Abu Dhabi Polytechnic

General Catalog

September 2024

The purpose of this catalog is to provide information regarding the educational and training programs of Abu Dhabi Polytechnic (ADPoly) 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.

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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 ADPoly 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 ADPoly, are listed below.) P123 Adding ENGL-107 English for Met Course Description P129 Adding ICT140 Modeling and Simulation I Course Description P130 ICT210 Modeling and Simulation II Course Description P128 Adding MATH-104 Math IV, MATH-201 Statistics, and MATH-301 Advanced Math Course Descriptions P156 – P162 Adding MET Courses Course Descriptions	MET HOP	January 2015

Rev #	Date	Revised by and reason for revision	Approved by	Approval Date
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
15	August 2019	Calendars updated to AY2019-2020. Faculty list and titles updated per HR database.	Institutional Effectiveness	August 2019
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17	March 2020	Licensure/Accreditation Committee to address recommendations of the RLRT (Sept 2019)	Chair, Academic Affairs Committee	March 2020
18	Sep. 2020	Updating AMT course description and coding in section 29.3.3.	AMT, HOP	Sep. 2020
19	June 2022	Updated by Executive Committee and Academic Affairs Committee		
20	Oct. 2022	Academic Calendar updated by Academic Affairs Office	Deputy Director	27 Oct. 2022
21	Nov 2022	Update on BSc in Meteorology Program study plan (section 28) & course description and coding (section 29.8)	MET, HOP	9 Nov 2022
22	June 2023	Academic Affairs Committee update of program sections		
23	Sept 2023	Academic Affairs Committee update based on CAA ERT requirements (July 2023)	Deputy Director	9 Sept 2023
24	June 2024	Academic Affairs Committee update of program sections and QAC review	Chair, Academic Affairs Committee	13 June 2024
25	August 2024	Academic Calendar updated and AEET Department removed by Academic Affairs Office.	Deputy Director	12 August 2024
26	Sept 2024	Admissions Policy updated. Committee updated.	Deputy Director	30 Sept 2024

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2. Welcome to Abu Dhabi Polytechnic

Welcome to Abu Dhabi Polytechnic. ADPoly is a governmental entity managed by the Institute of Applied Technology. ADPoly is an exciting new venture that is bringing the internationally recognized Applied Bachelor and Bachelor of Science degrees 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 bachelor programs that we've developed for emerging industries in the UAE.

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

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

You will find that ADPoly provides rigorous educational and highly specialized training programs. The ADPoly 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 ADPoly. It can assist you to understand the admissions process, student and faculty responsibilities, and academic policies and procedures at ADPoly.

3. Academic Calendar for AY2024-2025

First Semester "Fall 2024" (Academic Year 2024-2025)

Mon-Thu	03 Jun - 01 Aug 2024	Admission Period for Fall
Mon	12 Aug 2024	Faculty and academic staff report to work (returning and new)
Mon-Fri	12-16 Aug 2024	New student orientation, advising and registration
Mon-Fri	12-16 Aug 2024	Makeup exams
Mon	19 Aug 2024	Fall classes begin
Mon-Fri	19-23 Aug 2024	Add/drop period
Fri	13 Sep 2024	Run census report (20th class day)
Mon-Fri	07-18 Oct 2024	Midterm exams (Week 8)
Fri	25 Oct 2024	Last day for course withdrawal without penalty of WF grade
Mon-Fri	04-08 Nov 2024	Advising and early registration for Spring (Week12)
Mon-Fri	04-13 Dec 2024	Fall final exams (Week 16)
Tues	17 Dec 2024	Final grades due to Registrar's Office
Mon-Fri	16 Dec 2024 - 03 Jan 2025	Winter break (3 Weeks for students)
Mon-Fri	16-27 Dec 2024	Winter break (2 Weeks for faculty and academic staff)

Second Semester "Spring 2025" (Academic Year 2024-2025)

Mon-Fri	14 Oct - 13 Dec 2024	Admission period for Spring
Mon-Fri	30 Dec 2024 - 03 Jan 2025	New student orientation, advising and registration
Mon-Fri	30 Dec 2024 - 03 Jan 2025	Makeup exams
Mon	06 Jan 2025	Spring classes begin
Mon-Fri	06-10 Jan 2025	Add/drop period
Fri	31 Jan 2025	Run census report (20th class day)
Mon-Fri	24 Feb - 07 Mar 2025	Midterm exams (Week 8)
Fri	14 Mar 2025	Last day for course withdrawal without penalty of WF grade
Mon-Fri	24 Mar - 04 Apr 2025	Spring break (2 Weeks for students)
Mon-Fri	24-28 Mar 2025	Spring break (1 Week for faculty and academic staff)
Mon-Fri	31 Mar - 04 Apr 2025	Staff Professional Development (PD) week
Mon-Fri	07-11 Apr 2025	Advising and early registration for Summer 1
Mon-Fri	05-16 May 2025	Spring final exams (Week 16)
Sun	18 May 2025	Final grades due to Registrar's Office

Summer Term 1 (Academic Year 2024-2025)

Mon-Tues	19-20 May 2025	Makeup exams
Wed	21 May 2025	Summer 1 classes begin
Wed-Fri	21-23 May 2025	Add/drop period
Mon-Fri	16-20 Jun 2025	Midterm exams (Week 5)
Wed	25 Jun 2025	Last day for course withdrawal without penalty of WF grade
Tues-Fri	01-04 Jul 2025	Summer 1 final exams
Sun	06 Jul 2025	Final grades due to Registrar's Office
Mon	07 Jul 2025	Summer 1 break
Mon	11 Aug 2025	Faculty and academic staff report to work (returning and new) for Fall AY2025-2026

Summer Term 2 OJT, Internship (Academic Year 2024-2025)

Mon	07 Jul 2025	Summer 2 begins
Mon	15 Sept 2025	Summer 2 OJT presentations
Fri	19 Sept 2025	Final grades due to Registrar's Office

Religious and public holidays:

Official holidays *to be confirmed* by the management.

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 (concentrations) 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, Advanced Diploma, Applied Bachelor, and Bachelor of Science programs that were developed with industrial partners and therefore tailor-made to meet industrial needs. ADPoly's programs thoroughly integrate knowledge and practical skills through balanced delivery of instructional material at ADPoly campuses and on-the-job training by industrial training providers appropriate for each discipline. In addition to academic studies, ADPoly 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 Applied Bachelor and Bachelor of Science programs are four-year semester-based programs, where all the semesters including the summer term are compulsory. Each semester is composed of 15 instructional weeks and one exams week. Semesters are separated by a two-week break in December and a two-week Spring break in Semester 2. Figure 4-1 below illustrates the typical structure of the four-year Applied Bachelor program.

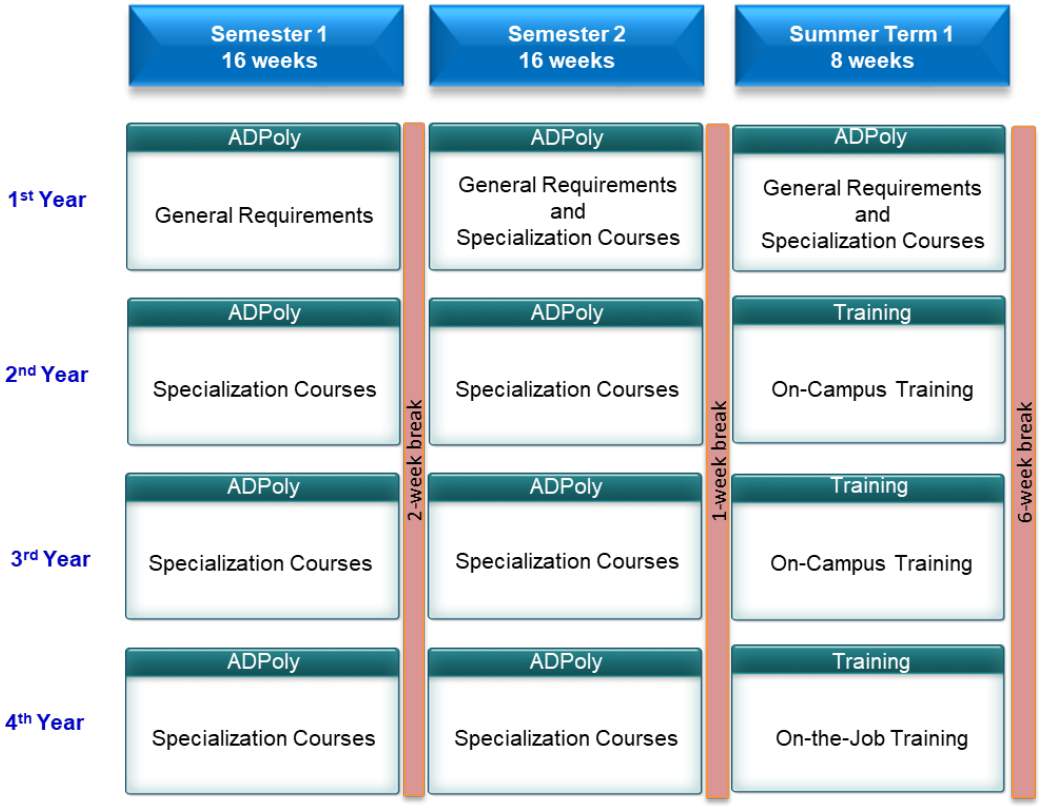


Figure 4-1: A typical Abu Dhabi Polytechnic Applied Bachelor program structure (different programs contain different details which could include different periods of On-Campus and On-the-Job Training provision).

4.3 Abu Dhabi Polytechnic Vision, Mission, Goals, and Objectives

The vision of Abu Dhabi Polytechnic is to become the UAE preeminent institute in technical higher education, applied sciences and engineering technologies, and applied research.

The mission of Abu Dhabi Polytechnic is to graduate Emirati technologists, scientists and engineers with accredited academic degrees and industrially recognized competencies through a dual education and training system to meet UAE's strategic needs.

The institutional goals and objectives of ADPoly are as follows:

Institutional Goal 1: To create a world-class career-based education system that will produce scientists, engineers, technologists and professionals needed for the industrial development of UAE.

- Institutional Objective 1: Provide ADPoly graduates with state-of-the-art learning and training skills in engineering technologies.
- Institutional Objective 2: Increase the number of Emirati students enrolled in ADPoly.

Institutional Goal 2: To create a highly skilled and highly productive workforce needed for a knowledge-based economy in order to fulfill industrial sectors' needs and requirements.

- Institutional Objective 1: Align the curriculum and proposed programs with labor market demands and requirements.
- Institutional Objective 2: Advocate and fund applied research, innovation, and entrepreneurship in support of the Abu Dhabi vision 2030.
- Institutional Objective 3: Provide ADPoly graduates with an ability to engage in lifelong learning.

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 respond proactively 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) Commission for Academic Accreditation (CAA) as indicated in Table 5-1 below. In 2021, the MOE announced that only Qualification Framework of the Emirates Level 7 programs (i.e., bachelor-level) and higher would be accredited by the CAA. Other qualifications were thereafter accredited through the National Qualification Center (NQC). Table 5-2 lists the NQC accredited qualifications at ADPoly.

5.1 International Accreditation

The Abu Dhabi Polytechnic Al Ain campus is the former Al Ain International Aviation Academy. ADPoly 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.

The Applied Bachelor programs in Electromechanical Engineering Technology, Information Security Engineering Technology, and Petroleum Engineering Technology are accredited by the Engineering Technology Accreditation Commission (ETAC) of The Accreditation Board for Engineering and Technology (ABET).

Table 5-1. ADPoly programs accredited by the Commission for Academic Accreditation

Campus	Program Name	Initial Accreditation
Al Ain	Certificate, Diploma, and Higher Diploma in Aircraft Maintenance	January 2010
Al Ain	Applied Bachelor in Aircraft Maintenance Management	September 2020
Al Ain	Diploma and Higher diploma in Aircraft Engineering Technologies	January 2011
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

Table 5-2. ADPoly programs currently* accredited by the National Qualifications Center

Campus	Program Name	Qualification Code
Al Ain	Diploma in Aircraft Maintenance Engineering	ENG05001NQ18
Al Ain	Diploma in Aircraft Maintenance Technology	ENG05002NQ21
Al Ain	Diploma in Aircraft Maintenance (Avionics)	DEF05001RQ17
Al Ain	Diploma in Aircraft Maintenance (Airframe and Powerplant)	DEF05002RQ17
Al Ain	Advanced Diploma in Aircraft Maintenance Engineering	ENG06001NQ18
Al Ain	Advanced Diploma in Aeronautical Engineering	ENG06002NQ18
Abu Dhabi	Diploma of Nuclear Power Plant Technology (Instrumentation and Control Maintenance)	UTL05003NQ18
Abu Dhabi	Diploma of Nuclear Power Plant Technology (Mechanical Maintenance)	UTL05004NQ18
Abu Dhabi	Diploma of Nuclear Power Plant Technology (Electrical Maintenance)	UTL05002NQ18
Abu Dhabi	Advanced Diploma in Cybersecurity Operations	ICT06001NQ21
Abu Dhabi	Diploma in Cyber Defense	ICT05001NQ21
Abu Dhabi	Diploma in Digital Forensics	ICT05002NQ21
Abu Dhabi	Diploma in Information Security	ICT05003NQ21
Abu Dhabi	Diploma in Network and System Administration	ICT05004NQ21
Abu Dhabi	Advanced Diploma in Network Engineering	ICT06002NQ21
Abu Dhabi	Advanced Diploma in Secure Software Development	ICT06003NQ21
Abu Dhabi	Diploma in Mechanical Technology	ENG05002NQ17
Abu Dhabi	Diploma in Electrical Technology	ENG05001NQ17
Abu Dhabi	Diploma in Instrumentation & Control Engineering Technology	UTL05004NQ21
Abu Dhabi	Diploma in Mechatronics Engineering Technology	ENG05004NQ21
Abu Dhabi	Advanced Diploma in Electrical Engineering Technology	ENG06010NQ21
Abu Dhabi	Advanced Diploma in Instrumentation & Control Engineering Technology	UTL06002NQ21
Abu Dhabi	Advanced Diploma in Mechanical Engineering Technology	ENG06011NQ21
Abu Dhabi	Advanced Diploma in Mechatronics Engineering Technology	ENG06012NQ21
Abu Dhabi	Diploma in Meteorology	SCI05002NQ21
Abu Dhabi	Level 4 Composite Award in Facilitating Learning and Development	BNS04010NQ19
Abu Dhabi	Level 4 Award in Assessment	EDU04004NQ17
Abu Dhabi	Level 4 Award in Assessment (Vocational Setting)	EDU04002NQ17
Abu Dhabi	Level 4 Award in Assessment (Workplace Setting)	EDU04003NQ17
Abu Dhabi	Level 4 Award in the Principles and Processes of Assessment	EDU04001NQ17
Abu Dhabi	Level 5 Composite Award in Assessing Learners	EDU05010NQ19

*Accreditation expires on 7 February 2026.

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. ADPoly 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 ADPoly 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 ADPoly 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 ADPoly 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.
- 20 state-of-the-art classrooms, as well as 21 workshops and laboratories equipped with electronics, avionics and mechanical training aids and a hangar.
- 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.

ADPoly - Al Ain Campus Partners

ADPoly is proud to have partnerships with many prestigious organizations and become a major educational and training provider within the Al Ain Aerospace Cluster. The ADPoly 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 ADPoly.

- AMMROC/GAL
- ETIHAD Engineering
- Fly Dubai
- Lufthansa Technik ME
- Air Arabia

7. Admissions

7.1 Admission Policy

The criteria and standards established in this policy for admission are overseen by the Board of Trustees. Admission is on a competitive basis for academically qualified Emirati students who meet the minimum admission criteria set out in this policy. Non-Emirati applicants may be considered for admissions.

The admission criteria are stated for the average High School grades, the type of curriculum studied, the required EmSAT subjects and scores, and the field of study and degree selected by the applicants.

Admission to all Bachelor Degree programs requires an EmSAT minimum English score 1100, or the equivalent band 5.0 in the International English Language Testing System (IELTS) Academic, or the equivalent TOEFL score of 500 (or 61 in TOEFL iBT or 173 in TOEFL CBT), and successful interview in English.

IAT endorses the student's score in the relevant subject in school's systems that use Standardized and/or Centralized Examinations (such as the British, the International Baccalaureate, ATS, or the Emirati School system).

The degree programs and the relevant admission criteria for each type of degree are outlined in the tables below.

Direct Admission Criteria High School Requirement

Programs	Track/Curriculum	Requirement
Applied Bachelor Programs	ATS - ASP	Minimum 75%
	ATS - Advanced	Minimum 80%
	ATS - General	Minimum 85%
	ESE - Elite	Minimum 75%
	ESE- Advanced	Minimum 80%
	ESE - General	Minimum 85%
	ESE -Applied	Minimum 85%
	1B	Minimum 24 points, Math is mandatory with minimum score of 4
	IGES, GCES, GCE	Minimum C grade in 3 courses (or A grade in 2 courses) A level - Math mandatory
	All other curricula	Minimum 80% or its equivalent

NQC Diploma/Higher Diploma Programs	ATS - ASP	Minimum 60%
	ATS - Advanced	Minimum 65%
	ATS - General	Minimum 70%
	ESE - Elite	Minimum 65%
	ESE- Advanced	Minimum 70%
	ESE - General	Minimum 75%
	ESE - Applied	Minimum 80%
	1B	Minimum 20 points
	IGES, GCES, GCE	Minimum C grade in 2 courses
	All other curricula	Minimum 70% or its equivalent

Direct Admission Diploma/Higher Diploma/Advanced Diploma EmSAT Requirements

EmSAT Requirements	**EmSAT Alternatives/Replacements**
EmSAT English minimum 800	Or its equivalent
EmSAT Math minimum 700	High school Math score minimum 70%

Direct Admission Applied Bachelor EmSAT Requirements and/or Alternatives

EmSAT Requirements		**EmSAT Alternatives/Replacements**
EmSAT English minimum 1100		IELTS (Academic): minimum 5.0., TOEFL minimum score of 500 (or 61 in TOEFL iBT or 173 in TOEFL CBT)
EmSAT Math minimum 900		High school Math score minimum 85%
One science subject in the form of EmSAT or its alternative:	EmSAT Physics minimum 900	High school Physics score minimum 85%
	EmSAT Chemistry minimum 900	High school Chemistry score minimum 85%
	EmSAT Biology minimum 900	High school Biology score minimum 85%

Conditional Applied bachelor Admission EmSAT Requirements and/or Alternatives

EmSAT Requirements for Bachelor		EmSAT Alternatives/Replacements
EmSAT English minimum 1100		IELTS (Academic): minimum 5.0., TOEFL minimum score of 500 (or 61 in TOEFL iBT or 173 in TOEFL CBT)
EmSAT Math minimum 700		High school Math score minimum 80%
One science subject in the form of EmSAT or its alternative:	EmSAT Physics minimum 700	High school Physics score minimum 80%
	EmSAT Chemistry minimum 700	High school Chemistry score minimum 80%
	EmSAT Biology minimum 700	High school Biology score minimum 80%

Conditional Admission NOC Diploma/Higher Diploma/Advanced Diploma EmSAT Requirements

EmSAT Requirements for NQC Diploma/Higher Diploma	
EmSAT English minimum 800	Or its equivalent
EmSAT Math minimum 600	Take preparatory zero credit

7.2 Additional Requirements

- Applicants should pass the personal interview.
- Sponsored programs with students nominated by sponsor only.

7.3 Transfer Applicants from Other Universities/Prior Learning

Abu Dhabi Polytechnic may recognize prior learning and can award Students College-Level course credits towards advanced standing in their respective program if they have completed advanced subjects or an additional NQC qualification in High School.

For this recognition, students are responsible to fill out the "Advanced Standing Credit Calculation" form in the admission office and attach related original transcripts or copies of authorized transcripts or any other documents as required by the College. The form should be submitted in the first semester in which a student is enrolled.

Newly enrolled students may be awarded credit and/or satisfy some program requirements in the following ways:

- High scores in nationally and internationally recognized tests. For example, EmSAT, IELTS, TOFEL, SAT, AP, 1B, GCE, or any other certified exams recognized.
- Based on an "Articulation Agreement" with other academic institutions, such as the one with the Advanced Technology High Schools (ATS) or Abu Dhabi Vocational Education and

Training Institute (ADVETI).

- Good academic standing transfer students from other accredited colleges/universities who passed science courses which are mathematics and one of the four science courses (Biology, Chemistry, Physics or Computer Science) are exempted from meeting the minimum required EmSAT science scores after reviewing the course syllabus and on condition that his/her final grade in any of the science courses is not less than (C) or with Pass for Pass/Fail courses only.
- Additionally, transfer credits from another accredited higher education institution may be accepted for all or some of the courses that the student has completed successfully, on condition that his/her final grade in any of them is not less than (C) or with Pass for Pass/Fail courses only. Prior approval of the respective department is required to verify that transferred courses cover at least 80% of the specified college course CLOs.

7.4 Further restrictions apply for advanced standing, articulation, transfer credits

- The maximum number of credit hours that can be recognized from another accredited university within the study plan applicable to the student should not exceed 50% of the total credit courses required for graduation.
- Applicants who have obtained an academic credential in Level 5 or level 6 NQC qualifications should score 2.5 CGPA or above to be considered for admission.
- Students with CGPA below 2.5 might be considered through one of the following alternative pathways:
    - Professional Experience in a Related Field - A minimum of one year of work experience in a field directly related to the program they are applying to during which they received specialised instruction in their field; or
    - Broader Professional Experience with Entry Exam - At least one year of work experience in any engineering or management field, coupled with successful completion of a placement admission exam; or
    - Professional Certification - Holding a professional certificate in the field relevant to the program of application. For Aviation programs, passing a minimum of four GCAA/EASA modules is required.
- Applicants from ATS schools with level 4 NQC qualification can be considered for admission to Level 5 one-year qualification.
- Entry Exam can be conducted for the purpose of credit articulations.

