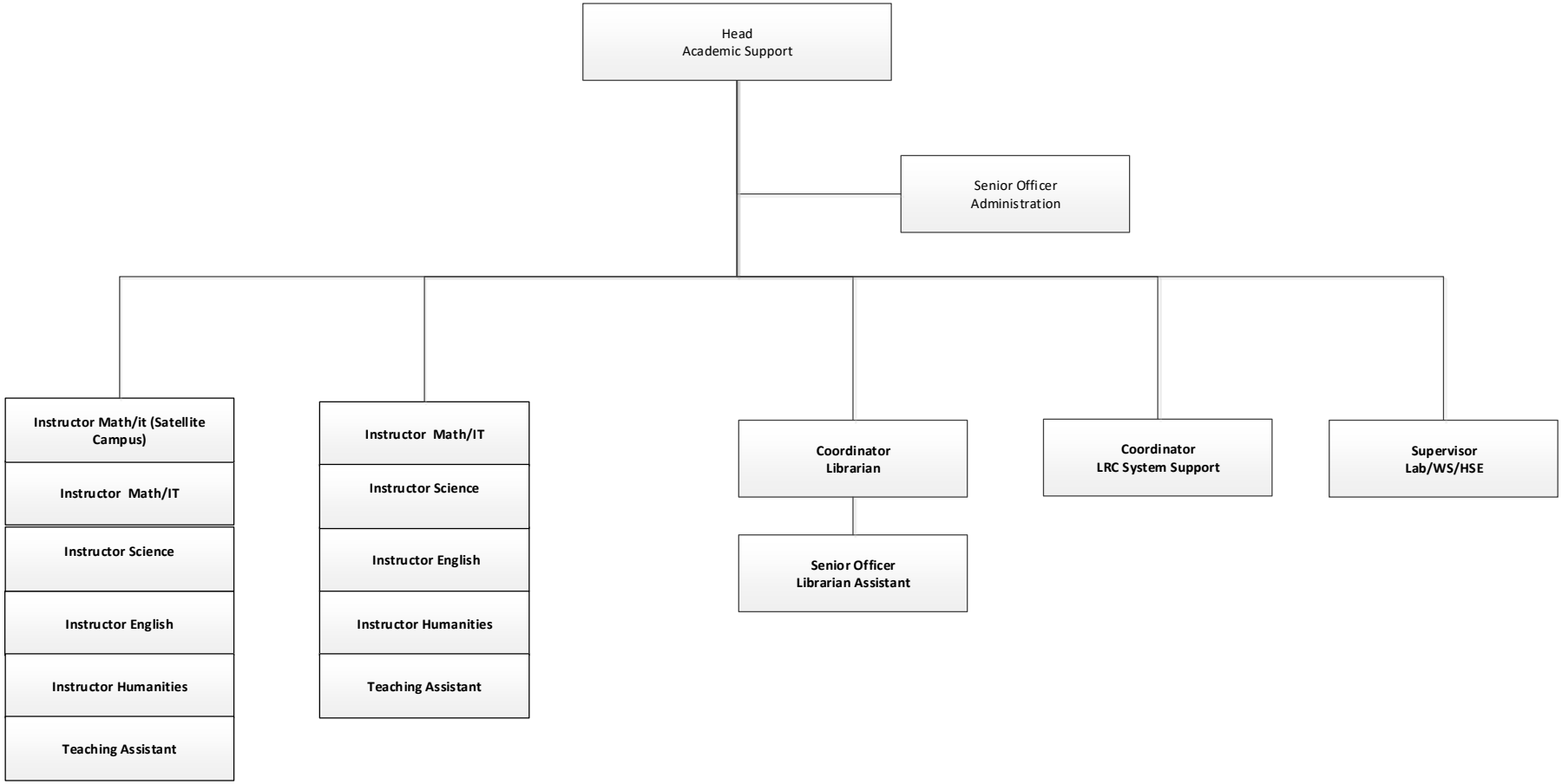
ADPOLY Satellite Campus- Al Ain



ADPOLY Student Support Services



ADPOLY Academic Support Dept



* Assignment role
** Filled for programs with 60+ students
All Academics positions are subject to Student Numbers