7.5 Application for Admission

- Emirati applicants in high school grade 12 or equivalent must submit a completed National Admissions & Placement Office (NAPO) application form available at the ministry of education website. International students must fill in an online admission application form and submit their documents through the college admission portal.
- Applicants meeting the admission criteria shall be accepted in a particular major/degree program according to the student's preference, and the capacity of the college and/or the program. Further, international applicants will be accepted on a competitive basis up to the percentage authorized by the Board of Trustees.
- International applicants who completed their high school outside UAE will be reviewed case by case for admission as follows: The equivalence average high school scores of the Math and one Science subjects shall be 90% or above.
- An offer of admission shall be valid for the semester for which an applicant applies. If an applicant is offered admission but is unable to register, she/he shall request in writing to defer the admission to the next semester.
- Emirati and international applicants shall submit the following documents:
    - For Emirati Students, a completed NAPO application form.
    - For all applicants, a completed college application form.
    - Original or attested high school certificate from the ministry of education. If the secondary high school curricula studied is an international one, then an equivalency must be obtained from the ministry of education in UAE and submitted along with the

transcript.

- The High School Certificate should not be more than 3 years old for Emiratis (6 years old for (NQC) Health Care Assistance or other NQC Qualification-Based programs).
- The High School Certificate for International Students should not be more than two years old.
- Applicants maximum age is 25 years old, and 26 years old for (NQC) Health Care Assistance Diploma or other NQC Qualification-Based programs.
- Copy of an English EmSAT score, or an IELTS overall score, or TOEFL iBT as pertinent to the program/Degree applied for.
- Copy of Science EmSAT score (Math, Physics, Chemistry, Biology or Computer Science).
- Medical Fitness Certificate (To be submitted upon enrolment).
- For Emiratis, copy of identity card and passport issued by the United Arab Emirates.
- For international students, copy of identity card and valid passport with residence visa for applicant and his/her father & mother.
- Male students should provide an official letter from the national service that they are eligible to be admitted in a Higher Education Institution.
- Copy of Birth Certificate.

7.6 Conditional Admissions

Applicants for applied bachelor who meet the admission English requirements but do not meet the required admission EmSAT scores for Mathematics and one science subject (Biology, Chemistry, Physics or Computer Science) can be considered for conditional admission if they score minimum 700 in Math and in any I science subjects, or minimum 80% high school score in (Math, and one science subject) or its equivalent. They will also be required to take preparatory zero credit courses (remedial courses) in these subjects.

- The conditional acceptance is limited to one semester.
- NQC, Diploma /Higher Diploma/Advanced Diploma programs, applicants who meet the admission English requirements but do not meet the required admission EmSAT scores for the Mathematics can be considered for a conditional admission if they score minimum 600 in Math EmSAT at which the student must successfully pass the preparatory zero credit courses within the first semester of enrolment.
- A student enrolled in preparatory zero credit courses may not undertake more than a total of four courses in that semester: a maximum of two zero credit courses, and a maximum of two general education courses.
- Preparatory zero credit courses are intensive and full time, which helps students develop their science knowledge to successfully pass these courses.
- Students registered as a conditional admission must attend all their classes and show a strong potential to successfully pass their courses during the first semester of enrolment. On passing the zero-credit course(s), they can study their desired program.
- Students will complete an examination in the course(s) they are enrolled in. Students who pass all preparatory zero credit courses may proceed with their study plan as per the department/advisor's guidance.
- A student who fails one or more preparatory zero credit course(s) should sit for a retake exam(s) to be held before the end of add/drop period.
- A student who fails the retake exams will not be able to continue and will have their conditional admission withdrawn. They will be dismissed from the College.
- A student who fails a preparatory zero credit course(s) may sit for the EmSAT exam if it is available before the date of the retake exam(s). On achieving the required score that the student fails in (Mathematics and one of the four Science subjects: Biology, Chemistry, Physics or Computer Science), the student can proceed with the study plan as per the department/advisor's guidance.
- Students can submit the EmSAT scores to the Admissions Office within two consecutive semesters including the semester they studied in to be considered for re-admission.
- Students taking a preparatory zero credit course(s) do not receive a stipend (even if a student takes a course from the academic program).
- International students will pay tuition fees to register for a zero-credit course(s). Each course

will be considered as three (3) credit hours for billing as per the tuition fees policy.

- Transfer students from other accredited colleges/universities who passed courses which are Mathematics and one of the four science courses (Biology, Chemistry, Physics or Computer Science) shall not register for preparatory zero credit courses after reviewing the course syllabus; and they can be registered as per their study plan.

7.7 Visiting Students

ADPoly may accept visiting students who are actively pursuing a degree at another college or university to take courses and transfer credits back to their home institution.

- Visiting students must meet the following minimum admission requirements:
  - Provide evidence of proficiency in English language as per the minimum required score mentioned above.
  - Be in good standing (a minimum cumulative GPA of 2.0 or the equivalent),
- Documents Required:
  - Complete the admission application form with the required application fee.
  - Official transcript from the University at which they are registered (sealed or sent directly from your institution's Registrar).
  - Complete the Visiting Student Course Selection Form.
  - Complete the Medical Fitness Certificate, which must be signed and stamped by a physician.
  - No-objection letter issued by the home university.
- Note:
  - Visiting students are responsible for transferring the courses taken at ADPoly to their home institution.
  - Visiting students must pay tuition and other related fees as per the tuition fees policy.

7.8 General Terms of the Admissions Policy

- The IAT-MD, with the recommendation of the College Director, is to issue the detailed College-Level table of courses recognized for Advanced Standing and Articulation Agreements, after consultation with the CAA/NQC as relevant.
- The IAT Board of Trustees approves the admission of students who have been accepted through the appeal process and based on IAT Managing Directors recommendations.
- This Policy is effective from date of issue, and overrides all other directives, memos, or practices in this regard.
- The above Admissions Policy was issued on 5 June 2024.

7.9 Admission and Tuition Fees for National Student Returning for Further Degrees or Qualifications

This policy in respect of admission is monitored through the Admissions Office of ADPoly. Student Admissions office is responsible for ensuring that policies and procedures regarding student admissions are operated fairly and consistently, and in line with the ADPoly strategic aims and objectives and relevant legislation.

Admission

The ADPoly admission policy is an integral part of this policy and used for the admission of nationally recognized prior learning students to ADPoly.

The minimum acceptable student's Cumulative Grade Point Average (CGPA) in prior learning achievement is 2.5 for direct ADPoly admission.

Students with a CGPA below 2.5 may be considered for admission through one of the following alternative pathways:

- Professional Experience in a Related Field - A minimum of one year of work experience in a

field directly related to the program they are applying to during which they received specialized instruction in their field; or

- Broader Professional Experience with Entry Exam - At least one year of work experience in any engineering or management field, coupled with successful completion of a placement admission exam; or
- Professional Certification - Holding a professional certificate in the field relevant to the program of application. For Aviation programs, passing a minimum of four GCAA/EASA modules is required.

As per Recognition of Prior Learning (RPL) and admission policy criteria, ADPoly may recognize prior learning and can award students College-level course credits towards advanced standing in their respective program if they have completed advanced subjects or an additional NQC qualification in high school.

For this recognition, students are responsible to fill out the "Advanced Standing Credit Calculation" form in the admission office and attach related original transcripts or copies of authorized transcripts or any other documents as required by the ADPoly. The form should be submitted in the first semester in which a student is enrolled.

Tuition Fees Schedule for Nationally Recognized Prior Learning Students

Students are eligible for exemption from tuition and application fees if they rejoin ADPoly within 3 years from awarding a recognized degree or qualification.

Students who rejoin ADPoly after 3 years of awarding a recognized prior learning degree/qualification are obligated to pay tuition fees (regardless of the desired academic program's/degree's commencement).

Tuition fees do not include any necessary study devices, accommodation, or transportation.

The tuition fees rate at ADPoly for these students in all degree programs and qualifications is AED 1,000 per credit hour registered each semester, which is at the rate approved by the Board of Trustees and may be amended from time to time.

Tuition fees must be paid by the students or their sponsor either in full or through an instalment plan at the start of each academic semester during registration.

Students may be credited up to 75% of tuition in the following semester if they withdraw during the "Add-Drop" period, and up to 50% of tuition if they withdraw during the withdrawal period as per the registration/tuition fees policy.

Tuition Fees Concessions

The ADPoly tuition fees policy acknowledges the nationally recognized prior learning academic achievements of national students by granting tuition concessions corresponding to the student's cumulative grade point average (CGPA) throughout the program study years.

The maximum tuition concessions are indicated in the below table:

Student Cumulative GPA	Concession Rate
CGPA ≥ 3.6	50%
CGPA - 3.0 to 3.59	30%

Children of staff working at IAT, ADVETI or ACTVET are eligible for a 50% discount.

Students cannot avail themselves of a discount in more than one category.

Application Fees

All applicants shall be charged a non-refundable application fees at the rate approved by the Board of Trustees and may be amended from time to time.

An application fee of AED 1,000 is due when an application for admission is submitted. If an applicant is admitted, then this amount shall be credited towards their first semester tuition fees.

Insurance

Subject to ADPoly's eligibility requirements, national students covered by this policy who are admitted to a program are responsible for arranging their own health insurance.

Late Payment

Students who fail to pay their tuition fees on time or as per the installment plan may not be able to register for the following semester unless all outstanding payments from previous semesters are cleared.

An extension of payment deadlines for certain circumstances may be granted by the IAT Managing Director based on a recommendation of the ADPoly Director.

7.10 Admission and Tuition Fees for International Students

Admission

International students can be admitted to ADPoly based on the same admission criteria as UAE citizens. International student admissions are limited to 10% of the total student admission in ADPoly in any given academic year. Thus, it will be on a more competitive basis considering their High School and EmSAT (or equivalent) scores.

Tuition fees schedule for international students

International students are required to pay tuition to offset the cost of their education including textbooks and any software that is provided to all students.

Tuition fees do not cover any devices required for the study in the program, accommodation, or transportation.

All full-time international students shall be charged Program Tuition at the rate approved by the IAT Board of Trustees and may be amended from time to time.

The rate of tuition at ADPoly for all degree programs is AED 2,000 per Credit Hour registered each semester, which is included in the total annual tuition fee. Once the annual tuition fee is paid, no further fees per credit hour are charged.

Tuition fees shall be paid by the international students or their sponsor in total or by prior agreement in instalments at the beginning of each academic semester at the time of registration.

The tuition fees are fully refundable if the student withdraws before start of classes. Students shall be credited up to 75% of tuition in the following semester if they withdraw in the "Add-Drop" period, and up to 50% of tuition if they withdraw before the end of the withdrawal period.

Tuition Fees Concessions

The ADPoly tuition fees policy recognizes academic achievement for international students by awarding tuition concession commensurate with the student's cumulative grade point average (CGPA) during the program study years at a competitive level for up to 10% of the pool of tuition fees to be collected from

international students registered at a time.

The maximum tuition concessions are indicated in the below table:

Student Cumulative GPA	Concession Rate
CGPA ≥ 3.6	50%
CGPA - 3.0 to 3.59	30%

Children of staff working at IAT, ADVETI or ACTVET are eligible for a 50% discount.

Students cannot avail themselves of a discount in more than one category.

Application Fees

All applicants shall be charged a non-refundable application fees at the rate approved by the Board of Trustees and may be amended from time to time.

An application fee of AED 1,000 is due when an application for admission is submitted. If an applicant is admitted, then this amount shall be credited towards their first semester tuition fees.

Insurance

Subject to eligibility requirements of ADPoly, international students admitted to a program shall arrange their health insurance on their own. A plan for student medical insurance may be provided by Student Services.

Late Payment

Students who fail to pay their tuition fee on time may not register in the next semester unless all previous semester payments are cleared.

7.11 Re-Admission to Abu Dhabi Polytechnic Programs

Students who have left an ADPoly 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 ADPoly 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.

7.12 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 ADPoly 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.

7.13 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 ADPoly later than one week after the start of the course for which they are re-enrolling.

7.14 Credit Transfer and Recognition of Prior Learning and Acquired Skills Policy

In order to earn a degree from ADPoly, a student must earn credits that fulfill the program requirements for graduation which are distributed among general education requirements (college requirements), major and minor 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 ADPoly may be awarded credit and/or satisfy college requirements in the following ways:

- Certification from an approved list of professional certificates
- Skills achievement from an approved list of recognized skills categories (usually those aligned with Emirates Skills or World Skills)
- Satisfactory performance on nationally or internationally recognized tests (EmSAT, IELTS, TOEFL, SAT, AP, IB, GCE, or any other certified exams recognized by ADPoly)
- Based on an “Articulation Agreement” with another academic institution
- Passing similar courses with a C grade or better under good academic standing from another accredited college or university

For this recognition, students are responsible to fill out the “Request for Articulation for Prior Learning and Acquired Skills” form in the Student Services Office and attach related original transcripts or copies of authorized transcripts or any other documents as required by ADPoly. The form should be submitted prior to the first semester in which a student is enrolled. The maximum number of credit hours that can be recognized from another accredited university and prior learning within the study plan applicable to the student cannot exceed 50% of the total credit courses required for graduation.

7.15 Maximum Period of Study

Students are required to graduate upon completion of their program requirements. The process is initiated by the students’ academic adviser and results in a degree audit conducted by the Student Services Office. These audits are available to a student upon request. Students may have cause to extend their expected normal period of study on an individual program for a variety of reasons. ADPoly is flexible in making such arrangements but there is an expectation that students will complete their studies with an absolute maximum time period from initial registration, regardless of individual circumstances to ensure the currency of their knowledge, their competency and the quality of their degree/ qualification. The following timescales will apply:

- Applied Bachelor: Maximum of 6 years
- Higher Diploma: Maximum of 4.5 years
- Diploma: Maximum of 3 years

Exceptions may be approved by the IAT Managing Director based on individual case justification.

7.16 Student Enquiries

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

7.17 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 ADPoly 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 Saturdays, Sundays, and public holidays unless there are special activities planned. ADPoly 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. Student records are kept indefinitely (meaning that ADPoly has no intention to dispose of student records). The ADPoly maintains guidelines related to the privacy and confidentiality of student records. Student records are confidential but students or their parents may be provided access upon presentation of proof of identify such as a government-issued identification.

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. ADPoly clearly states the expectations which students may have of the ADPoly and which the ADPoly 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 ADPoly. ADPoly students are required to abide by the ADPoly Code of Honor. By enrolling at ADPoly, 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. ADPoly 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 ADPoly 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 program 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 programs 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 ADPoly 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 ADPoly'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 ADPoly to establish and maintain appropriate academic and professional standards in courses and programs
- comply with program and course requirements
- treat ADPoly 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 ADPoly activities, thereby refraining from harassment or discrimination against other students and staff

Respect for People: This is considered paramount in ADPoly. 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 ADPoly property, or that of other individuals can result in disciplinary action, up to and including dismissal from ADPoly.

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 ADPoly community in many ways; the reputation of ADPoly and the worth of ADPoly 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 ADPoly.

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

Abu Dhabi Campus	
Asma Jumaa Al Alawi	Senior Coordinator, Examination
Hind Al Khatib	Coordinator, Admission/ Recruitment, Student Services
Erlind Cuka	Coordinator, IT
Hassan Sultan Abdulla Almarzouqi	Senior Officer, IT
Mohammad Radi	Coordinator, Outreach/Career
Aala Husain Salem Alrefaei	Senior Officer, Administration
Amna Alneyadi	Senior Officer, Administration, Petroleum
Aysha Almemari	Senior Officer, Administration
Noufa Alameri	Senior Officer, Students Activities
Nour Alameri	Senior Officer, Administration, Academic Support
Sara Islami	Senior Officer, Registration, Student Services
Tasneem Mustafa Al Musawa	Senior Officer, Administration
Khawla Al Shehhi	Executive Management Assistant
Magana Dela Vega Juan	Librarian
Joicy Joy	Nurse
Litty Jacob	Nurse
Al Ain Campus	
Maha Alshamsi	Manager, Student and Support Services
Mohammed AlRayssi	Coordinator Facility - Al Ain campus
Abeer AlBloushi	Coordinator Admission / Recruitment
Noura AlHassani	Senior Coordinator Exams & Graduations
Muna AlBaloushi	Coordinator Exam and Graduation
Mr. Mahamat Nour	Officer campus monitor
Aysha Abdak Neyamdeli	Senior officer Administration
Shamsa AlNeyadi	Senior officer Administration
Badreya AlMeqbaali	Receptionist
Noura AlSharaif	Senior officer – IT Technician
Aysha AlJaberi	Coordinator – IT
Magana Dela Vega Juan	Coordinator Librarian
Amna AlShamsi	Senior officer Librarian Assistant

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. ADPoly 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 ADPoly 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 ADPoly. 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 ADPoly 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 ADPoly, 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 ADPoly 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 always aware of and familiar with the EASA syllabi. 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 of questions formatted to reflect the 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 ADPoly 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 - with the exception of "Practical Assessment," will be recorded as scored. Any re-assessment during Practical will be limited to 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	24	NA	30	24	NA	30
4	Electronic Fund	NA	NA	NA	20	NA	25	40	NA	50
5	Digital Tech	20	NA	25	40	NA	50	72	NA	90
6	Materials and Hardware	52	NA	65	80	NA	100	60	NA	75
7	Maintenance Practices	76	2	115	80	2	140	60	2	115
8	Aerodynamics	24	NA	30	24	NA	30	24	NA	30
9	Human Factors	28	1	45	28	1	45	28	1	45
10	Air Legislation	32	2	60	44	2	75	44	2	75
11	Aeroplane Aerodynamics sys.	108	NA	135	140	NA	175	NA	NA	NA
13	Aeroplane Aerodynamics sys.	NA	NA	NA	NA	NA	NA	188	NA	235
14	Propulsion	NA	NA	NA	NA	NA	NA	32	NA	40
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 Programs and Curriculum 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 Programs and Curriculum 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 ADPoly.

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 ADPoly 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 ADPoly 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 Department Head 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 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.

The Academic Calendar specifies when students may add or withdraw from courses. After the deadlines to add or withdraw from courses, only under special circumstances and with appropriate approvals may a student add or withdraw from a course.

The withdrawal procedure is initiated with a request to the Student Services Office. The withdrawal is non-punitive before the deadline to withdraw from courses as stipulated in the Academic Calendar. 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 except by approval of the ADPoly Director.
- 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 a Fail due to Absence (FA) grade and they may not withdraw from the course except by approval of the ADPoly Director.
- Students who want to withdraw because they missed an assessment but had a valid excuse should not withdraw but first seek to have a makeup assessment without penalty.

If a student withdraws after the deadline for withdrawing from a course without penalty (as stipulated in the Academic Calendar), 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. Students who withdraw from a course after the deadline (as stipulated in the Academic Calendar) will be have to pay a penalty of 1500 AED per credit hour withdrawn. 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 Programs and Curriculum and Assessment Committees

The Academic Programs and Curriculum Committee is responsible to the Executive Committee for determining grades from individual course instructors. The Academic Programs and Curriculum 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 Programs and Curriculum Committee is responsible for determining final grades through scrutinizing grade recommendations from course instructors to ensure comparability of standards and consistency with ADPoly policy; and, consulting relevant course instructors regarding any queries concerning their recommended grades.

The Academic Programs and Curriculum Committee is also responsible for:

- Determining the classification to be awarded to students who have satisfied the requirements for a qualification within the ADPoly
- 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 Programs and Curriculum 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 Programs and Curriculum Committee may be carried out executively by the chair.

9.12 Supplementary Assessment

The ADPoly Academic Programs and Curriculum 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 ADPoly Academic Programs and Curriculum 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 Academic Programs and Curriculum 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 ADPoly’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 ADPoly Director or chair of the Academic Programs and Curriculum Committee. The decision of the ADPoly 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 ADPoly 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 on the following page. The description that accompanies each grade is given as a guideline to assist comparability across ADPoly, but these descriptions must be interpreted within the context of each course.

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.

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

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 ADPoly 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 ADPoly 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 ADPoly. 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 ADPoly campus are the sole property of ADPoly 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 ADPoly'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 ADPoly.

10.3 Attendance and Punctuality

Abu Dhabi Polytechnic expects students to take full responsibility for their academic work and progress. Success at ADPoly 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 ADPoly 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.

EASA Approved Programs

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 ADPoly – 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 ADPoly. Examples of reasons would include:

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

Note that where dismissal is recommended by the ADPoly 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 ADPoly

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 ADPoly, 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 ADPoly 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 ADPoly 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 ADPoly 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 minutes 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 ADPoly.

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. ADPoly 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 ADPoly 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 ADPoly-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 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 ADPoly 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 ADPoly'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 ADPoly.

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 Programs and Curriculum 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 Programs and Curriculum 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 Programs and Curriculum 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 ADPoly.

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 ADPoly 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 ADPoly 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 ADPoly 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 ADPoly.
- 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 ADPoly premises.
- A student has a severe alcohol/drug problem which is interfering with their ADPoly work.

14.4 Monitoring

A report of the Counseling Service will be presented to the ADPoly 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 since the beginning of 2011 and was developed to meet ADPoly's mission of providing high quality academic support services and general education curriculum that solidifies students' knowledge and skills to enhance their academic performance in Applied Science and Engineering Technology in alignment with Abu Dhabi Economic Vision 2030.

15.2 Department Mission

The mission of the Academic Support Department is to provide high quality general education and tutoring that solidify knowledge, skills and enhance academic performance for science and engineering technology students at ADPoly. ASD is committed to supporting students and faculty in achieving institutional and educational goals to become lifelong learners through offering a variety of academic services, tutoring, and eLearning resources.

15.3 General Education

The General Education Curriculum (GEC) offered by ASD is a main role of the department. The GEC is offered in six main clusters: natural sciences (physics and chemistry), mathematics (precalculus, calculus and advance mathematics), fundamentals in engineering technology, interdisciplinary areas, humanities, English language, technical communication skills, and skills for life (see Figure 15-1). The GEC was developed based on the following parameters: program needs offered at ADPoly, Academic Accreditation Commission (CAA) standards, ABET standards, and national and international institutions' (i.e., other polytechnics) curriculum benchmarking. The general education courses are offered on a credit-hour system, and they are divided into general education requirements and program-based general education courses.

15.4 Philosophy of General Education at Abu Dhabi Polytechnic

A top priority of Abu Dhabi Polytechnic is to make sure that undergraduate students receive a diverse and robust general education from enrollment to graduation. The GEC is not limited to the first year but extends and integrates into the different programs' study plans. In the era of the Industrial Revolution 4.0 with increasing demands on professional expertise, general education plays a vital role in preparing graduates who can maneuver technological advancements as they occur.

The GEC ensures that all undergraduate students, regardless of their academic major, receive a broad education entrenched in natural sciences, mathematics, fundamentals of engineering technology, interdisciplinary areas, humanities, communication skills, and innovation and entrepreneurship. It helps students expand their knowledge and professional perception while studying Arabic language and Islamic culture, developing their Emirati national identity, learning how to be better communicators in English and striving for life-long self-efficacy. We seek always to enhance students' analytical skills and integrate modern technological tools into the curriculum. There is a significant emphasis on incorporating critical thinking and problem-solving skills as cross-curriculum competences. It is supported by AI-powered platforms and their critical application. Integrating career-guidance competencies is supporting our goal of not only graduating engineers but future leaders and assist students in making informed decisions about their career paths.

The GEC recognizes prior learning through a well-defined articulation plan for different high-school systems. Students can waive one or more semesters upon joining ADPoly. Furthermore, it has been benched-marked with national and international polytechnic and applied higher education institutions' curricula. Studying at ADPoly gives students opportunities for transfer from other institutions, degree bridging, exchange programs, and continuation of their graduate studies. The general education curriculum meets institutional needs as well as those of accreditation bodies.

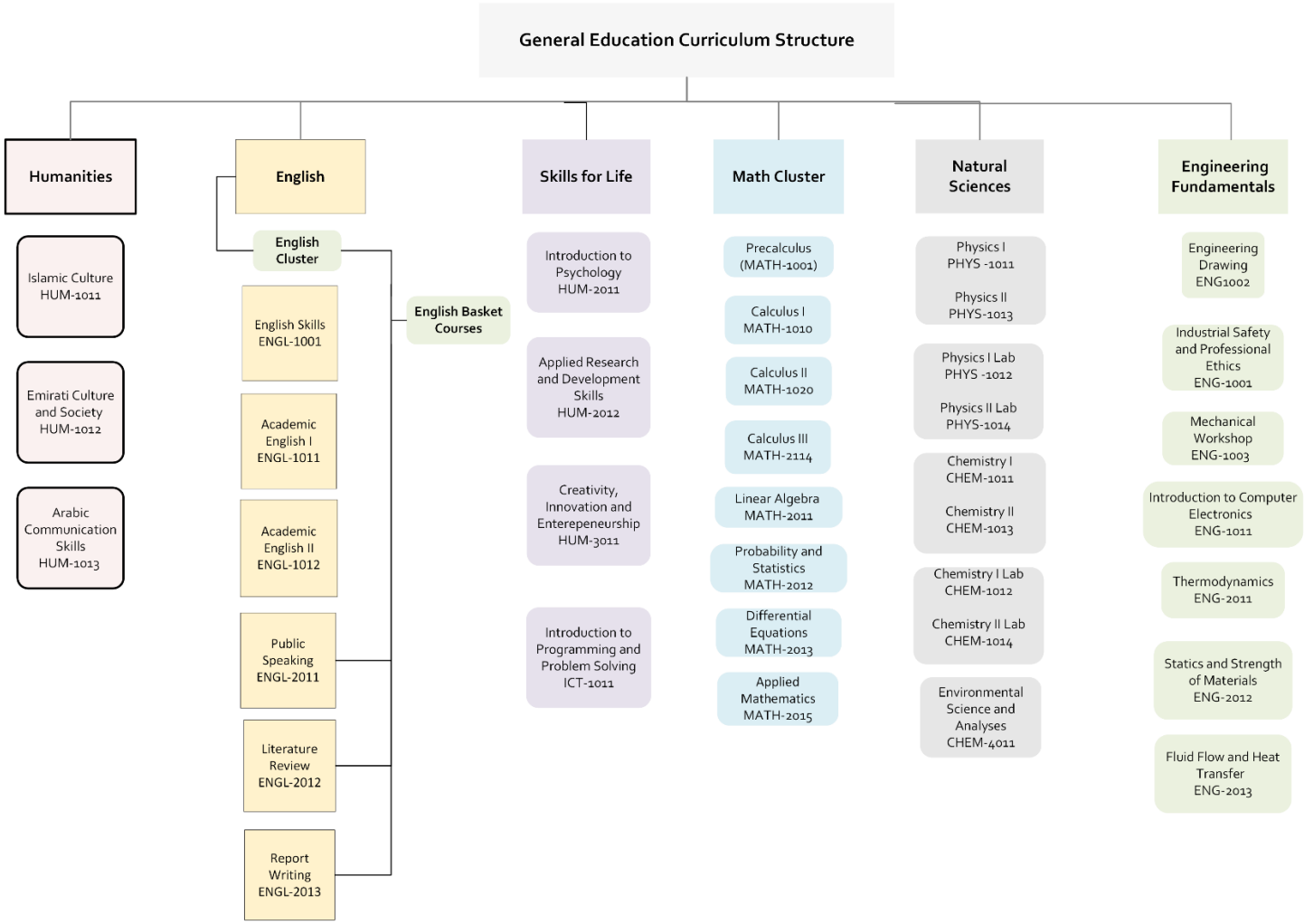


Figure 15-1: General Education Curriculum clusters

The general education represents a bedrock upon which, detailed major-specific information is built. Students with a well-rounded general education are giving wider perspective and foundation for innovation, creativity, entrepreneurship, critical thinking and problems solving along with much needed soft-skills. They are better informed and more likely to engage in meaningful activities to improve their own well-being as well as become positive contributors within their communities, professions, and country.

15.5 Program Educational Objectives (PEOs)

General education program is intended to provide the undergraduate curriculum with critical thinking skills; a broad understanding of the approaches to knowledge in humanities and social sciences, a common core of understanding among students in Islamic and multicultural studies, and a level of skill appropriate to higher education in science, mathematics, information literacy, the application of technology and communications silks.

These objectives are as follows:

- **PEO1:** Provide students with knowledge and skill in science, mathematics, fundamentals of engineering technology, information literacy, and communication that will help them succeed in their studies, lives and careers.
- **PEO2:** Provide students with critical thinking skills that promoting innovation, creativity and entrepreneurship.
- **PEO3**: Provide students with a common core of understanding such as in Islamic culture and studies that enhancing their awareness of their role as a responsible citizens of UAE, who know and value their religion and culture, and also appreciate and participate in the multicultural diversity of the modern world.
- **PEO4**: Create learning environment that produce competency in the use of resources and in research methodologies to promote life-long learning.
- **PEO5**: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge that will help them successfully guide the economic, social and cultural development of the UAE.

15.6 Program Learning Outcomes (PLOs)

The following list summarizes the Program Learning Outcomes for general education courses which are similar to ABET Student Outcomes 1-5 for engineering technology.

- **PLO1**: an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline;
- **PLO2**: an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline;
- **PLO3**: an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- **PLO4**: an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
- **PLO5**: an ability to function effectively as a member as well as a leader on technical teams.

15.7 General Education Curriculum

The general education curriculum is divided in two main components:

1. General education requirements to be adhered to all areas of academic study (Table 15-1)
2. Program-based general education courses (Table 15-2)

Table 15-1 General education requirements to be adhered to all academic programs.

General Education Requirements				28 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH1001	Precalculus			3
MATH1010[a]	Calculus I	MATH1001		3
ICT1011	Introduction to Programming & Problem Solving			3
ENGL1001[b]	English Skills			0
ENGL1011[b]	Academic English I			3
ENGL1012[b]	Academic English II	ENGL1011		3
ENGL2011[b]	Public Speaking	ENGL1012		1
ENGL2012[b]	Literature Review	ENGL1012		1
ENGL2013[b]	Report Writing	ENGL1012		1
HUM1011[c]	Islamic Culture	HUM1011		3
HUM1012[c]	Emirates Society & Culture	HUM1012		3
HUM1013[c]	Arabic Communication Skills	HUM1013		3
HUM3011	Creativity, Innovation and Entrepreneurship	ENGL1012		3

[a] Calculus I course is compulsory for all bachelor's degree programs.
[b] Nine credits of English are still required for all programs; however, incoming students must take those listed in the table and continuing students should consult with their advisors for the appropriate English courses.
[c] Student should take two out of three courses (HUM1011, HUM1012 and HUM1013)

Table 15-2. Program-based general education courses

Program-based General Education Courses (Depending on program study plan)				Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PHYS1011	Physics I			3
PHYS1012	Physics I Lab		PHYS1011	1
PHYS1013	Physics II	PHYS1011, MATH1001		3
PHYS1014	Physics II Lab		PHYS1013	1
PHYS1015	Physics I for Aviation			3
PHYS1016	Physics I Lab for Aviation		PHYS1015	1
PHYS1017	Physics II for Aviation	PHYS1015; MATH1001		3
CHEM1011	Chemistry I		CHEM1012	3
CHEM1012	Chemistry I Lab		CHEM1011	1
CHEM1013	Chemistry II	CHEM1011	CHEM1014	3
CHEM1014	Chemistry II Lab	CHEM1011, CHEM1012	CHEM1013	1
CHEM4011	Environmental Science and Analyses	CHEM1011		3
MATH1020	Calculus II	MATH1010		3
MATH2011	Linear Algebra	MATH1001		3
MATH2012	Probability and statistics	MATH1010		3
MATH2013	Differential Equations	MATH1020		3
MATH2015	Applied Mathematics	MATH1020		3
MATH2114	Calculus III	MATH1020		3
ENG1002	Engineering Drawing			2
ENG1001	Industrial Safety and Professional Ethics			2
ENG1003	Mechanical Workshop			1
ENG1011	Introduction to Computer Electronics	ICT1011		3
ENG2011	Thermodynamics	MATH1010, PHYS1011, CHEM1013		3
ENG2012	Statics & Strength of Materials	MATH1001, PHYS1011		3
ENG2013	Fluid Flow & Heat Transfer	MATH1010, CHEM1011		3
HUM1000	Lifelong Learning Skills			3
HYM2012	Applied Research and Development Skills			3
HUM401	Leadership Skills			3
HUM3012	Personal Development Planning			2
HUM3013	Applied Research Methods			3

Preparatory Program (Conditional Admission):

Students who are not meeting the admission criteria for ADPoly can attend the preparatory program for one semester only upon their conditional admission. Candidates who are given a conditional admission to ADPoly because of their low performance in the EmSAT or high school requirements will be able to participate in the preparatory program at the beginning of semester 1 or semester 2 in each academic year. It is a full-time program which consists of 4 courses (Mathematics, Physics, Chemistry, and Information Computer Technology) that are given to the students as separate courses throughout the corresponding semester. The courses are zero credit and have the following codes in the banner system in ADPoly:

Table 15-3. Preparatory courses (zero-credit)

Preparatory Program Courses		**0 Credit Hours**
Course Code	**Course Title**	**Credit Hours**
MATH1000	Preparatory Mathematics	0
PHYS1000	Preparatory Physics	0
CHEM1000	Preparatory Chemistry	0
ICT1000	Preparatory Information Computer Technology	0

More information about the conditional admission can be found at: https://adpoly.ac.ae/admission/

15.8 Proposed Study Plan for all Programs (GRs Plan)

There are several general education courses offered for freshman year (year 1). This general plan will vary from one program to another; students should refer to the study plan provided by their program. The freshman plan is designed for students who are admitted to ADPoly and meeting the EmSAT requirements. Otherwise, students should attend the preparatory program based on their performance in EmSAT and can be registered maximum in 4 courses including the zero-credit courses. They have the chance for one semester to either pass the zero-credit courses or obtain the required EmSAT score for Math and two of the other natural science or ICT courses.

1st Year (Freshman)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	MATH1001	Precalculus	3	
	ENGL1011	Academic English I	3	IELTS =5.5 or EmSAT=1300 or ENGL1001
	ICT1011	Introduction to Programming & Problem Solving	3	
	HUM1011	Islamic Culture	3	
	ENG1001	Industrial Safety & Prof. Ethics	2	
		Total Credit Hours	**14**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	CHEM1011	Chemistry I	3	
	CHEM1012	Chemistry Lab I	1	
	PHYS1011	Physics I	3	
	PHYS1012	Physics I Lab	1	
	MATH1010	Calculus I	3	MATH1001, EmSAT=1500
	ENGL1012	Academic English II	3	ENGL1011
	ENG1003	Mechanical Workshop	1	
		Total Credit Hours	**15**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	PHYS1013	Physics II	3	PHYS1011
	PHYS1014	Physics II Lab	1	PHYS1012
	ENGL2011	Public Speaking	1	ENGL1012
	MATH1020	Calculus II	3	MATH1010
		Total Credit Hours	**8**	

15.9 Academic Support Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Shaaban Ali	Department Head	Ph.D.	University of New South Wales
Bassem Saassouh	Assistant Professor	Ph.D.	University of Technology of Troyes
Emad Imreizeeq	Assistant Professor	Ph.D.	University of Twente
Georgios Fotopoulos	Assistant Professor	Ph.D.	University of Oulu, Finland
Hussam Al Omari	Assistant Professor	Ph.D.	Goethe Universität
Jaydaa Seyam	Assistant Professor	Ph.D.	University of Sharjah
Mariam Alkobaisi	Assistant Professor	Ph.D.	State University of New York, Binghamton
Mohamed Elsayed Yahia Ali Elsayed Kelib	Assistant Professor	Ph.D.	Cairo University
Neil Johnson	Assistant Professor	Ph.D.	University of Arizona, Tucson
Nikolaos Lazaridis	Assistant Professor	Ph.D.	Technical University of Denmark
Shawkat Gasaymeh	Assistant Professor	Ph.D.	University Kebangsaan
Sultan Alsawwafi	Assistant Professor	Ph.D.	Umm Dorman University
Venkata Siva Sagiraju	Assistant Professor	Ph.D.	Andhra University
Yasser Farhat	Assistant Professor	Ph.D.	Laval University
Ali Omar Abu Odeh	Instructor	Ph.D.	University Malaysia Perlis
Amar Amouri	Instructor	Ph.D.	University of South Florida
Bashar Abu Shunnar	Instructor	Ph.D.	The British University in Dubai
Abdulrahman Waleed Hamoud Sulaiman Alebri	Instructor	Master	University of Sharjah
Amer Hussein	Instructor	Master	Indiana Univ-Purdue Univ-Indianapolis
Christopher Bolger	Instructor	Master	Framingham State University
Diana Al Haffar	Instructor	Master	University of Leicester
Julia Krasny	Instructor	Master	University of Silesia, Poland
Nadine El Khalil	Instructor	Master	American University of Beirut
Pantelis Demetriou	Instructor	Master	University of Liverpool
Shahida Maqsood	instructor	Master	Quaid-i-azam University
Vinod Nair	Instructor	Master	Kanpur University
Youssef Laz	Professional Technical Instructor	Bachelor	Beirut Arab University
Aya Abdelhamid	Teaching Assistant	PhD	United Arab Emirates University
Doaa Ali Nasser Al-Yafeai	Teaching Assistant	Master	United Arab Emirates University
Nuha F.H. Attia	Teaching Assistant	Master	University of Sharjah
Mariam Alobeidli	Lab Specialist	Bachelor	United Arab Emirates University
Magana dela Vega Juan	Librarian	Bachelor	University of the Philippines

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. ADPoly 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 concentrations: avionics, aeromechanical, 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 concentrations, 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 ADPoly 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.

A top up program allows students having higher diploma in Aircraft Maintenance or Aircraft Engineering Technology an increased exposure to advanced aviation knowledge and skills to the academic level of Applied bachelor's degree in Aircraft Maintenance Management (ABAMM). This program will be offered to students of the institution and will be open to qualified students from other institutions. The program will be delivered on full-time and part-time basis to accommodate all segments of the student population.

Academic advisors monitor students' progress at ADPoly. 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.

ADPoly is an accredited training provider under the National Qualification Center (NQA). ADPoly provides training for three NQC levels (Levels 4, 5, and 6) leading to applied Certificate, Diploma, and Advanced Diploma qualifications.

17. Aircraft Maintenance Technology

17.1 Introduction

Abu Dhabi Polytechnic offers a two-year (Diploma) and a three-year (Higher Diploma) Aircraft Maintenance Technology 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 with two concentrations: Avionics and Aeromechanics. 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 Concentrations and licenses

The Diploma program in Aircraft Maintenance Technology 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 Technology 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. In the third year the student can choose either to join the Aeromechanics and Avionics concentrations.

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 Technology program (AMT) 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.

ADPoly's AM program was developed to provide the UAE's needed national expertise with basic aircraft engineering technologies. ADPoly'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 Technology program educational objectives (PEO) are derived from ADPoly vision and mission. The PEOs of the program listed below reflect the vision of ADPoly:

PO1: Provide curriculum in Aviation Maintenance that generates graduates having competencies in the maintenance and repair of modern aircraft;

PO2: Engage students with teamwork experiences while demonstrating effective communication skills and knowledge of related contemporary issues;

PO3: Provide students with quality education incorporating current technologies to prepare them for professional development and advanced studies in aircraft maintenance or a related area;

PO4: Foster professional and ethical environment to instill personal responsibility for continuous professional development and life-long learning.

17.6 Program Learning Outcomes (PLOs/SLOs)

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

AMT SLOs for the Diploma Level:

SLO1: Apply mathematics, science, and applied sciences to Aircraft Maintenance;
SLO2: Analyze and Interpret Aircraft Maintenance data;
SLO3: Work effectively on multi-disciplinary and diverse teams;
SLO4: Make professional and ethical decisions;
SLO5: Communicate effectively, using both written and oral communication skills;
SLO6: Engage in and recognize the need for life-long learning;
SLO7: Assess contemporary Aircraft Maintenance issues;
SLO8: Use the techniques, skills, and modern technology necessary for professional practice;

AMT SLOs for the Higher Diploma Level:

SLO1: Apply mathematics, science, and applied sciences to Aircraft Maintenance;
SLO2: Analyze and interpret Aircraft Maintenance data;
SLO3: Work effectively on multi-disciplinary and diverse teams;
SLO4: Make professional and ethical decisions;
SLO5: Communicate effectively, using both written and oral communication skills;
SLO6: Engage in and recognize the need for life-long learning;
SLO7: Assess contemporary Aircraft Maintenance issues;
SLO8: Use the techniques, skills, and modern technology necessary for professional practice;
SLO9: Assess the national and international aviation environment;
SLO10: Apply pertinent knowledge in identifying and solving Aircraft Maintenance problems;
SLO11: Apply knowledge of business sustainability to Aircraft Maintenance issues.

Abu Dhabi Polytechnic admissions requirements fully apply to Aircraft Maintenance programs.

17.7 Curriculum

Degree Requirements	Diploma: 70 Credit hours	Higher Diploma: 110 Credit hours	Applied Bachelor: 150 Credit hours
ADPoly General Requirements	26	30	32
Program Core Requirements	35	35	52
Concentration Requirements	-	33	-
On-Campus Training	06	06	-
Graduation Project	-	03	04
On-Job Training	03	03	03
Bachelor Concentration Requirements	-	-	18
Elective courses	-	-	09
CAT-B Complementary Courses	-	-	32

Diploma/Higher Diploma

ADPOLY General Requirements				26 Credit Hours
Course Code	**Course Title**	**Pre- Requisite**	**Co-Requisite**	**Credit hours**
MATH 1001	Precalculus (Mod 1A)			3
AMT1101	W/S Practices/Orientation			2
PHYS1015	Physics I for Aviation (Mod 2A)			3
PHYS1016	Physics I lab for Aviation			1
ICT1011	Intro to Programming & Problem Solving			3
ENGL 1001	English Skills	EmSAT≥1300, IELTS ≥ 5.5		0
ENGL 1011	Academic English I	ENGL 1001		3
ENGL 1012	Academic English II	ENGL 1011		3
HUM 1012	Emirates Society & Culture			3
HUM 1011	Islamic Culture			3
ENGL 2011	Public Speaking	ENGL 1012		1
ENGL 2012	Literature Review	ENGL 1012		1
ENGL2013	Report Writing *	ENGL 1012		1
HUM1013	Arabic Communication Skills (distance learning) *			3

**Offered only for Higher Diploma (30 credit hours for Higher Diploma)*

Program Core Requirements & On-Campus Training				41 Credit Hours
Course Code	**Course Title**	**Pre- Requisite**	**Co-Requisite**	**Credit hours**
AVT1201	Electrical Fundamentals (Mod 3A)	MATH 1001		3
AVT1301	Electronics (4 A)	AVT1201		3
AVT2101	Basic Digital Techniques (Mod 5 A)	AVT1201		2
AMT1202	Maintenance Practices I (Mod 7A)	AMT1101		2
AMT1207	Mod 7A1-OCT2		AMT1202	1
AMT2103	Maintenance Practices II (7 A)	AMT1101		2
AMT2202	Maintenance Practices III (7 A)	AMT1202		2
AMT2206	Mod7A3-OCT5		AMT2202	1

AMT2203	Maintenance Practices IV (7 A)	AMT1202, AMT2103		2
AMT2207	Mod7A4-OCT6		AMT2203	1
AMT1201	Materials & Hardware (Mod 6A)	PHYS1015		2
AMT1206	Mod 6A- OCT1		AMT1201	1
AMT2102	Basic Aerodynamics (8 A)	PHYS1015		2
AMT2104	Aircraft Sys & Components I (11 A)	AMT1201	AMT2102	3
AMT2106	Mod 11- OCT3		AMT2104	1
AMT2204	Aircraft Sys. & Components II (11 A)	AVT2101		3
AMT1301	Human Factors (Mod 9A)	ENGL 1011		2
AMT2201	Aviation Legislation (Mod 10A) / Aviation Legislation GCAA	ENGL 1012		2
AMT2105	Gas Turbines (15 A)	PHYS1015		3
AMT2107	Mod 15-OCT4		AM 2105	1
AMT2205	Propellers (17 A)	AMT2102		2

Compulsory Aeromechanical				**33 Credit Hours**
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT3101	Adv. Aerodynamics (8 B1)	AMT2102		3
AMT3102	Adv. Materials & Hardware I (6 B1)	AMT1202		3
AMT3103	Adv. Maintenance Practices I (7 B1)	AMT2202, AMT2203		3
AMT3104	Adv. Aircraft Sys. & Components I (11B1)	AMT2204		3
AVT3101	Electrical Engineering I (3B)	AVT1201		3
AVT3102	Electrical Engineering I (3B) Lab.		AVT3101	1
AMT3201	Adv. Materials & Hardware II(6 B1)	AMT3102		3
AMT3202	Adv. Maintenance Practices II (7 B1)	AMT3103		3
AMT3203	Adv. Aircraft Sys. & Components II (11 B1)	AMT3104		3
AMT3204	Adv. Turbine Engines (15 B1)	AMT2105		3
AMT3301	Adv. Propellers (17 B1)	AMT2205		2
AVT3103	Digital Techniques I (5 B1)	AVT2101		3

Compulsory Avionics				33 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT3101	Adv. Aerodynamics (8 B1)	AMT2102		3
AMT3102	Adv. Materials & Hardware I (6 B1)	AMT1201		3
AMT3103	Adv. Maintenance Practices I (7 B1)	AMT2202, AMT2203		3
AVT3101	Electrical Engineering I (3B)	AVT1201		3
AVT3102	Electrical Engineering I (3B) Lab.		AVT3101	1
AVT3103	Digital Techniques I (5 B1)	AVT2101		3
AVT3201	Electronic Comm. Tech.	AVT1301		3
AVT3202	Avionics Systems I (13 B2)	AMT3101, AMT3102, AMT3103		4
AVT3203	Props and FADEC (14 B2)	AVT3103		4
AMT3301	Adv. Maintenance Practices II(7 B1)	AMT3103		3
AVT3301	Avionics Systems II (13 B2)	AVT3202		3

Capstone Project				3 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT3080	Capstone Project *		ENGL2013	3

**Offered only for Higher Diploma*

On-Job Training				3 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT2090	On-Job Training	Course completion		3

Applied Bachelor in Aircraft Maintenance Management

ADPOLY General Requirements				32 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
MATH 100	Pre-calculus	Admission	PHYS111	4
PHYS111	Physics I	Admission	PHYS111P	3
PHYS111P	Physics I Lab	Admission	PHYS111	1
ICT110	Intro Programming & Problem Solving			3
ENGL 120	English Skills	IELTS 5.0		0
ENGL 121	Academic English I	ENGL 120		3
ENGL 122	Academic English II	ENGL 121		3
ENGL 211	Public Speaking	ENGL 122		1
HUM 111	Islamic Culture			3
HUM 112	Emirates Society and Culture			3
HUM 402	Creativity, Innovation and Entrepreneurship	Senior Status		3
HUM 110	Life-Long Learning Skills			3
AMT101	Workshop Practices/Orientation			2

Program Core Requirments				52 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT113	Main. Practice I (7 A)			3
AMT114	Basic Materials & Hardware (6A)	PHYS111		3
AMT115	Basic Aerodynamics (8 A)	PHYS111		2
AMT117	Main. Practice II (7 A)	AMT113		3
AMT121	Main. Practice III (7 A)	AMT113		3
AMT124	Main. Practice IV (7 A)	AMT113		3
AMT116	Air. Systems and Components I (11A)	AMT114	AMT115	3
AMT221	Air. Systems and Components II (11A) 4	AVT211	AVT112	4
AMT223	Turbine Engines (15 A)	AMT115		3
AMT225	Propellers (17 A)	AMT115	AMT223	2
AVT110	Electrical Engineering I (3 B)	MATH100, PHYS111	AVT210P	3

AVT110P	Electrical Engineering I Lab		AVT210	1
AVT211	Electrical Engineering II (3 B)	AVT210	AVT211P	3
AVT211P	Electrical Engineering II Lab	AVT210P	AVT211	1
AVT112	Electronics	AVT210		3
AVT123	Fund. Digit. Tech. (5 A)	AVT211	AVT112	3
AVT311	Electronic Communication Tech	AVT112		3
AVT321	Digital Techniques I (5B1)	AVT311, AVT123		3
AVSC225	Aviation Leg-GCAA			3

Aeromechanical

CAT-B Complementary Courses				32 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co-Requisite**	**Credit Hours**
AMT211	Materials & Hardware I (6 B1)	AMT114		3
AMT214	Aerodynamics (8 B1)	PHYS111		3
AMT215	Main. Prac. I (7 B1)	AMT113, AMT117		3
AMT217	Main. Prac. II (7 B1)	AMT215		3
AMT222	Materials & Hardware II (6 B1)	AMT211		3
AVSC210	Human Factors (9 B)			3
AVSC220	Aviation Legislation-EASA (10 B)			3
AMT230	Air. Systems and Components I (11B1)	AMT116		3
AMT234	Air. Systems and Components II (11B1)	AMT221		3
AMT324	Turbine Engines (15 B1)	AMT223, AMT214		3
AMT336	Propellers (17 B1)	AMT225		2

Bachelor Concentration Requirements & Electives				27 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT405	Aircraft Structural Analysis			3
AMT406	Inspection Procedures			3
AMT407	Aircraft Line, Base and Components Maintenance			3
AMT403	Principle of Business for Engineers			3

AMT404	Aviation Maintenance Technology and Management			3
AMT408	Aviation Inventory and Logistics			3
	Elective I			3
	Elective II			3
	Elective III			3

Avionics

CAT-B Complementary Courses				32 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co-Requisite**	**Credit Hours**
AMT211	Materials & Hardware I (6 B1)	AMT114		3
AMT214	Aerodynamics (8 B1)	PHYS111, AMT115		3
AMT215	Main. Prac. I (7 B1)	AMT113, AMT117		3
AMT217	Main. Prac. II (7 B1)	AMT121, AMT124		3
AMT222	Materials & Hardware II (6 B1)	AMT114, AMT211		3
AVSC210	Human Factors (9 B)			3
AVSC220	Aviation Legislation-EASA (10 B)			3
AVT327	Avionics Systems I (13 B2)	AMT116		4
AVT333	Avionics Systems II (13 B2)	AVT327		4
AVT326	Prop. & FADEC (14 B2)	AMT214, AMT223		3

Bachelor Concentration Requirements & Electives				27 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AVT401	Avionics and Instrumentation Systems Maintenance			3
AMT406	Inspection Procedures			3
AMT407	Aircraft Line, Base and			3
AMT403	Principle of Business for Engineers…			3
AMT404	Aviation Maintenance Technology and Management			3
AMT408	Aviation Inventory and Logistics			3
	Elective I			3
	Elective II			3
	Elective III			3

Graduation Project				4 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT420	Graduation Project	4th Year student		4

On-Job Training				3 Credit Hours
Course Code	**Course Title**	**Pre-requisite**	**Co- Requisite**	**Credit Hours**
AMT240	OJT/Internship	Course completion		3

Elective Courses		
Course Code	**Course Title**	**Credit Hours**
AMT409	Quality Assurance	3
AMT410	Project Management	3
AMT411	Automatic Flight Control Systems Maintenance	3
AVT402	Advanced Flight Instrument Systems	3
AVSC401	Introduction of Marketing	3
AVSC402	Aviation Economics	3
AVSC403	Safety Management Systems	3

17.8 Study Plans

Diploma in AMT

1st Year: 1st Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
MATH1001	Pre-Calculus (Mod 1A) MPE≥70, EmSAT≥1500)	3	0	1	4	3
PHYS1015	Physics I for Aviation (Mod 2A)	3	0	1	4	3
PHYS1016	Physics I Lab for Aviation	0	3	0	3	1
ICT1011	Intro to Prog. & Prob. Solving	2	2	0	4	3
AMT1101	W/S Practices/Orientation	1	3	0	4	2
ENGL1001	English Skills EmSAT≥1300, IELTS ≥ 5.5)	1	2	0	3	0
HUM1011	Islamic Culture (distance learning)	3	0	0	3	3
	Total	13	10	2	25	15

1st Year: 2nd Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AVT1201	Electrical Fundamentals (Mod 3A)	3	1	0	4	3
AMT1201	Materials & Hardware (Mod 6A)	2	0	0	2	2
AMT1202	Maintenance Practices I (Mod 7A)	2	0	0	2	2
AMT1206	MOD 6A-OCT1	0	3	0	3	1
AMT1207	MOD 7A1-OCT2	0	3	0	3	1
ENGL1011	Academic English I	2	2	0	4	3
HUM1012	Emirates Society & Culture (distance learning)	3	0	0	3	3
	Total	12	9	0	21	**15**

1st Year: Summer Term						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT1301	Human Factors (Mod 9A)	2	0	0	2	2
AVT1301	Electronics (4 A)	2	2	0	4	3
ENGL1012	Academic English II	2	2	0	4	3
	Total	6	4	0	10	8

2nd Year: 1st Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AVT2101	Basic Digital Techniques (Mod 5 A)	2	1	0	3	2
AMT2102	Basic Aerodynamics (8 A)	2	0	0	2	2
AMT2103	Maintenance Practices II (7 A)	1	2	0	3	2
AMT2104	Aircraft Sys & Components I (11 A)	3	0	0	3	3
AMT2105	Gas Turbines (15 A)	3	0	0	3	3
ENG2011	Public Speaking (Blended L.)	1	0	1	2	1
AMT2106	MOD 11- OCT3	0	2	0	2	1
AMT2107	Mod 15-OCT4	0	3	0	3	1
	Total	12	8	1	21	15

2nd Year: 2nd Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT2201	Aviation Legislation (Mod 10 A)/ Aviation Legislation GCAA	2	0	1	3	2
AMT2202	Maintenance Practices III (7 A)	1	2	0	3	2
AMT2203	Maintenance Practices IV (7 A)	1	2	0	3	2
AMT2204	Aircraft Sys. & Components II (11 A)	2	2	0	4	3
AMT2205	Propellers (17 A)	2	0	0	2	2
ENGL2012	Literature Review (Blended L.)	1	0	1	2	1
AMT2206	Mod7A2-OCT5	0	3	0	3	1
AMT2207	Mod7A3-OCT6	0	3	0	3	1
	Total	9	12	2	23	**14**

2nd Year: Summer Term						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT2090	OJT / Internship					3
	Total				**360**	**3**

HD in AMT: Third Year: Aeromechanics Concentration

3rd Year: 1st Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT3101	Adv. Aerodynamics (8 B1)	3	1	2	6	3
AMT3102	Adv. Materials & Hardware I (6 B1)	3	1	0	4	3
AMT3103	Adv. Maintenance Practices I (7 B1)	2	3	2	7	3
AMT3104	Adv. Aircraft Sys. & Components I (11B1)	3	1	2	6	3
AVT3101	Electrical Engineering I (3B)	3	0	2	5	3
AVT3102	Electrical Engineering I (3B) Lab.	0	3	1	4	1
	Total	14	9	9	32	16

3rd Year: 2nd Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT3201	Adv. Materials & Hardware II(6 B1)	3	1	0	4	3
AMT3202	Adv. Maintenance Practices II (7 B1)	2	3	1	6	3
AMT3203	Adv. Aircraft Sys. & Components II (11 B1)	3	1	4	8	3
AMT3204	Adv. Turbine Engines (15 B1)	2	3	2	8	3
AMT3080	Capstone Project	3	0	0	3	3
ENGL2013	Report Writing	1	2	0	3	1
	Total	14	10	7	32	16

3rd Year: Summer Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
HUM1013	Arabic Communication Skills (distance learning)	3	0	0	3	3
AMT3301	Adv. Propellers (17 B1)	2	1	1	4	2
AVT3103	Digital Techniques I (5 B1)	2	3	1	6	3
	Total	**7**	**4**	**2**	**13**	**8**

HD in AMT: Third Year - Avionics Concentration

3rd Year: 1st Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AMT3101	Adv. Aerodynamics (8 B1)	3	1	2	6	3
AMT3102	Adv. Materials & Hardware I (6 B1)	3	1	0	4	3
AMT3103	Adv. Maintenance Practices I (7 B1)	2	3	2	7	3
AVT3101	Electrical Engineering I (3B)	3	0	2	5	3
AVT3102	Electrical Engineering I (3B) Lab.	0	3	1	4	1
AVT3103	Digital Techniques I (5 B1)	2	3	1	6	3
	Total	13	11	8	32	16

3rd Year: 2nd Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
AVT3201	Electronic Comm. Tech.	2	3	0	5	3
AVT3202	Avionics Systems I (13 B2)	3	3	2	8	4
AVT3203	Props and FADEC (14 B2)	4	1	0	5	4
AMT3080	Capstone Project	3	0	0	3	3
ENGL 2013	Report Writing	1	2	0	3	1
	Total	**13**	**9**	**2**	**24**	**15**

3rd Year: Summer Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
HUM1003	Arabic Communication Skills (distance learning)	3	0	0	3	3
AMT3301	Adv. Maintenance Practices II(7 B1)	2	3	2	7	3
AVT3301	Avionics Systems II (13 B2)	2	2	2	8	3
	Total	**7**	**5**	**4**	**18**	**9**

Applied Bachelor in Aircraft Maintenance Management

1st Year

Fall Semester						
Course Code	**Course Title**	**LT**	**PT**	**TT**	**CH**	**CR**
MATH 100	Pre-calculus	4	0	1	5	4
PHYS111	Physics I	3	0	0	3	3
PHYS111P	Physics I Lab.	0	3	0	3	1
ICT110	Intro. to Programming & Prob Solving + Lab	2	2	0	4	3
ENGL 120	English Skills	3	0	0	3	0[6]
AMT101	W/S Practices/Orientation	2	4	0	6	2
HUM 110	Life-Long Learning Skills	3	0	0	3	3
	Total	**17**	**9**	**1**	**27**	**16**

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AVT210	Electrical Engineering I (3 B)	3	0	2	5	3
AVT210P	Electrical Engineering I (3 B) Lab.	0	3	1	4	1
HUM 111	Islamic Culture	3	0	0	3	3
ENGL 121	Academic English I	3	0	0	3	3
AMT114	Materials and Hardware (6 A)	2	2	1	5	3
AMT113	Maintenance Practices I (7 A)	2	3	2	7	3
	Total	**13**	**8**	**6**	**27**	**16**

Summer Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
ENGL 122	Academic English II	3	0	0	3	3
AVT211	Electrical Engineering II (3 B)	3	0	2	5	3
AVT211P	Electrical Engineering II (3 B) Lab.	0	3	1	4	1
	Total	**6**	**3**	**3**	**12**	**7**

2nd Year

Fall Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AVSC210	Human Factors (9 B)	3	0	1	4	3
AVN112	Electronics	2	2	1	5	3
AMT115	Basic Aerodynamics (8 A)	2	1	1	4	2
AMT117	Maintenance Practices II (7A)	2	3	2	7	3
AMT116	Aircraft Systems & Components I (11 A)	2	3	1	6	3
AMT223	Turbine Engines (15 A)	2	2	0	4	3
	Total	13	11	6	30	17

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AVSC220	Aviation Legislation (10 B)	3	0	2	5	3
AMT121	Maintenance Practices III (7 A)	1	6	0	7	3
AMT124	Maintenance Practices IV (7 A)	1	6	0	7	3
AVT123	Fund. Digital Techniques (5 A)	2	2	4	8	3
AMT221	Aircraft Systems & Components II (11 A)	3	3	0	6	4
AMT225	Propellers (17 A)	2	0	0	2	2
	Total	12	17	6	35	18

Summer Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AMT240	OJT / Internship	400				3
	Total	400				3

3rd and 4th Years Specilization Aeromechanic

3rd Year

Fall Semester						
Course Code	Course Title	LT	PT	TT	CH	**CR**
AMT211	Materials & Hardware I (6 B1)	2	3	0	5	3
AMT214	Aerodynamics (8 B1)	3	1	2	6	3
AMT215	Maintenance Practices I (7 B1)	2	3	2	7	3
AVT311	Electronic Communication Technology	2	3	0	5	3
AVT321	Digital Techniques I (5 B1)	2	3	1	6	3
AMT230	Aircraft Systems & Components I (11 B1)	3	1	2	6	3
	Total	**14**	**14**	**7**	**35**	**18**

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AMT222	Mat. & Hardware II (6 B1)	2	1	2	5	3
AMT217	Maintenance Practices II (7 B1)	2	3	2	7	3
AMT234	Air. Systems & Components II (11 B1)	3	1	4	8	3
AMT324	Turbine Engines (15 B1) with Lab.	2	3	3	8	3
AMT336	Propellers (17 B1)	2	1	1	4	2
HUM 112	Emirates Society and Culture	3	0	0	3	3
	Total	**16**	**9**	**10**	**35**	**17**

Summer Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
ENGL 211	Public English	1	0	6	7	1
AVSC225	Aviation Legislation -GCAA	3	0	2	5	3
HUM 402	Creativity, Innovation & Entrepreneurship	3	0	0	3	3
	Total	**7**	**0**	**8**	**15**	**7**

4th Year

Fall Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AMT403	Principle of Business for Engineers	3	0	0	3	3
AMT404	Aviation Maintenance Technology and Management	3	0	0	3	3
AMT405	Aircraft Structural Analysis	3	0	0	3	3
AMT420	Graduation Project – Part I	1	0	0	1	1
	Elective I	3	0	0	3	3
	Total	**13**	**0**	**0**	**13**	**13**

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AMT406	Inspection Procedures	3	0	0	3	3
AMT407	Aircraft Line, Base and Component Maintenance	3	0	0	3	3
AMT408	Aviation Inventory and Logistics	3	0	0	3	3
AMT420	Graduation Project – Part II	3	0	0	3	3
	Elective II	3	0	0	3	3
	Elective III	3	0	0	3	3
	Total	**18**	**0**	**0**	**18**	**18**

3rd and 4th Years Specilization Avionics

3rd Year

Fall Semester						
Course Code	Course Title	LT	PT	TT	CH	**CR**
AMT211	Materials & Hardware I (6 B1)	2	3	0	5	3
AMT214	Aerodynamics (8 B1)	3	1	2	6	3
AMT215	Maintenance Practices I (7 B1)	2	3	2	7	3
AVT311	Electronic Communication Technology	2	3	0	5	3
AVT321	Digital Techniques I (5 B1)	2	3	1	6	3
AVT327	Avionics Systems I (13 B2)	3	3	2	8	4
	Total	**13**	**16**	**8**	**37**	**19**

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	**CR**
AMT222	Mat. & Hardware II (6 B1)	2	1	2	5	3
AMT217	Maintenance Practices II (7 B1)	2	3	2	7	3
AVT333	Avionics Systems II (13 B2)	3	3	2	8	4
AVT326	Props and FADEC (14 B2)	3	1	0	4	3
HUM 112	Emirates Society and Culture	3	0	0	3	3
	Total	**12**	**8**	**5**	**25**	**16**

Summer Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
ENGL 211	Public English	1	0	6	7	1
AVSC225	Aviation Legislation -GCAA	3	0	2	5	3
HUM 402	Creativity, Innovation & Entrepreneurship	3	0	0	3	3
	Total	**7**	**0**	**8**	**15**	**7**

4th Year

Fall Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AVT401	Avionics and Instrumentation Systems Maintenance	3	0	0	3	3
AMT403	Principle of Business for Engineers	3	0	0	3	3
AMT404	Aviation Maintenance Technology and Management	3	0	0	3	3
AMT420	Graduation Project – Part I	3	0	0	3	3
	Elective I	3	0	0	3	3
	Total	**15**	**0**	**0**	**15**	**15**

Spring Semester						
Course Code	Course Title	LT	PT	TT	CH	CR
AMT406	Inspection Procedures	3	0	0	3	3
AMT407	Aircraft Line, Base and Components Maintenance	3	0	0	3	3
AMT408	Aviation Inventory and Logistics	3	0	0	3	3
AMT420	Graduation Project – Part II	1	0	0	1	1
	Elective II	3	0	0	3	3
	Elective III	3	0	0	3	3
	Total	**16**	**0**	**0**	**16**	**16**

18. Aircraft Engineering Technology

18.1 Introduction

Abu Dhabi Polytechnic offers a three-year program that 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 UAE Ministry of Education 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

Abu Dhabi Polytechnic admissions requirements fully apply to Aircraft Engineering Technology programs.

18.8 Curriculum

Degree Requirements	Total Credit Hours: 112 Credit Hours
ADPOLY General Requirements	24
Program Core Requirements	52
Compulsory Aeromechanical (B1.1)/Avionics(B2) Concentration	30
On-Job Training and Graduation Project	6

General Education Requirements				24 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
MATH1001	Precalculus	Admissions		3
ICT1001	Intro to Program & Problem Solving			3
ENGL 1001	English Skills	ILETS 5.0		0
ENGL 1011	Academic English I	ENGL 1001		3
ENGL 1012	Academic English II	ENGL 1011		3
HUM 1013	Arabic Communications			3
HUM 1011	Islamic Culture			3
HUM 1012	Emirates Society and Culture			3
ENGL 2011	Public Speaking	ENGL 1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1

Program Core Requirements				52 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PHYS1015	Physics I for Aviation	Admissions	PHYS1016	3
PHYS1016	Physics I Lab		PHYS1015	1
PHYS1017	Physics II for Aviation	PHYS1015		3
AVN1010	Electrical Engineering I	PHYS1015	AVN1011	3
AVN1011	Electrical Engineering I Lab		AVN1010	1
AVN1020	Electrical Engineering II	AVN1010	AVN1021	3
AVN1021	Electrical Engineering II lab		AVN1020	1
AVSC2010	Human Factors			3

AME2110	Advanced Materials and Hardware I	PHYS1015		2
AME2210	Advanced Materials and Hardware II	AME2110		2
AME2112	Advanced Aerodynamics	PHYS1015	AME2113	3
AME2113	Advanced Aerodynamics Lab		AME2112	1
AME2120	Advanced Maintenance Practices I		AME2121	3
AME2121	Advanced Maintenance Practices I Lab-OCT1/OCT2		AME2120	2
AME2122	Advanced Maintenance Practices II		AME2110	3
AME2212	Advanced Maintenance Practices III	AME2110 and AVN1010	AME2213	3
AME2213	Advanced Maintenance Practices III lab-OCT3		AME2212	1
AME2214	Advanced Maintenance Practices IV	AME2122	AME2215	3
AME2215	Advanced Maintenance Practices IV lab-OCT4/OCT5		AME2214	2
AME2310	Advanced Maintenance Practices V	AME2214	AME2311	3
AME2311	Advanced Maintenance Practices V lab-OCT6/OCT7		AME2310	2
AVSC2014	Aviation Legislation-EASA	ENGL 1012		2
AVSC2012	Aviation Legislation-GCAA	ENGL 1012		2

Compulsory Aeromechanical (B1.1) Concentration				**30 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
AVN2008	Electronics for B1	AVN1010	AVN2009	2
AVN2009	Electronics Lab for B1		AVN2008	1
AVN2018	Digital Techniques for B1	AVN2008	AVN2019	3
AVN2019	Digital Techniques lab for B1		AVN2018	1
AME3110	Turbine Engines I	AME2112		3
AME3210	Turbine Engines II	AME3110 and AVN2018	AME3211	2
AME3211	Turbine Engines II Lab-OCT8		AME3210	1
AME3212	Propellers	AME2112	AME3110	3
AME3120	Advanced A/C Systems &Components I-OCT9	AME2112		3
AME3122	Advanced A/C Systems &Components II-OCT10	PHYS1015		3
AME3220	Adv A/C Systems &Components III	AME3122	AME3221	3

AME3221	Advanced A/C Systems &Components III Lab-OCT11		AME3220	1
AME3224	Advanced A/C Systems &Components IV	AVN2008 and AVN2018	AME3225	3
AME3225	Advanced A/C Systems &Components IV Lab-OCT12		AME3224	1

Compulsory Avionics (B2) Concentration				**30 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
AVN2010	Electronics for B2	AVN1010	AVN2011	3
AVN2011	Electronics LAB for B2		AVN2010	1
AVN2020	Digital Techniques I for B2	AVN2010	AVN2021	3
AVN2021	Digital Techniques I lab for B2		AVN2020	1
AVN2022	Digital Techniques II for B2	AVN2020	AVN2023	3
AVN2023	Digital Techniques II Lab for B2		AVN2022	1
AVN3110	Avionics Systems I	AME2112	AVN3111	3
AVN3111	Avionics Systems I Lab-OCT8		AVN3110	1
AVN3112	Avionics Systems II	AVN2022	AVN3113	3
AVN3113	Avionics Systems II Lab-OCT9		AVN3112	1
AVN3210	Avionics Systems III	AVN3112	AVN3211	3
AVN3211	Avionics Systems III Lab OCT10		AVN3210	1
AVN3212	Avionics Systems IV	AVN3112	AVN3213	3
AVN3213	Avionics Systems IV Lab OCT11		AVN3212	1
AVN3010	Propulsion and FADEC-OCT12	AME2112 and AVN2022		2

18.9 Study Plan

Aeromechanical - 1st Year (Freshman)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	MATH 1001	Precalculus	3	Admissions
	PHYS1015	Physics I for Aviation	3	Admissions
	PHYS1016	Physics I Lab. For Aviation	1	
	ICT1011	Introd. to Progr. & Probl. Solving	3	
	ENGL 1001	English Skills	0	ILETS 5.0
	HUM 1013	Arabic Communications (W.B.)	3	
	HUM 1012	Emirates Society & Culture	3	
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	ENGL 1011	Academic English I	3	ENGL 1001
	PHYS1017	Physics II for Aviation	3	PHYS1015
	AVN1010	Electrical Engineering I	3	PHYS1015
	AVN1011	Electrical Engineering I Lab	1	
	AVSC2010	Human Factors	3	
	HUM 1011	Islamic Culture	3	
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	ENGL 1012	Academic English II	3	ENGL 1011
	AVN1020	Electrical Engineering II	3	AVN1010
	AVN1021	Electrical Engineering II Lab	1	
		Total Credit Hours	**7**	

Aeromechanical - 2nd Year Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	AME2110	Adv. Materials & Hardware I	2	PHYS1015
	AME2112	Adv. Aerodynamics	3	PHYS1015
	AME2113	Adv. Aerodynamics Lab	1	
	AME2120	Adv. Maint. Prac. I	3	
	AME2121	Adv. Maint. Prac. I Lab	2	
	AME2122	Adv. Maint. Prac. II	3	
	AVN2008	Electronics for B1	2	AVN1010
	AVN2009	Electronics Lab for B1	1	
		Total Credit Hours	**17**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	AME2210	Adv. Materials & Hardware II	2	AME2110
	AME2212	Adv. Maint. Prac. III	3	AME2110 and AVN1010
	AME2213	Adv. Maint. Prac. III Lab	1	
	AVSC2014	Aviation Legislation-EASA	2	ENGL 1012
	AME2214	Adv. Maint. Prac. IV	3	AME2122
	AME2215	Adv. Maint. Prac. IV Lab.	2	
	AVN2018	Digital Techniques for B1	3	AVN2008
	AVN2019	Digital Tech Lab for B1	1	
		Total Credit Hours	**17**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	AME3120	Adv.AC Systems and Comp I	3	AME2112
	ENGL 2012	Literature Review	1	ENGL 1012
		Total Credit Hours	**4**	

Aeromechanical - 3rd Year (Junior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	AME2310	Adv. Maint. Pract. V	3	AME2214
	AME2311	Adv. Maint. Pract. V Lab	2	
	AME3110	Gas Turbine Engines I (15B1)	3	AME2112
	AME3122	Adv. A/C Systems & Components II (11B1)	3	PHYS1015
	ENGL 2013	Report Writing	1	ENGL 1012
	AME3212	Propellers (17B1)	3	AME2112
	ENGL 2011	Public Speaking	1	ENGL 1012
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 2	AME3220	Adv. A/C Systems & Components III (11B1)	3	AME3122
	AME3221	Adv. A/C Systems & Components III Lab. (11B1)	1	
	AME3224	Adv. A/C Systems & Components IV (11B1)	3	AVN2008, AVN2018
	AME3225	Adv. A/C Systems & Components IV Lab. (11B1)	1	
	AME3210	Gas Turbine Engines II (15B1)	2	AME3110 and AVN2018
	AME3211	Gas Turbine Engines II Lab. (15B1)	1	
	AVSC2012	Aviation Legislation-GCAA	2	ENGL 1012
	AME3080	Capstone Project	3	90 credit hours/HOD approval
		Total Credit Hours	**16**	
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	AME4099	OJT / Internship	3	AME3080
		Total Credit Hours	**3**	

Avionics - 1st Year (Freshman)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	MATH 1001	Precalculus	3	Admissions
	PHYS1015	Physics I for Aviation	3	Admissions
	PHYS1016	Physics I Lab. For Aviation	1	
	ICT1001	Introd. to Progr. & Probl. Solving	3	

	ENGL 1001	English Skills	0	ILETS 5.0
	HUM 1013	Arabic Communications (W.B.)	3	
	HUM 1012	Emirates Society & Culture	3	
		Total Credit Hours	**16**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ENGL 1011	Academic English I	3	ENGL 1001
	PHYS1017	Physics II for Aviation	3	PHYS1015
	AVN1010	Electrical Engineering I	3	PHYS1015
	AVN1011	Electrical Engineering I Lab.	1	
	AVSC2010	Human Factors	3	
	HUM 1011	Islamic Culture	3	
		Total Credit Hours	**16**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ENGL 1012	Academic English II	3	ENGL 1011
	AVN1020	Electrical Engineering II	3	AVN1010
	AVN1021	Electrical Engineering II Lab	1	
		Total Credit Hours	**7**	

Avionics - 2nd Year (Sophomore)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME2110	Adv. Materials & Hardware I	2	PHYS1015
	AME2112	Adv. Aerodynamics	3	PHYS1015
	AME2113	Adv. Aerodynamics Lab	1	
	AME2120	Adv. Maint. Prac. I	3	
	AME2121	Adv. Maint. Prac. I Lab	2	
	AME2122	Adv. Maint. Prac. II	3	
	AVN2010	Electronics for B2	3	AVN1010
	AVN2011	Electronics for B2 Lab	1	
		Total Credit Hours	**18**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME2210	Adv. Materials & Hardware II	2	AME2110

	AME2212	Adv. Maint. Prac. III	3	AME2110 and AVN1010
	AME2213	Adv. Maint. Prac. III Lab	1	
	AME2214	Adv. Maint. Prac. IV	3	AME2122
	AME2215	Adv. Maint. Prac. IV Lab	2	
	AVN2020	Digital Tech I for B2	3	AVN2010
	AVN2021	Digital Tech I Lab for B2	1	
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ENGL2012	Literature Review	1	ENGL 1012
	AVN2022	Digital Tech II for B2	3	AVN2020
	AVN2023	Digital Tech II Lab for B2	1	
		Total Credit Hours	**5**	

Avionics - 3rd Year (Junior)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AME2310	Adv. Maint. Pract. V	3	AME2214
	AME2311	Adv. Maint. Pract. V Lab	2	
	AVN3110	Avionics Systems I	3	AME2112
	AVN3111	Avionics Systems I Lab	1	
	ENGL 2013	Report Writing	1	ENGL 1012
	AVN3112	Avionics Systems II	3	AVN2022
	AVN3113	Avionics Systems II Lab	1	
	AVN3010	Propulsion and FADEC	2	AME2112 and AVN2022
		Total Credit Hours	**16**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVN3210	Avionics Systems III	3	AVN3112
	AVN3211	Avionics Systems III Lab	1	
	AVN3212	Avionics Systems IV	3	AVN3112

	AVN3213	Avionics Systems IV Lab	1	
	AVSC2012	Aviation Legislation-GCAA	2	ENGL 1012
	ENGL 2011	Public Speaking	1	ENGL 1012
	AVSC2014	Aviation Legislation-EASA	2	ENGL 1012
	AVN3080	Capstone Project	3	90 credit hours/HOD approval
		Total Credit Hours	**16**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	AVN4099	OJT / Internship	3	AVN3080
		Total Credit Hours	**3**	

19. 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. A320 flight simulator
2. Falcon 20
3. Dornier 228 Turbo-Prop
4. Beechcraft
5. King Air C90
6. Bell Jet Ranger Helicopter
7. Supporting Ground Power Units and Ground Equipment
8. Aermacchi MB 326
9. Appropriate for training are the following fully equipped laboratories:
    - Graduation Projects Workshop
    - Aircraft Materials and Hardware Workshop
    - Aerotrain Simulator Room
    - Welding Simulation Room
    - Gas Turbine Engine Laboratory
    - Turbine FADEC Laboratory

- Tools, Consumables and Equipment Store
- Gas Turbine Engine Assembly and Disassembly Laboratory
- Composite Workshop (GRP)
- Physics Laboratory (2)
- Emirates / WorldSkills Training Room
- Wood Works Laboratory
- Sheet Metal and Fabrication Workshop (2)
- Avionics Systems Laboratory
- Electric Motors and Generators Laboratory
- Electrical Wiring and Installation Systems Laboratory
- Electronics & Electrical Laboratory (2)
- Digital Techniques, Electrical and Electronic Laboratory (2)
- Flight Simulator Room
- A320 Flight Simulator Laboratory
- Aircraft Painting Workshop

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.

20. Aircraft Engineering/Maintenance Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Munir Elfarra	Head of Department & Associate Professor	PhD	Middle East Technical University
Beshara Ibrahim Sholy	Accountable Manager EASA/GCAA	PhD	Saint Louis University
Thomas Otto Neumann	Training Manager & Principal Instructor	Cert, B2 Avionics Engineer	German airworthiness authority Braunschweig
Valentina Gargalic	Quality Manager	PhD	Sofia University
Murad Al Shibli	Professor	PhD	Concordia University
Ali Omar Abu Odeh	Assistant Professor	PhD	University Malaysia Perlis
Sheharyar Malik	Assistant Professor	PhD	Politecnico di Milano, Italy
Gorkem Yalin	Assistant Professor	PhD	Eskisehir Technical University
Shawkat Salameh Gasaymeh	Assistant Professor	PhD	National University of Malaysia
Yaser Kamal Hassan Omar Abdelwahab	Senior Instructor	PhD	Port Said University, Egypt
Lakshan Pandula Athukorala Arachchige	Senior instructor	Master	Coventry University
Joshua Muli Kitetu	Senior instructor	Master	Cranfield University
Ali Khalid	Examination Manager & Instructor	Master	University of Sheffield
Muhaira Saeed Musabbeh Saeed Aleghfeli	Instructor, Aircraft Maintenance	Master	Masdar Institute of Science and Technology
Ferdinand Mhory	Instructor	Bachelor	Philippine State College of Aeronautics
Jamila Al Breiki	Instructor	Bachelor	United Arab Emirates University
Prince Ardie Diego	Instructor	Bachelor/ PGCert	Philippine State College of Aeronautics
Noura Almansoori	Teaching Assistant	Bachelor	United Arab Emirates University
Sibin Alex	Lab Specialist AET	Master	Middlesex University Dubai
Ahmed Said Mohamed El Ghonimy	Lab Specialist AMT	Bachelor	Institute of Aviation Engineering Technology
Ali Abdel Aziz Mohammad Al Rjoub	Lab specialist AMT	Bachelor	Al Balqa Applied University
Anjani Kumar Singh	Lab Specialist AMT	Bachelor	Pune University
Jasper Abiada Caparangca	Lab Specialist AET	Bachelor	Airlink International Aviation College

Faculty Name	Position	Highest Degree	Conferring Institution
Robin Rajan	Lab Specialist AMT	Bachelor	Singhaniya University
Wilson Ordonez	Lab Specialist AMT	Bachelor	Philippine State College of Aeronautics.
Nainesh Kumar Rasiklal Shah	Lab Specialist AET	Diploma	Board of Technical Examinations, Mumbai

21. Description of Programs offered at Abu Dhabi Campus

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

- Applied Bachelor in Electromechanical Engineering Technology
- Applied Bachelor in Information Security Engineering Technology
- Applied Bachelor in Petroleum Engineering Technology
- 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 ADPoly 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. Concentrations vary depending on program as given below.

The Petroleum Engineering Technology program includes the following three concentrations:

- Oil and Gas Process Engineering Technology
- Petroleum Engineering Technology
- Chemical Engineering Technology

The Meteorology Program delivers a Bachelor of Science in Meteorology but has the option to award Diploma and Higher Diploma qualifications as early exits from the bachelor program.

22. Electro-Mechanical Systems Engineering Technology

22.1 Introduction

The Electro-Mechanical Systems Engineering Technology (EMSET) Program at ADPoly aims to provide candidates with the knowledge and the hands-on skills of four multi-disciplinary concentrations:

- Electrical Engineering Technology
- Intelligent Systems Engineering Technology
- Mechanical Engineering Technology
- Smart Manufacturing Engineering Technology

The department offers a CAA-accredited Applied Bachelor in Electromechanical Systems Engineering Technology (AB-EMSET) degree in the aforementioned four concentrations. 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 is more than 40,000 positions for engineers and technicians whereas the current output of graduate engineers by all national universities and institutes does not exceed 5,000. ADPoly's Electro-Mechanical Systems Engineering Technology program graduates will learn how to support the engineering activities of a diverse range of industries that rely increasingly on Electro-Mechanical Systems Engineering Technology in order to maintain a competitive edge in the global economy.

EMSET coursework reflects real-world demands through technical studies merged with 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 EMSET program would be enhanced through real-world gradation projects. Moreover, effective tools embedded to complement EMSET technical educational program would include effective communications, problem-solving and interpersonal skills that add value to any team.

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

EMSET graduates will develop skills in industrial automation, robotics, control systems, machining, CAD/CAM, hydraulics, pneumatics, process control, safety, mechatronics systems, programmable logic controllers, electronics, electrical machines, instrumentation, and computer-control methods.

The EMSET 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.

22.1.1 Minor in Artificial Intelligence Option

In order to prepare students for the digital economy as the world gears towards a Fourth Industrial Revolution (4IR), all students in the EMSET programs will be equipped with knowledge in artificial intelligence (AI). This is achieved through the incorporation of various AI topics throughout the course curricula, regardless of the chosen program. Students could also acquire deeper knowledge in AI through taking up an additional 12 credit hours (four courses) for an AI Minor in either Electrical Engineering Technology or Mechanical Engineering Technology.

22.2 Program Accreditation and Delivery

All EMSET programs are nationally accredited by the Commission for Academic Accreditation at the

UAE's Ministry of Education. The Diploma and Applied Bachelor in Electro-Mechanical Systems Engineering Technology is accredited by the Engineering Technology Accreditation Commission of ABET, hpps://www.abet.org.

Applied Bachelors in Electro-Mechanical Systems Engineering Technology

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

22.3 Program Mission

EMSET'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

22.4 Program Educational Objectives

Applied Bachelor in Electro-Mechanical Systems Engineering Technology Program Educational Objectives

The Program Educational Objectives are the following:

- PEO1: 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.
- PEO2: 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.
- PEO3: 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.
- PEO4: 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
- PEO5: 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.

22.5 Student Outcomes

Applied Bachelor in Electromechanical Systems Engineering Technology Student Outcomes

The Student Outcomes are taken verbatim from the ABET (Accreditation Board for Engineering and Technology, Inc.) 2022-2023 Student Outcomes 1 through 5 for baccalaureate degree programs:

- SO1: an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;
- SO2: an ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline;

- SO3: an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
- SO4: an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;
- SO5: an ability to function effectively as a member as well as a leader on technical teams; and,
- SO6: an ability to apply innovation and entrepreneurship skills to broadly defined engineering applications.

22.6 Program Entry Requirements

Abu Dhabi Polytechnic admissions requirements fully apply to EMSET program.

22.7 Curriculum Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Electrical Engineering Technology

Degree Requirements	Total Credit Hours: 142 Credit Hours (154 with AI Minor)
General Education Requirements	30
Program-based General Education courses	23
Program Major Requirements (compulsory)	86
Program Minor Requirements (optional)	12
Program Electives	3

General Education Requirements				30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communications Skills			3
HUM3011	Creativity, Innovation & Entrepreneurship	ENGL1012		3
ICT1011	Introduction to Programming & Problem Solving			3
MATH1001	Precalculus			3
MATH1010	Calculus I	MATH1001		3

Program-based General Education courses				23 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I		CHEM1012	3
CHEM1012	Chemistry I Lab		CHEM1011	1
EMET2001	Health Safety and Environment	ENGL1012		2
EMET3001	Engineering Design & Project Planning	ENG1002, ENGL2012		2
EMET4001	Business Startup and Management	EMET3001		2
ENG1002	Engineering Drawing			2
ENG1003	Mech. Workshop			1
MATH1020	Calculus II	MATH1010		3
MATH2015	Applied Mathematics	MATH1020		3
PHYS1011	Physics I			3
PHYS1012	Physics Lab		PHYS1011	1

Program Major Requirements (compulsory)				83 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEE1001	Electric Circuits I	PHYS1011, MATH1001		3
EMEE2090	PCB OCT	EMEE1001, EMEE2205		1
EMEE2091	PLC OCT	EMEE2101		1
EMEE2092	AC and DC Machines OCT	EMEE2102, EMEE2203		1
EMEE2093	Electrical Circuits Simulation OCT	EMEE2102, EMEE2205		1
EMEE2101	Digital Logic Design	EMEE1001		3
EMEE2102	Electric Circuits II	EMEE1001		3
EMEE2203	Electrical Machines	EMEE1001	EMEE2204	2
EMEE2204	Electrical Machines Lab		EMEE2203	1
EMEE2205	Electronic Devices I	EMEE1001		3
EMEE2206	Introduction to Power Systems	EMEE2102		3
EMEE3090	Power Systems Operation and Control OCT	EMEE2206, EMET3203		1
EMEE3091	Switchgear and Protection Sys OCT	EMEE3203		1
EMEE3092	Electrical Installation Design OCT	EMEE2206		1
EMEE3093	Electronic Applications OCT	EMEE3204		1

EMEE3101	Power Electronics	EMEE2205, MATH1020		3
EMEE3102	Signal and Systems	MATH1020, EMEE2102		3
EMEE3203	Power Transmission	EMEE3101, EMEE2206		3
EMEE3204	Electronic Devices II	EMEE3101		3
EMEE4101	Communication Systems	EMEE3102		3
EMEE4102	Power Systems Protection	EMEE2206		3
EMEE4203	Motor Drives and Control	EMEE3101		3
EMEE4204	Renewable Energy Systems	EMEE4102 or EMME4102		3
EMIS2003	Control System Technologies	EMIS2102		3
EMIS2005	Intro to Programming: C++	ICT1011		2
EMIS2090	Instrumentation & Process Control OCT	EMIS2003, EMEE2091		1
EMIS2092	SCADA Systems OCT	EMIS2003, EMEE2091		1
EMIS2093	Embedded Systems Programming OCT	EMIS2005		1
EMIS3092	Mobile Robotics Systems OCT	EMIS2102, EMIS2005		1
EMIS2101	Introduction to Artificial Intelligent Systems	ICT1011, MATH1001		3
EMIS2102	Introduction to Mechatronics	ICT1011, EMEE1001		3
EMIS2204	Pneumatics and Hydraulics Systems	ENG1002, EMEE1001		3
EMME1001	Statics	PHYS1011, MATH1001		3
EMME3005	Applied Industrial Maintenance	EMEE2092 or EMME2091 or EMMF2092		3
EMET4090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
EMET4095	Graduation Project II	EMET4090		3
EMET4099	On-the-Job Training	Department Approval		6

Program AI Minor (optional)				12 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
EMIS3101	Intro to Applied Machine Learning	EMIS2101		3
EMIS3202	Intro to Computational Intelligence	EMIS2101		3
EMIS4101	Intelligent System Design	EMIS3202		3
EMIS4103	Applied Robotics Systems	EMIS2003, MATH2015		3

Program Electives				3 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
CHEM4011	Environmental Science & Analyses	CHEM1011		3
EMEE4205	Digital Control Systems	EMIS2003, MATH2015		3
EMIS3101	Intro to Applied Machine Learning	EMIS2101		3
EMIS4204	Special Electrical Machines	EMEE2203		3
EMIS4206	Integrated Automation	EMIS2003, MATH2015		3

22.8 Study Plan Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Electrical Engineering Technology

1st Year (Freshman)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PHYS1011	Physics I	3		
	PHYS1012	Physics Lab	1		PHYS1011
	HUM1013	Arabic Comm Skills	3		
	ENG1003	Mech. Workshop	1		
	ICT1011	Intro to Programming and Prob. Solv.	3		
	ENGL1011	Academic English I	3	IELTS =5.5 or EmSAT=1100 or ENGL1001	
	MATH1001	Precalculus	3		
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	EMME1001	Electric Circuits I	3	PHYS1011, MATH1001	
	HUM1011	Islamic Culture	3		
	ENGL1012	Academic English II	3	ENGL1011	
	MATH1010	Calculus I	3	MATH1001	
		Total Credit Hours	**16**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMME1001	Statics	3	PHYS1011, MATH1001	
	MATH1020	Calculus II	3	MATH1010	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG1002	Engineering Drawing	2		
	EMIS2101	Introduction to Artificial Intelligent Systems	3	ICT1011, MATH1001	
	EMIS2102	Introduction to Mechatronics	3	ICT1011, EMEE1001	
	EMET2001	Health Safety and Environment	2	ENGL1012	
	EMEE2101	Digital Logic Design	3	EMEE1001	
	EMEE2102	Electrical Circuit II	3	EMEE1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMIS2003	Control System Tech	3	EMIS2102	
	EMEE2203	Electrical Machines	2	EMEE1001	EMEE2204
	EMEE2204	Electrical Machines Lab	1		EMEE2203
	EMEE2205	Electronic Devices I	3	EMEE1001	
	EMIS2204	Pneumatics and Hydraulics Systems	3	ENG1002, EMEE1001	
	EMIS2005	Intro to Programming C++	2	ICT1011	
	EMEE2206	Intro to Power Systems	3	EMEE2102	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS2090	Instrumentation & Process Control OCT	1	EMIS2003, EMEE2091	
	EMIS2092	SCADA OCT	1	EMIS2003, EMEE2091	
	EMEE2090	PCB OCT	1	EMEE1001, EMEE2205	
	EMEE2091	PLC OCT	1	EMEE2101	
	EMEE2092	AC and DC Machines OCT	1	EMEE2102, EMEE2203	
	EMEE2093	Electrical Circuits Sim OCT	1	EMEE2102, EMEE2205	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMEE3101	Power Electronics	3	EMEE2205, MATH1020	
	EMEE3102	Signal and Systems	3	MATH1020, EMEE2102	
	MATH2015	Applied Mathematics	3	MATH1020	
	EMME3005	Applied Industrial Maintenance	3	EMEE2092 or EMME2091 or EMMF2092	
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
	EMIS3101	Intro to Applied Machine Learning	3	EMIS2101	
		Total Credit Hours	**15 (18 with AI Minor)**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET3203	Power Transmission	3	EMEE2206, EMEE3101	
	EMEE3204	Electronic Devices II	3	EMEE3101	
	EMET3001	Engineering Design & Project Planning	2	ENG1002, ENGL2012	
	EMIS3202	Intro to Computational Intelligence	3	EMIS2101	
	HUM1012	Emirates Society and Culture	3		
		Total Credit Hours	**11 (14 with AI Minor)**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE3090	Power Systems Operation and Control OCT	1	EMEE2206, EMET3203	
	EMEE3091	Switchgear and Protection Systems OCT	1	EMEE3203	
	EMEE3092	Electrical Installation Design OCT	1	EMEE2206	
	EMEE3093	Electronic Applications OCT	1	EMEE3204	
	EMIS2093	Embedded Systems Programming OCT	1	EMIS2005, EMIS2102	
	EMIS3092	Mobile Robotics Systems OCT	1	EMIS2102, EMIS2005	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
	EMEE4101	Communication Systems	3	EMEE3102	
	EMEE4102	Power Systems Protection	3	EMEE2206	
	EMIS4101	Intelligent System Design	3	EMIS3101, MATH2015	
		Total Credit Hours	**12 (15 with AI Minor)**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMEE4203	Motor Drives and Control	3	EMEE3101	
	EMEE4204	Renewable Energy Systems	3	EMEE4102 or EMME4102	
	EMET4001	Business Startup and Management	2	EMET3001	
	EMET4095	Graduation Project II	3	EMET4090	
	XXXXXXXX	Technical Elective	3	TBD	
	EMIS4103	Applied Robotics Systems	3	EMIS2003, MATH2015	
		Total Credit Hours	**14 (17 with AI Minor)**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4099	On-the-Job Training	6	Department Approval	
		Total Credit Hours	**6**		

22.9 Curriculum Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Intelligent Systems

Degree Requirements	Total Credit Hours: 142
General Education Requirements	30
Program-based General Education courses	23
Program Major Requirements (compulsory)	86
Program Minor Requirements	0
Program Electives	3

General Education Requirements				30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communications Skills			3
HUM3011	Creativity, Innovation & Entrepreneurship	ENGL1012		3
ICT1011	Introduction to Programming & Problem Solving			3
MATH1001	Precalculus			3
MATH1010	Calculus I	MATH1001		3

Program-based General Education courses				23 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I		CHEM1012	3
CHEM1012	Chemistry I Lab		CHEM1011	1
EMET2001	Health Safety and Environment	ENGL1012		2
EMET3001	Engineering Design & Project Planning	ENG1002, ENGL2012		2
EMET4001	Business Startup and Management	EMET3001		2

ENG1002	Engineering Drawing			2
ENG1003	Mech. Workshop			1
MATH1020	Calculus II	MATH1010		3
MATH2015	Applied Mathematics	MATH1020		3
PHYS1011	Physics I			3
PHYS1012	Physics Lab		PHYS1011	1

Program Major Requirements (compulsory)				**86 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEE1001	Electric Circuits I	PHYS1011, MATH1001		3
EMEE2091	PLC OCT	EMEE2101		1
EMEE2101	Digital Logic Design	EMME1001		3
EMEE2203	Electrical Machines	EMEE1001	EMEE2204	2
EMEE2204	Electrical Machines Lab		EMEE2203	1
EMEE2205	Electronic Devices I	EMEE1001		3
EMIS2003	Control System Technologies	EMIS2102		3
EMIS2005	Intro to Programming: C++	ICT1011		2
EMIS2090	Instrumentation & Process Control OCT	EMIS2003		1
EMIS2091	Pneumatics and Hydraulics Systems OCT	EMIS2204		1
EMIS2092	SCADA OCT	EMIS2003, EMEE2091		3
EMIS2093	Embedded Systems Programming OCT	EMIS2005		1
EMIS2101	Introduction to Artificial Intelligent Systems	ICT1011, MATH1001		3
EMIS2102	Introduction to Mechatronics	ICT1011, EMEE1001		3
EMIS2204	Pneumatics and Hydraulics Systems	ENG1002, EMEE1001		3
EMIS2206	Data structure and algorithms	EMIS2005, EMIS2101		3
EMIS3090	Advanced Computational Programming OCT	EMIS3101		1
EMIS3091	Systems Modeling & Simulation OCT	EMIS2005, EMME3203		1
EMIS3092	Mobile Robotics Systems OCT	EMIS2102, EMIS2005		1
EMIS3093	Mechatronics Systems OCT	EMIS2003, EMIS2204, EMEE2091		1
EMIS3094	Autonomous Systems OCT	EMIS2093		1
EMIS3095	Payload System Design OCT	EMME3203		1
EMIS3101	Intro to Applied Machine Learning	EMIS2101		3

EMIS3202	intro to Computational Intelligence	EMIS2101		3
EMIS4101	Intelligent Systems Design	EMIS3101, MATH2015		3
EMIS4102	Applied Computer Vision	EMIS3101		3
EMIS4103	Applied Robotics Systems	EMIS2003, MATH2015		3
EMIS4204	Special Electrical Machines	EMEE2203, EMEE2204, MATH2015		3
EMIS4205	Multi-Agent Systems	EMIS3101, MATH2015		3
EMME1001	Statics	PHYS1011, MATH1001		3
EMME3101	Dynamics	EMME1001, MATH1020		3
EMME3203	Kinematics of Machinery	EMME3101		3
EMMF2090	3D Printing Technologies OCT	ENG1002		1
ENG2013	Fluid Flow & Heat Transfer	MATH1010, CHEM1011		3
EMET4090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
EMET4095	Graduation Project II	EMET4090		3
EMET4099	On-the-Job Training	Department Approval		6

Program Electives				**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
CHEM4011	Environmental Science & Analyses	CHEM1011		3
EMEE4205	Digital Control Systems	EMIS2003, MATH2015		3
EMIS4206	Integrated Automation	EMIS2003, MATH2015		3

22.10 Study Plan Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Intelligent Systems

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS1011	Physics I	3		
	PHYS1012	Physics Lab	1		PHYS1011
	HUM1013	Arabic Comm Skills	3		
	ENG1003	Mech. Workshop	1		
	ICT1011	Intro to Programming and Problem Solving	3		
	ENGL1011	Academic English I	3	IELTS =5.5 or EmSAT=1100 or ENGL1001	
	MATH1001	Precalculus	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	EMEE1001	Electric Circuits I	3	PHYS1011, MATH1001	
	ENGL1012	Academic English II	3	ENGL1011	
	HUM1011	Islamic Culture	3		
	MATH1010	Calculus I	3	MATH1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMME1001	Statics	3	PHYS1011, MATH1001	
	MATH1020	Calculus II	3	MATH1010	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG1002	Engineering Drawings	2		
	ENG2013	Fluid Flow & Heat Transfer	3	MATH1010, CHEM1011	
	EMET2001	Health Safety and Environment	2	ENGL1012	
	EMIS2101	Introduction to Artificial Intelligent Systems	3	ICT1011, MATH1001	
	EMIS2102	Intro to Mechatronics	3	ICT1011, EMEE1001	
	EMEE2101	Digital Logic Design	3	EMEE1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMIS2003	Control System Tech	3	EMIS2102	
	EMEE2203	Electrical Machines	2	EMEE1001	EMEE2204
	EMEE2204	Electrical Machines Lab	1		EMEE2203
	EMIS2204	Pneumatics and Hydraulics Systems	3	ENG1002, EMEE1001	
	EMIS2005	Intro to Programming: C++	2	ICT1011	
	EMEE2205	Electronic Devices I	3	EMEE1001	
	EMIS-2206	Data structure and algorithms	3	EMIS2005, EMIS2101	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS2090	Instrumentation & Process Control OCT	1	EMIS2003, EMEE2091	
	EMIS2091	Pneumatics and Hydraulics Systems OCT	1	EMIS2004	
	EMIS2092	SCADA OCT	1	EMIS2003, EMEE2091	
	EMIS2093	Embedded Systems Programming OCT	1	EMIS2005	
	EMMF2090	3D Printing Technologies OCT	1	ENG1002	
	EMEE2091	Program Logic Control OCT	1	EMEE2101	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	EMIS3101	Intro to Applied Machine Learning	3	EMIS2101	
	MATH2015	Applied Mathematics	3	MATH1020	
	EMME3101	Dynamics	3	EMME1001, MATH1020	
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
		Total Credit Hours	**12**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMME3203	Kinematics of Machinery	3	EMME3101	
	EMIS3202	intro to Computational Intelligence	3	EMIS2101	
	EMET3001	Engineering Design & Project Planning	2	ENG1002, ENGL2012	
	HUM1012	Emirates Society & Culture	3		
		Total Credit Hours	**11**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS3090	Advanced Computational Programming OCT	1	EMIS3101	
	EMIS3091	Systems Modeling & Simulation OCT	1	EMIS2005, EMME3203	
	EMIS3092	Mobile Robotics Systems OCT	1	EMIS2102, EMIS2005	
	EMIS3093	Mechatronics Systems OCT	1	EMIS2003, EMIS2204, EMEE2091	
	EMIS3094	Autonomous Systems OCT	1	EMIS2093	
	EMIS3095	Payload System Design OCT	1	EMME3203	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
	EMIS4101	Intelligent Systems Design	3	EMIS3101, MATH2015	
	EMIS4102	Applied Computer Vision	3	EMIS3101	
	EMIS4103	Applied Robotics Systems	3	EMIS2003, MATH2015	
	EMET4090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
		Total Credit Hours	**15**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMIS4204	Special Electrical Machines	3	EMEE2203, EMEE2204, MATH2015	
	EMET4095	Graduation Project II	3	EMET4090	
	EMET4001	Business Startup and Management	2	EMET3001	
	EMIS4205	Multi-Agent Systems	3	EMIS3101, MATH2015	
	XXXXXXXX	Technical Elective	3	TBD	
		Total Credit Hours	**12**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4099	On-the-Job Training	6	Department Approval	
		Total Credit Hours	**6**		

22.11 Curriculum Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Mechanical Engineering Technology

Degree Requirements	Total Credit Hours: 142 Credit Hours (154 with AI Minor)
General Education Requirements	30
Program-based General Education courses	23
Program Major Requirements (compulsory)	86
Program Minor Requirements (optional)	12
Program Electives	3

General Education Requirements				30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communications Skills			3
HUM3011	Creativity, Innovation & Entrepreneurship	ENGL1012		3
ICT1011	Introduction to Programming & Problem Solving			3
MATH1001	Precalculus			3
MATH1010	Calculus I	MATH1001		3

Program-based General Education courses				23 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I		CHEM1012	3
CHEM1012	Chemistry I Lab		CHEM1011	1
EMET2001	Health Safety and Environment	ENGL1012		2
EMET3001	Engineering Design & Project Planning	ENG1002, ENGL2012		2
EMET4001	Business Startup and Management	EMET3001		2
ENG1002	Engineering Drawing			2
ENG1003	Mech. Workshop			1
MATH1020	Calculus II	MATH1010		3
MATH2015	Applied Mathematics	MATH1020		3
PHYS1011	Physics I			3
PHYS1012	Physics Lab		PHYS1011	1

Program Major Requirements (compulsory)				86 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
EMEE1001	Electric Circuits I	PHYS1011, MATH1001		3
EMEE2203	Electrical Machines	EMEE1001	EMEE2204	2
EMEE2204	Electrical Machines Lab		EMEE2203	1
EMIS2003	Control System Technologies	EMIS2102		3
EMIS2005	Intro to Programming: C++	ICT1011		2
EMIS2090	Instrumentation & Process Control OCT	EMIS2003, EMEE2091		1
EMIS2091	Pneumatics and Hydraulics Systems OCT	EMIS2204		1
EMIS2101	Introduction to Artificial Intelligent Systems	ICT1011, MATH1001		3
EMIS2102	Introduction to Mechatronics	ICT1011, EMEE1001		3
EMIS2204	Pneumatics and Hydraulics Systems	ENG1002, EMEE1001		3
EMIS3091	Systems Modeling & Simulation OCT	EMIS2005, EMME3203		1
EMIS3095	Payload System Design OCT	EMME3203		1

EMME1001	Statics	PHYS1011, MATH1001		3
EMME2090	Thermo-Fluid OCT	EMME2102, EMME2201		1
EMME2091	Pump and Compressors OCT	EMME2102		1
EMME2101	Materials Science	CHEM1011		3
EMME2102	Fluid Mechanics	EMME1001		3
EMME2201	Engineering Thermodynamics	MATH1001, PHYS1011, CHEM1011		3
EMME3005	Applied Industrial Maintenance	EMEE2092 or EMME2091 or EMMF2092		3
EMME3090	Automobile Body - Interior OCT	EMME3005		1
EMME3091	Automobile Body - Exterior OCT	EMME3005		1
EMME3092	Automobile Engine OCT	EMME3005		1
EMME3101	Dynamics	EMME1001, MATH1020		3
EMME3102	Strength of Materials	EMME2101, MATH1020		3
EMME3203	Kinematics of Machinery	EMME3101		3
EMME3204	Machine Design I	EMME3102		3
EMME4101	Heat Transfer	EMME2201, EMME2102, MATH2015		3
EMME4102	Thermodynamics II	EMME2201, MATH2015		3
EMME4203	Machine Design II	EMME3204		3
EMME4204	HVAC System Design	EMME4101, EMME2102		3
EMMF2090	3D Printing Technologies OCT	ENG1002		1
EMMF2091	CAD/CAM Technologies OCT	MATH1001, ENG1002		1
EMMF2092	FabLab Technologies OCT	EMMF2201, ENG1002, ENG1003		1
EMMF2201	Manufacturing Processes	EMME2101, ENG1002, ENG1003		3
EMET4090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3

EMET4095	Graduation Project II	EMET4090		3
EMET4099	On-the-Job Training	Department Approval		6

Program AI Minor (optional)				**12 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
EMIS3101	Intro to Applied Machine Learning	EMIS2101		3
EMIS3202	Intro to Computational Intelligence	EMIS2101		3
EMIS4101	Intelligent System Design	EMIS3101, MATH2015		3
EMIS4103	Applied Robotics Systems	EMIS2003, MATH2015		3

Program Electives				**3 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
CHEM4011	Environmental Science & Analyses	CHEM1011		3
EMIS4103	Applied Robotics Systems	EMIS2003, MATH2015		3
EMEE4204	Renewable Energy Systems	EMEE4102 or EMME4102		3
EMME4005	Vibration and Noise Control	EMME3101, MATH2015		3

22.12 Study Plan Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Mechanical Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS1011	Physics I	3		
	PHYS1012	Physics Lab	1		PHYS1011
	HUM1013	Arabic Comm Skills	3		
	ENG1003	Mech. Workshop	1		
	ICT1011	Intro to Prog and Prob Solv	3		
	ENGL1011	Academic English I	3	IELTS =5.5 or EmSAT=1100 or ENGL1001	
	MATH1001	Precalculus	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	EMEE1001	Electric Circuits I	3	PHYS1011, MATH1001	
	ENGL1012	Academic English II	3	ENGL1011	
	HUM1011	Islamic Culture	3		
	MATH1010	Calculus I	3	MATH1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMME1001	Statics	3	PHYS1011, MATH1001	
	MATH1020	Calculus II	3	MATH1010	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG1002	Engineering Drawings	2		
	EMME2101	Materials Science	3	CHEM1011	
	EMME2102	Fluid Mechanics	3	EMME1001	
	EMET2001	Health Safety and Environment	2	ENGL1012	
	EMIS2101	Introduction to Artificial Intelligent Systems	3	ICT1011, MATH1001	
	EMIS2102	Introduction to Mechatronics	3	ICT1011, EMEE1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMIS2003	Control System Technologies	3	EMIS2102	
	EMEE2203	Electrical Machines	2	EMEE1001	EMEE2204
	EMEE2204	Electrical Machines Lab	1		EMEE2203
	EMIS2204	Pneumatics and Hydraulics Systems	3	ENG1002, EMEE1001	
	EMIS2005	Intro to Programming: C++	2	ICT1011	
	EMMF2201	Manufacturing Processes	3	EMME2101, ENG1002, ENG1003	
	EMME2201	Engineering Thermodynamics	3	MATH1001, PHYS1011, CHEM1011	
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS2090	Instrumentation & Process Control OCT	1	EMIS2003, EMEE2091	
	EMIS2091	Pneumatics and Hydraulics Systems OCT	1	EMIS2204	
	EMME2090	Thermo-Fluid OCT	1	EMME2102, EMME2201	
	EMME2091	Pump and Compressors OCT	1	EMME2102	
	EMMF2090	3D Printing Technologies OCT	1	ENG1002	
	EMMF2091	CAD/CAM Technologies OCT	1	MATH1001, ENG1002	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH2015	Applied Mathematics	3	MATH1020	
	EMME3005	Applied Industrial Maintenance	3	EMEE2092 or EMME2091 or EMMF2092	
	EMME3101	Dynamics	3	EMME1001, MATH1020	
	EMME3102	Strength of Materials	3	EMME2101, MATH1020	
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
	EMIS3101	Intro to Applied Machine Learning	3	EMIS2101	
		Total Credit Hours	**15 (18 with AI Minor)**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMME3203	Kinematics of Machinery	3	EMME3101	
	EMME3204	Machine Design I	3	EMME3102	
	EMET3001	Engineering Design & Project Planning	2	ENG1002, ENGL2012	
	EMIS3202	Intro to Computational Intelligence	3	EMIS2101	
	HUM1012	Emirates Society and Culture	3		
		Total Credit Hours	**11 (14 with AI Minor)**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS3091	Systems Modeling & Simulation OCT	1	EMIS2005, EMME3203	
	EMIS3095	Payload System Design OCT	1	EMME3203	
	EMME3090	Automobile Body - Interior OCT	1	EMME3005	
	EMME3091	Automobile Body - Exterior OCT	1	EMME3005	
	EMME3092	Automobile Engine OCT	1	EMME3005	
	EMMF2092	FabLab Technologies OCT	1	EMMF2201, ENG1002, ENG1003	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMME4101	Heat Transfer	3	EMME2201, EMME2102, MATH2015	
	EMME4102	Thermodynamics II	3	EMME2201, MATH2015	
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
	EMET4090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
	EMIS4101	Intelligent System Design	3	EMIS3101, MATH2015	
		Total Credit Hours	**12 (15 with AI Minor)**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMME4203	Machine Design II	3	EMME3204	
	EMME4204	HVAC System Design	3	EMME4101, EMME2102	
	EMET4095	Graduation Project II	3	EMET4090	
	EMET4001	Business Startup and Management	2	EMET3001	
	XXXXXXXX	Technical Elective	3	TBD	
	EMIS4103	Applied Robotics Systems	3	EMIS2003, MATH2015	
		Total Credit Hours	**14 (17 with AI Minor)**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4099	On-the-Job Training	6	Department Approval	
		Total Credit Hours	**6**		

22.13 Curriculum Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Smart Manufacturing

Degree Requirements	Total Credit Hours: 142
General Education Requirements	30
Program-based General Education courses	23
Program Major Requirements (compulsory)	86
Program Minor Requirements	0
Program Electives	3

General Education Requirements				30 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communications Skills			3
HUM3011	Creativity, Innovation & Entrepreneurship	ENGL1012		3
ICT1011	Introduction to Programming & Problem Solving			3
MATH1001	Precalculus			3
MATH1010	Calculus I	MATH1001		3

Program-based General Education courses				23 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I		CHEM1012	3
CHEM1012	Chemistry I Lab		CHEM1011	1
EMET2001	Health Safety and Environment	ENGL1012		2
EMET3001	Engineering Design & Project Planning	ENG1002, ENGL2012		2
EMET4001	Business Startup and Management	EMET3001		2
ENG1002	Engineering Drawing			2

ENG1003	Mech. Workshop			1
MATH1020	Calculus II	MATH1010		3
MATH2015	Applied Mathematics	MATH1020		3
PHYS1011	Physics I			3
PHYS1012	Physics Lab		PHYS1011	1

Program Major Requirements (compulsory)				**86 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
ENG2013	Fluid Flow & Heat Transfer	MATH1010, CHEM1011		3
EMEE1001	Electric Circuits I	PHYS1011, MATH1001		3
EMEE2203	Electrical Machines	EMEE1001	EMEE2204	2
EMEE2204	Electrical Machines Lab		EMEE2203	1
EMIS2003	Control System Technologies	EMIS2102		3
EMIS2005	Intro to Programming: C++	ICT1011		2
EMIS2090	Instrumentation & Process Control OCT	EMIS2003, EMEE2091		1
EMIS2091	Pneumatics and Hydraulics Systems OCT	EMIS2204		1
EMIS2101	Introduction to Artificial Intelligent Systems	ICT1011, MATH1001		3
EMIS2102	Introduction to Mechatronics	ICT1011, EMEE1001		3
EMIS2204	Pneumatics and Hydraulics Systems	ENG1002, EMEE1001		3
EMIS3101	Intro to Applied Machine Learning	EMIS2101		3
EMME1001	Statics	PHYS1011, MATH1001		3
EMME2101	Materials Science	CHEM1011		3
EMME2201	Engineering Thermodynamics	MATH1001, PHYS1011, CHEM1011		3
EMME3005	Applied Industrial Maintenance	EMEE2092 or EMME2091 or EMMF2092		3
EMMF2090	3D Printing Technologies OCT	ENG1002		1
EMMF2091	CAD/CAM Technologies OCT	MATH1001, ENG1002		1
EMMF2092	FabLab Technologies OCT	EMMF2201, ENG1002, ENG1003		1
EMMF2201	Manufacturing Processes	EMME2101, ENG1002, ENG1003		3
EMMF2093	Metal Fabrication Technology OCT	EMMF2201, ENG1002, ENG1003		1
EMMF3090	CNC Technologies OCT	EMMF2091		1
EMMF3091	Advanced FabLab OCT	EMMF2092		1
EMMF3092	Fibre Composite Manufacturing Technologies OCT	EMMF2201, EMMF3101		1

EMMF3093	Automation in Manufacturing Process OCT	EMIS2090, EMMF3202		1
EMMF3094	Precision Machining Technology OCT	EMMF2091, EMMF2093		1
EMMF3095	Mould Design Technology OCT	EMMF2093,EMMF2091		1
EMMF3101	Manufacturing Planning & Control	EMMF2201, EMIS2090		3
EMMF3202	Sensors and Control Systems in Manufacturing	EMMF3101		3
EMMF3203	Computer Integrated Manufacturing	EMMF2090, EMMF2091		3
EMMF4101	Advanced CAD/ CAE	EMMF3203		3
EMMF4102	Advanced Manufacturing Processes & Technology	EMMF3203, EMMF3091		3
EMMF4203	Biomimetics: Sustainable Materials and Manufacturing	EMME2101, EMMF3092		3
EMMF4204	Technology of Non-metallic Materials Processing	EMME2101, EMMF3092, EMMF2091		3
EMET4090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
EMET4095	Graduation Project II	EMET4090		3
EMET4099	On-the-Job Training	Department Approval		6

Program Electives			**3 Credit Hours**	
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM4011	Environmental Science & Analyses	CHEM1011		3
EMMF4205	Fixture and Tool Design	EMMF3094, EMMF4101		3
EMMF4206	Process Tolerance Design and Analysis	EMMF3094, EMMF4102		3
EMMF4207	Manufacture and Assembly Design	EMMF4102		3
EMIS4103	Applied Robotics Systems	EMIS-2003, MATH2015		3

22.14 Study Plan Applied Bachelors in Electro-Mechanical Systems Engineering Concentration in Smart Manufacturing

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PHYS1011	Physics I	3		
	PHYS1012	Physics Lab	1		PHYS1011
	HUM1013	Arabic Comm Skills	3		
	ENG1003	Mech. Workshop	1		
	ICT1011	Introduction to Programming and Prob. Solv.	3		
	ENGL1011	Academic English I	3	IELTS =5.5 or EmSAT=1100 or ENGL1001	
	MATH1001	Precalculus	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	EMEE1001	Electric Circuits I	3	PHYS1011, MATH1001	
	ENGL1012	Academic English II	3	ENGL1011	
	HUM1011	Islamic Culture	3		
	MATH1010	Calculus I	3	MATH1001	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMME1001	Statics	3	PHYS1011, MATH1001	
	MATH1020	Calculus II	3	MATH1010	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	ENG1002	Engineering Drawing	2		
	ENG2013	Fluid Flow & Heat Transfer	3	MATH1010, CHEM1011	
	EMET2001	Health Safety and Environment	2	ENGL1012	
	EMIS2101	Introduction to Artificial Intelligent Systems	3	ICT1011, MATH1001	
	EMIS2102	Introduction to Mechatronics	3	ICT1011, EMEE1001	
	EMME2101	Materials Science	3	CHEM1011	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMIS2003	Control System Technologies	3	EMIS2102	
	EMIS2204	Pneumatics & Hydraulics Systems	3	ENG1002, EMEE1001	
	EMIS2005	Intro to Programming: C++	2	ICT1011	
	EMMF2201	Manufacturing Processes	3	EMME2101, ENG1002, ENG1003	
	EMME2201	Engineering Thermodynamics	3	MATH1001, PHYS1011, CHEM1011	
	EMEE2203	Electrical Machines	2	EMEE1001	EMEE2204
	EMEE2204	Electrical Machines Lab	1		EMEE2203
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMIS2090	Instrumentation & Process Control OCT	1	EMIS2003	
	EMIS2091	Pneumatics and Hydraulics Systems OCT	1	EMIS2204	
	EMMF2090	3D Printing Technologies OCT	1	ENG1002	
	EMMF2091	CAD/CAM Technologies OCT	1	MATH1001, ENG1002	
	EMMF2092	FabLab Technologies OCT	1	EMMF-2201, ENG1002, ENG1003	
	EMMF2093	Metal Fabrication Technology OCT	1	EMMF-2201, ENG1002, ENG1003	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH2015	Applied Mathematics	3	MATH1020	
	EMIS3101	Intro to Applied Machine Learning	3	EMIS2101	
	EMMF3101	Manufacturing Planning & Control	3	EMMF2201, EMIS2090	
	EMME3005	Applied Industrial Maintenance	3	EMEE2092 or EMME2091 or EMMF2092	
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	EMET3001	Engineering Design & Project Planning	2	ENG1002, ENGL2012	
	EMMF3202	Sensors and Control Systems in Manufacturing	3	EMMF3101	
	HUM1012	Emirates Society & Culture	3		
	EMMF3203	Computer Integrated Manufacturing	3	EMMF2090, EMMF2091	
		Total Credit Hours	**11**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	EMMF3090	CNC Technologies OCT	1	EMMF2091	
	EMMF3091	Advanced FabLab OCT	1	EMMF2092	
	EMMF3092	Fibre Composite Manufacturing Technologies OCT	1	EMMF2201, EMMF3101	
	EMMF3093	Automation in Manufacturing Process OCT	1	EMIS2090, EMMF3202	
	EMMF3094	Precision Machining Technology OCT	1	EMMF2091, EMMF2093	
	EMMF3095	Mould Design Technology OCT	1	EMMF2093,EMMF2091	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMMF4101	Advanced CAD/ CAE	3	EMMF3203	
	EMMF4102	Advanced Manufacturing Processes & Technology	3	EMMF3203, EMMF3091	
	HUM3011	Creativity, Innovation & Entrepreneurship	3	ENGL1012	
	EMET4090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
		Total Credit Hours	**12**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4001	Business Startup and Management	2	EMET3001	
	EMMF4203	Biomimetics: Sustainable Materials and Manufacturing	3	EMME2101, EMMF3092	
	EMMF4204	Technology of Non-metallic Materials Processing	3	EMME2101, EMMF3092, EMMF2091	
	XXXXXXXX	Technical Elective	3	TBD	
	EMET4095	Graduation Project II	3	EMET4090	
		Total Credit Hours	**14**		
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	EMET4099	On-the-Job Training	6	Department Approval	
		Total Credit Hours	**6**		

22.15 Electro-Mechanical Engineering Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Yahia Alsmadi	Head of Department	PhD	New Jersey Institute of Technology
Anthony Hechanova	Professor	PhD	Massachusetts Institute of Technology
Shaaban Ali	Associate Professor	PhD	University of New South Wales
Emad Alkhazraji	Assistant Professor	PhD	King Fahad University
Evgeny Stankovskiy	Assistant Professor	PhD	University of Nevada Las Vegas
Farhan Malik	Assistant Professor	PhD	Aalto University
Fawwaz Alkhatib	Assistant Professor	PhD	Technical University of Poland
Hatsari Mitsudharmadi	Assistant Professor	PhD	National University of Singapore
Stefan Tomic	Assistant Professor	PhD	University of Niš
Turker Turker	Assistant Professor	PhD	Yıldız Technical University
Victor Goman	Assistant Professor	PhD	Ural Federal University
Walid Ayadi	Assistant Professor	PhD	University of Sfax
Chaima Fekiri	Instructor	PhD	Chungbuk National University
Dani Abdo	Instructor	PhD	Loughborough University
Mohammad Nadeem Khalid	Instructor	PhD	Maharshi Dayanand University
Sawsan Khader Dagher	Instructor	PhD	United Arab Emirates University
Sobers Francis	Instructor	PhD	University of New South Wales
Anand Gopalakrishnan	Instructor	Master	Annamalai University
Hamza Ayyash	Instructor	Master	University of Paris, Sud
Hiba Al Khodire	Instructor	Master	Korea Advanced Institute of Science & Technology
Hussein Alsmairat	Instructor	Master	High Claire University
Malek Albadarneh	Instructor	Master	University of Birmingham
Muhammad Umair Muzaffar	Instructor	Master	American University of Sharjah
Soumya Ambramoli	Instructor	Master	Anna University
Tinashe Dhliwayo	Instructor	Master	North Carolina State University
Mahra Al Ali	Instructor	Bachelor	Abu Dhabi Polytechnic
Rasha Tabasha	Teaching Assistant	Bachelor	Khalifa University
Muhammad Amin Tily	Lab Specialist	Master	American University of Sharjah
Humaid Sami Alkhuwaiter	Lab Specialist	Bachelor	University of South Carolina
Ihab Abdelrahman	Lab Specialist	Bachelor	Al Balqa' Applied University
Willian Lopes	Lab Specialist	Bachelor	Faculdade Anhanguera - Divinópolis
Khalid Ibrahim Al Jarrah	Vocational Trainer	Master	Preston University
Andrei Rogger Belegante	Vocational Trainer	Diploma	Senai College of Technology
Eduardo Kruczkievicz	Vocational Trainer	Diploma	Catolica de Santa Catarina
Luis Cesar Akira Kakazu	Vocational Trainer	Bachelor	Fatec Centro Paula Souza

Yusuf Khan Airani	Vocational Trainer	Bachelor	Institute of Engineering and Management Studies

23. Information Security Engineering Technology

23.1 Introduction

23.1.1 About ISET

The Information Security Engineering Technology (ISET) program at ADPoly is your gateway to a rewarding career in information security. Our program is carefully crafted to provide students with comprehensive knowledge and practical skills necessary for engineering technology - the practical application of science and engineering to a wide range of real-world problems in Information Security, protecting digital assets, and combating cyber threats.

Information Security Engineering Technology is of utmost importance in today's digital age. As technology and technology-dependent societies, organizations, and individuals continue to advance rapidly, so does the need for robust and holistic security solutions, systems, measures, and knowledge to protect sensitive information and systems from cyber threats. The study program equips students with the necessary competencies in Cyber Defense/Offense, Secure Software Design and GRC[1] domains. It covers a wide range of topics such as Network Security, Software Security, Ethical hacking and Pen-testing, Digital Forensics, Cloud Security, Risk Management, Information Assurance, and courses empowering students as new leaders in digital transformation and security solutions. With the increasing frequency and sophistication of cyber-attacks, professionals trained in Information Security Engineering Technology are required across various industries. Their expertise plays a vital role in safeguarding critical information, maintaining the trust of customers and stakeholders, and ensuring the integrity and confidentiality of digital assets. By pursuing this study program, students are well-positioned to make significant contributions to the field of information security and play a crucial role in defending against cyber threats in our interconnected world. Global cybersecurity job vacancies grew by 350 percent in just several years, bringing this profession in high demand worldwide.

The UAE, as the 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, 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.

As recognition for innovative approach, a suite of cybersecurity programs developed by ISET has been recognized with a Silver Award of Excellence from the World Federation of Colleges and Polytechnics (WFCP). ADPoly was presented with the award in the Cyber and Data Security and Social Engineering category at WFCP's 2023 World Congress held in Montreal.

23.1.2 Metaverse and Cyber Valley

ADPoly approach to Information Security Engineering Technology is based on a Triple Helix innovation Model strongly grounded on university and industry involvement and cooperation, together with decision-makers, while valuing for students' inputs and contribution. The United Arab Emirates (UAE)

[1] Governance, Risk Management and Regulatory Compliance - Governance refers to the establishment of policies, procedures, and decision-making processes to ensure the organization's overall direction and compliance with regulations and standards. Risk management involves identifying, assessing, and mitigating potential risks that could impact the organization's objectives. Compliance refers to adhering to laws, regulations, and industry standards to ensure ethical and legal practices within the organization. The GRC framework helps organizations align their strategies, manage risks effectively, and ensure compliance with applicable laws and regulations.

has launched its first national Cyber Pulse Innovation Centre in ADPoly. The Centre aims to produce the next generation of cyber professionals while also protecting UAE citizens and businesses from global threats.

Furthermore, The Metaverse and Cyber Valley Initiative combines international industry leaders in a joint platform incorporated with ISET Program research, development, and delivery. As ISET initiative within Metaverse and Cyber Valley, ADPoly enables strong cooperation with industry partners. As part of this innovative approach, Huawei and CyberGate Academies are already operating, with many more yet to come from our numerous partners, such as Cisco, Microsoft, CompTIA, Huawei, EC Council, Oracle, Palo Alto Network, CyberGate, RedHat, and more. These academies provide a platform for on-campus training (OCT) and world-class professional certification required in the market. Moreover, this program guarantees highly prestigious jobs for its graduates within governmental establishments and private organizations as well.

23.1.3 Accreditation and Benchmarking

1. ISET programs are currently accredited to award an Applied Bachelor (AB) in Information Security Engineering Technology (ISET) from CAA of Ministry of Higher Education.
2. The Applied Bachelor Program in Information Security Engineering Technology is accredited by the Engineering Technology Accreditation Commission (ETAC) of The Accreditation Board for Engineering and Technology (ABET).
3. ISET recently developed and finalized the National Qualification Center accreditation for the Diploma and Advanced Diploma Qualifications.
4. ISET is dedicated to quality assurance, continual improvement, academic excellence, and industry relevance, hence continual benchmarking is done with leading university programs in the world, as well as industry best practice and certifications.

23.1.4 Professional Certification Mapping

The UAE Government in collaboration with its strategic partners is building a strong workforce. The UAE's human resources development and education strategy is focused on creating a highly skilled and diverse workforce that can compete on a global scale. By investing in education and vocational training, and promoting entrepreneurship and innovation, the UAE is working to build a bright future for its citizens and its economy.

The growing trend of professional certifications and their increase in offer and market significance, career pathways and professional development is notable. As a polytechnic university, the ISET department has mapped and aligned most of its courses with industry requirements, market trends, and professional certifications in current programs, and trends are likely to continue.

Alongside of obvious benefits for students (beside university degree, graduated students earn the most respected professional certificates), ADPoly and ISET further enhances the continual improvement of study programs, herby narrowing the gap between academia and industry.

Currently, fifteen Professional Certification are mapped/aligned within ISET program, offered by EC-Council, CompTIA, CompTIA, Microsoft, Oracle, Palo Alto Network, and Huawei.

23.1.5 Career Prospects and Pathways

The ISET program opens diverse and promising career paths for graduates. Upon successfully graduating, the student will have gained extensive knowledge across a wide range of IT applications, complemented by hands-on experience using industry-standard equipment and an overall understanding of information security management. This combination of theoretical and practical training will ensure that you are job-ready and equipped with the necessary skills to succeed in your chosen field.

Throughout the program, the student will receive comprehensive training in various areas, for existing jobs, and those which are yet to come in the future, including:

- Security Operations Centre (SOC) analyst
- Security Officer
- Digital Forensics Analyst
- Incident Responder
- Cybersecurity Engineer
- Security Architect
- Governance, Risk Management, And Compliance Officer
- Data Protection Officer
- IT auditor
- Cryptography engineer
- Malware Analyst
- Penetration tester
- Network Engineer
- Network Administrator
- System Engineer
- System Administrator
- Database Administrator
- Data Science Engineer
- AI and ML Engineer
- Cloud Service Administrator
- Software Security Engineer
- Android and IOS app Developer
- Web Developer
- Back-End Developer
- Front-End Developer

With a solid foundation and specialized training, ISET graduates are well-prepared for diverse opportunities in every company, including government agencies, financial institutions, healthcare organizations, and cybersecurity service providers.

23.2 Applied Bachelor

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 Training (OJT). All students are required to complete two semesters of on-campus training, two graduation projects, and one On-the-Job Training (Internship) based on their selected concentration.

The technical content of the 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 concentrations and is appropriate to the goals of the program. Below are the three concentrations of ISET and degree level per each.

Applied Bachelor: A minimum of **142** credits are required to earn the applied bachelor which is designed as a four-year program with the following three concentrations:

- Software Security Concentration
- Networks and Cyber Security Concentration
- Systems/Servers Security Administration Concentration

23.3 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

23.4 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.

23.5 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.
- Build strong connections with industry leaders and narrow the gap between Academia and Industry.

23.6 Program Objectives (POs/PEOs)

1. To provide first-class information security engineering applied education that incorporates open ended design and experiential learning.
2. 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.
3. To provide a dynamic learning environment for fostering teamwork, effective communication skills, ethical responsibility, and lifelong learning approach.
4. Provide students with the necessary education requirements to bridge the gap between industry and academia, and to understand the impact of information security technology in a global and societal context.

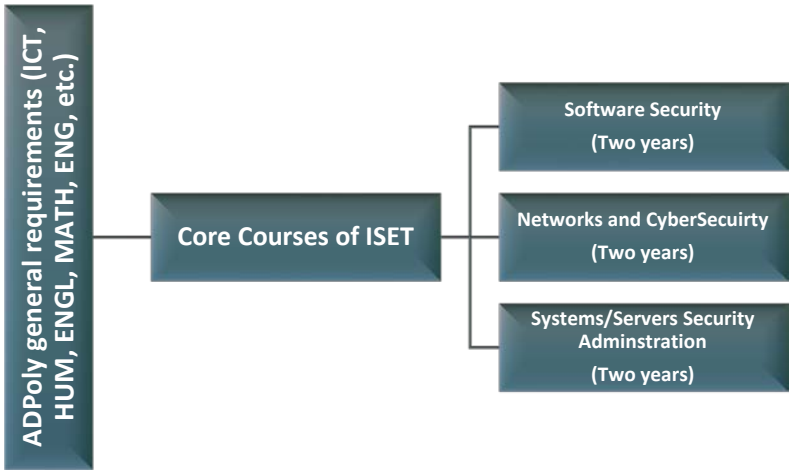
23.7 Program Learning Outcomes (PLOs/SLOs)

1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline;
2. An ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline;
3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; and
5. An ability to function effectively as a member as well as a leader on technical teams.

23.8 Program Entry Requirements

Abu Dhabi Polytechnic admissions requirements fully apply to the ISET program.

The program embodies three concentrations, namely, Software Security, Networks and Cybersecurity, and Systems/Servers Security Administration. A student will apply for a concentration towards the end of second year of his/her study. Below is the flowchart of concentration election followed by description of curriculum content of each concentration:



23.9 ISET Curriculum

23.9.1 Curriculum General Requirements and ISET core courses

Degree Requirements	Total Credit Hours: 142 Credit Hours
ADPOLY GENERAL REQUIREMENTS	27
PROGRAM GENERAL REQUIREMENTS	55
PROGRAM MAJOR REQUIREMENTS (COMPULSORY) - CONCENTRATION	42
GP and OJT	12
PROGRAM ELECTIVES	6

GENERAL REQUIREMENTS			(27) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENGL1001	English Skills		0*
ENGL1011	Academic English 1	ENGL1001	3
ENGL1012	Academic English 2	ENGL1011	3
ENGL2011	Public Speaking	ENGL1012	1
ENGL2012	Literature Review	ENGL1012	1
ENGL2013	Report Writing	ENGL1012	1
HUM1011	Islamic Culture		3
HUM1012	Emirates Society & Culture		3
HUM1013	Arabic Communication Skills		3
HUM3011	Creativity, Innovation and Entrepreneurship	ENGL1012	3
ICT1011	Introduction to Programming & Problem Solving		3
MATH1001	Precalculus		0*
MATH1010	Calculus I	MATH1001	3

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

PROGRAM GENERAL REQUIREMENTS			(55) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ENG1011	Intro to Computer Electronics	PHYS1011, PHYS1012	3
HUM2011	Psychology	ENGL1012	3
ICT1201	Object Oriented Programming in Java	ICT1011	3
ICT1202	Intro to Computer Networks	ICT1011	3
ICT1301	Fundamentals of Information Security	ICT1202	3

ICT2101	Discrete Mathematics	MATH1010	3
ICT2102	Intro to Database Systems	ICT1201	3
ICT2103	Logic Design & Computer Organization	ENG1011	3
ICT2201	Data Structure and Algorithms	ICT1201, ICT2101	3
ICT2202	Operating Systems Security	ICT2103, ICT1301	3
ICT2203	Introduction to Software Security	ICT1201, ICT1301	3
ISET2201	Applied Cryptography	ICT1301	3
MATH2012	Probability and statistics	MATH1010	3
NCS2101	Network Security	ICT1202	3
NCS2201	Ethical Hacking and Pen. Testing	NCS2101	3
NCS3105	Fundamentals of Digital Forensics	NCS2101	3
PHYS1011	Physics I	co-req: MATH1001	3
PHYS1012	Physics I Lab	co-req: PHYS1011	1
SSD2201	Web Programming and Security	ICT1301, ICT2102	3

23.9.2 Curriculum – Software Security (SSD) Concentration

Program Major Requirements (compulsory) – Concentration			(42) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSD3101	Object Oriented Analysis and Design	ICT2203	3
SSD3102	Mobile Programming and Security	ICT1201 AND ICT1301	3
SSD3104	Embedded Systems Secure Development	ICT1201 AND ICT2103	3
SSD3202	Multi-Language Secure Coding and Testing	SSD3101	3
SSD3203	Secure Database Development	ICT2102	3
SSD2301	Secure Web Applications Development - OCT I	SSD2201	1
SSD2302	Secure Software design & implementation - OCT I	ICT2203	1
SSD2303	Web Application Security - OCT I	SSD2201	1
SSD2304	Ethical Hacking and Pen. Testing - OCT I	NCS2201	1
SSD2305	Secure Windows/Linux OS - OCT I	ICT2202	1
SSD2306	Client/Server Security Admin - OCT I	NCS21202	1

NCS3306	Digital Forensics and Investigation - OCT II	NCS3203	1
SSD3302	Database Programming and Security - OCT II	SSD3203	1
SSD3303	Software Vulnerability Assessment - OCT II	SSD3202	1
SSD3304	Practical Requirements Engineering - OCT II	ICT2203	1
SSD3305	Secure Mobile Applications Development - OCT II	SSD3102	1
SSD3301	Software Verification and Validation - OCT II	SSD3101	1
NCS3104	Cloud Security	NCS2101	3
SSD3201	Malware Analysis: Tools and Techniques	SSD2304, SSD2201	3
ISET3101	InfoSec Project Management (Blended L.)	ICT1301	2
ISET4101	Risk and Security Management	ICT1301	2
ISET4201	Incident Handling and Response	ISET4101	3
ISET4202	Ethics, Law & Policy in Cyberspace (Blended L.)	ICT1301	2

GP and OJT			**(12) Credit Hours**
Course Code	Course Title	Prerequisite(s)	Credit Hours
SSD4101	Graduation Project I	Dept. Approval	3
SSD4201	Graduation Project II	SSD414	3
SSD4301	On Job Training (Internship)	Dept. Approval	6

PROGRAM TECHNICAL ELECTIVES (2 Courses selected from the list)			**(6) Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ISET4001	Homeland Security	NCS2201	3
ISET4002	Advanced Cryptography	ISET2201	3
ISET4003	Security Governance & Compliance	ICT1301	3
ISET4004	Security Architectures & Models	ICT1301	3
ISET4005	Privacy in a networked world	ICT1301	3
SSD4001	Data Artificial Intelligence	SSD3101	3
ISET4006	Blockchain Technology & Security	ISET2201	3
NCS4001	Hardware based Security	ICT1301	3
SSD4002	Reverse Engineering	SSD3201	3
NCS4004	Advanced network Security	NCS2101	3
SSD4003	Software Security Trends	SSD3202	3
SSD4004	Human Computer Internal Design	SSD3305	3
SSD4005	Advanced Web Security	SSD2201	3
SSD4006	Critical SW Sec. Cont. & Standards	SSD3101	3
SSD4007	Advanced Mobile Appl. Develop.	SSD3102	3

23.9.3 Curriculum – Network and Cyber Security concentration

Program Major Requirements (compulsory) – NCS Concentration			42 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
NCS3203	Fundamentals of Storage Networking	ICT1202	3
NCS3102	Wireless Network Security	NCS2101	3
NCS3103	Security Protocols in-depth	NCS2101, NCS2306	3
NCS3201	Perimeter Protection	NCS2306	3
NCS3202	Adv Pen Testing & Ethical Hacking	NCS2306	3
NCS2301	Routing and Switching - OCT I	ICT1202	1
NCS2302	Secure Network Design - OCT I	NCS2101	1
NCS2303	Network Security - OCT I	NCS2101	1
NCS2304	Ethical Hacking and Pen. Testing - OCT I	NCS2201	1
NCS2305	Web and Database Security- OCT I	NCS2101	1
NCS2306	Penetration Testing In-Depth - OCT I	NCS2201	1
NCS3301	Linux/Unix Security Administration (OCT-II)	ICT2202	1
NCS3302	Server Security Administration- OCT II	ICT2202	1
NCS3303	Advanced Routing and Switching- OCT II	NCS2301	1
NCS3304	Network Perimeter Protection- OCT II	NCS3201	1
NCS3305	Intrusion Detection & Response - OCT II	NCS3201	1
NCS3306	Digital Forensics and Investigation - OCT II	NCS3203	1
ISET3101	InfoSec Project Management (Blended L.)	ICT1301	2
ISET4101	Risk and Security Management	ICT1301	2
ISET4201	Incident Handling and Response	ISET4101	3
ISET4202	Ethics, Law & Policy in Cyberspace (Blended L.)	ICT1301	2
NCS3104	Cloud Security	NCS2101	3
SSD3201	Malware Analysis: Tools and Techniques	NCS2304, SSD2201	3

GP and OJT			(12) Credit Hours
Course Code	Course Title	Prerequisite(s)	Credit Hours
NCS4101	Graduation Project I	Dept. Approval	3
NCS4201	Graduation Project II	NCS414	3
NCS4301	On Job Training (Internship)	Dept. Approval	6

PROGRAM TECHNICAL ELECTIVES (2 Courses selected from the list)			(6) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ISET4001	Homeland Security	NCS2201	3
ISET4002	Advanced Cryptography	ISET2201	3
ISET4003	Security Governance & Compliance	ICT1301	3
ISET4004	Security Architectures & Models	ICT1301	3
ISET4005	Privacy in a networked world	ICT1301	3
ISET4006	Blockchain Technology & Security	ISET2201	3
NCS4001	Hardware based Security	ICT1301	3
SSD4002	Reverse Engineering	SSD3201	3
NCS4002	Wireless Ethical Hacking & Defense	NCS3102	3
NCS4003	Network Security Trends	NCS3201	3
NCS4004	Advanced network Security	NCS2101	3
SSD4005	Advanced Web Security	SSD2201	3

23.9.4 Curriculum – Systems/Servers Security Admin (SSA) Concentration

Program Major Requirements (compulsory) – Concentration			(42) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
SSA3101	Virtualization Technology and Security	ICT2202 AND NCS2101	3
SSA3102	Securing Linux/UNIX/Windows Servers	ICT2202	3
SSA3103	Emerging Trends in Systems Security	NCS2201 AND SSD2201	3
SSA3202	Database Server Security Administration	ICT2102 AND SSA2301	3
SSA3201	Vulnerability Assessment and Pen. Testing	SSA2306	3
SSA2301	Microsoft Windows Server Security - OCT I	ICT2202	1
SSA2302	MS Exchange Server Security - OCT I	ICT2202	1
SSA2303	Linux/UNIX Operating System Security - OCT I	ICT2202	1
SSA2304	MS SharePoint Server Security - OCT I	ICT2202	1
SSA2305	Physical Security and Biometrics - OCT I	ICT1301	1
SSA2306	Ethical Hacking and Pen. Testing - OCT I	NCS2201	1
SSA3301	Linux-Unix Security Administration - OCT II	SSA3102	1
SSA3302	Server Security Administration- OCT II	SSA2301	1
SSA3303	Database Server Security - OCT II	SSA3202	1
SSA3304	MS SharePoint Security Administration - OCT II	SSA2304	1
SSA3305	Exchange Server Security - OCT II	SSA2306	1
NCS3306	Digital Forensics and Investigation - OCT II	NCS3203	1
NCS3104	Cloud Security	NCS2101	1
SSD3201	Malware Analysis: Tools and Techniques	NCS2304, SSD2201	1
ISET3101	InfoSec Project Management (Blended L.)	ICT1301	1
ISET4101	Risk and Security Management	ICT1301	1
ISET4201	Incident Handling and Response	ISET4101	1
ISET4202	Ethics, Law & Policy in Cyberspace (Blended L.)	ICT1301	1

GP and OJT			(12) Credit Hours
Course Code	Course Title	Prerequisite(s)	Credit Hours
SSA-4101	Graduation Project I	Dept. Approval	3
SSA-4201	Graduation Project II	SSA-414	3
SSA-4301	On Job Training (Internship)	Dept. Approval	6

PROGRAM TECHNICAL ELECTIVES (2 Courses selected from the list)			(6) Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Credit Hours**
ISET4001	Homeland Security	NCS21202	3
ISET4002	Advanced Cryptography	NCS21203	3
ISET4003	Security Governance and Compliance	ICT10003	3
ISET4004	Security Architectures and Models	ICT132	3
ISET4005	Privacy in a networked world	ICT10003	3
SSD4001	Data Artificial Intelligence	SSD31208	3
ISET4006	Blockchain Technology and Security	NCS21203	3
NCS4001	Hardware based Security	ICT10003	3
SSD4002	Reverse Engineering	SSD32312	3
NCS4002	Wireless Ethical Hacking and Defense	NCS31212	3
NCS4003	Network Security Trends	NCS31215	3
NCS4004	Advanced network Security	NCS21201	3
SSD4003	Software Security Trends	SSD30211	3
SSD4004	Human Computer Interaction Design	SSD32318	3
SSD4005	Advanced Web Security	SSD21201	3
SSD4006	Critical Software Security Controls & Standards	SSD31208	3
SSD4007	Advanced Mobile Application Development	SSD31209	3
SSA4001	Advanced Secure Database Administration	SSA31210	3
SSA4002	Systems Security Intelligence	SSA32309	3
SSA4003	Systems/Servers Security Trends	SSA31208	3

23.10 ISET Study Plan

23.10.1 General Requirements and ISET Core Courses

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

1st Year (Freshman)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	MATH1001	Precalculus*	0	
	ICT1011	Introduction to Programming & Problem Solving	3	
	ENGL1001	English Skills	0	
	HUM1011	Islamic Culture	3	
	HUM1012	Emirates Society & Culture	3	
	PHYS1011	Physics I	3	co-req MATH 1001
	PHYS1012	Physics I Laboratory	1	co-req-PHYS1011
		Total Credit Hours	**13**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT1201	Object Oriented Programming in Java	3	ICT1011
	ICT1202	Intro to Computer Networks	3	ICT1011
	MATH1010	Calculus I	3	MATH1001
	ENGL1011	Academic English I	3	ENGL1001
	ENG1011	Intro to Computer Electronics	3	PHYS1011, PHYS1012
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT1301	Fundamentals of Information Security	3	ICT1202
	ENGL1012	Academic English II	3	ENGL1011
		Total Credit Hours	**6**	

2nd Year (Sophomore)				
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT2101	Discrete Mathematics	3	MATH1010
	NCS2101	Network Security	3	ICT1202
	ICT2102	Intro to Database Systems	3	ICT1201
	ENGL2011	Public Speaking (Blended L.)	1	ENGL1012
	ENGL2012	Literature Review (Blended L.)	1	ENGL1012
	ENGL2013	Report Writing (Blended L.)	1	ENGL1012
	ICT2103	Logic Design & Computer Organization	3	ENG1011
		Total Credit Hours	**15**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	ICT2201	Data Structure and Algorithms	3	ICT1201, ICT2101
	ICT2202	Operating Systems Security	3	ICT2103, ICT1301
	SSD2201	Web Programming and Security	3	ICT1301, ICT2102
	NCS2201	Ethical Hacking and Pen. Testing	3	NCS2101
	ISET2201	Applied Cryptography	3	ICT1301
		Total Credit Hours	**18**	

23.10.2 Software Security (SSD) Concentration

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	SSD2301	Secure Web Applications Development - OCT I	1	SSD2201
	SSD2302	Secure Software design & implementation - OCT I	1	ICT2203
	SSD2303	Web Application Security - OCT I	1	SSD2201
	SSD2304	Ethical Hacking and Pen. Testing - OCT I	1	NCS2201
	SSD2305	Secure Windows/Linux OS - OCT I	1	ICT2202
	SSD2306	Client/Server Security Admin - OCT I	1	ICT2202
		Total Credit Hours	**6**	

3rd Year (Junior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	SSD3101	Object Oriented Analysis and Design	3	ICT2203
	SSD3102	Mobile Programming and Security	3	ICT1201 AND ICT1301
	SSD3104	Embedded Systems Secure Development	3	ICT1201 AND ICT2103
	NCS3104	Cloud Security	3	NCS2101
	ISET3101	InfoSec Project Management	2	ICT1301
		Total Credit Hours	**14**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSD3201	Malware Analysis: Tools and Techniques	3	NCS2304, SSD2201
	SSD3202	Multi-Language Secure Coding and Testing	3	SSD3101
	SSD3203	Secure Database Development	3	ICT2102
	MATH2012	Probability and statistics	3	MATH1010
	NCS3203	Fundamentals of Digital Forensics	3	NCS2101
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSD3301	Software Verification and Validation - OCT II	1	SSD3101

	SSD3302	Database Programming and Security - OCT II	1	SSD3203
	SSD3303	Software Vulnerability Assessment - OCT II	1	SSD3202
	SSD3304	Practical Requirements Engineering - OCT II	1	ICT2203
	SSD3305	Secure Mobile Applications Development - OCT II	1	SSD3102
	NCS3306	Digital Forensics and Investigation - OCT II	1	NCS3203
		Total Credit Hours	**6**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	HUM2011	Psychology	3	ENGL1012
	HUM1013	Arabic Communication Skills	3	NA
	ISET4101	Risk and Security Management	2	ICT1301
	SSD4101	Graduation Project I	3	Department Approval
	SSDxxx	Tech. Elective I	3	Department Approval
		Total Credit Hours	**14**	
Semester 2	ISET4201	Incident Handling and Response	3	ISET4101
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012
	ISET4202	Ethics, Law & Policy in Cyberspace (Blended L.)	2	ICT1301
	SSD4201	Graduation Project II	3	SSD4101
	SSDxxx	Tech. Elective II	3	Department Approval
		Total Credit Hours	**14**	
Summer	SSD4301	On Job Training (Internship)	6	Dept. Approval
		Total Credit Hours	**6**	

23.10.3 Networks and Cyber Security Concentration

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	NCS2301	Routing and Switching - OCT I	1	ICT1202
	NCS2302	Secure Network Design - OCT I	1	NCS2101
	NCS2303	Network Security - OCT I	1	NCS2101
	NCS2304	Ethical Hacking and Pen. Testing - OCT I	1	NCS2201
	NCS2305	Web and Database Security- OCT I	1	NCS2101
		Total Credit Hours	**6**	

3rd Year (Junior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	NCS3101	Fundamentals of Storage Networking	3	ICT1202
	NCS3102	Wireless Network Security	3	NCS2101
	NCS3103	Security Protocols in-depth	3	NCS2101, NCS2306
	NCS3104	Cloud Security	3	NCS2101
	ISET3101	InfoSec Project Management	2	NCS2101
		Total Credit Hours	**14**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	NCS3201	Perimeter Protection	3	NCS2306
	SSD3201	Malware Analysis: Tools and Techniques	3	NCS2304, SSD2201
	NCS3202	Adv Pen Testing & Ethical Hacking	3	NCS2306
	MATH2012	Probability and statistics	3	MATH1010
	NCS3203	Fundamentals of Digital Forensics	3	ICT1202
		Total Credit Hours	**15**	
Summer	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	NCS3301	Linux/Unix Security Administration (OCT-II)	1	ICT2202

	NCS3302	Server Security Administration- OCT II	1	ICT2202
	NCS3303	Advanced Routing and Switching- OCT II	1	NCS2301
	NCS3304	Network Perimeter Protection- OCT II	1	NCS3201
	NCS3305	Intrusion Detection & Response - OCT II	1	NCS3201
	NCS3306	Digital Forensics and Investigation - OCT II	1	NCS3203
		Total Credit Hours	**6**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	HUM2011	Psychology	3	ENGL1012
	HUM1013	Arabic Communication Skills	3	NA
	ISET4101	Risk and Security Management	2	ICT1301
	NCS4101	Graduation Project I	3	Department Approval
	NCSxxx	Tech. Elective I	3	Department Approval
		Total Credit Hours	**14**	
Semester 2	ISET4201	Incident Handling and Response	3	ISET4101
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012
	ISET4202	Ethics, Law & Policy in Cyberspace	2	ICT1301
	NCS4201	Graduation Project II	3	NCS4101
	NCSxxx	Tech. Course II	3	Department Approval
		Total Credit Hours	**14**	
Summer	NCS4301	On Job Training (Internship)	6	Department Approval
		Total Credit Hours	**6**	

23.10.4 Systems/Servers Security Admin (SSA) Concentration

2nd Year (Sophomore)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Summer	SSA2301	Microsoft Windows Server Security - OCT I	1	ICT2202
	SSA2302	MS Exchange Server Security - OCT I	1	ICT2202
	SSA2303	Linux/UNIX Operating System Security - OCT I	1	ICT2202
	SSA2304	MS SharePoint Server Security - OCT I	1	ICT2202
	SSA2305	Physical Security and Biometrics - OCT I	1	ICT1301
	SSA2306	Ethical Hacking and Pen. Testing - OCT I	1	NCS2201
		Total Credit Hours	**6**	

3rd Year (Junior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	SSA3101	Virtualization Technology and Security	3	ICT2202 AND NCS2101
	SSA3102	Securing Linux/UNIX/Windows Servers	3	ICT2202
	SSA3103	Emerging Trends in Systems Security	3	NCS2201 AND SSD2201
	NCS3104	Cloud Security	3	NCS2101
	ISET3101	InfoSec Project Management	2	ICT1301
		Total Credit Hours	**14**	
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**
	SSA3201	Vulnerability Assessment and Pen. Testing	3	SSA2306
	SSD3201	Malware Analysis: Tools and Techniques	3	NCS2304, SSD2201
	SSA3202	Database Server Security Administration	3	ICT2102 AND SSA2301
	MATH2012	Probability and statistics	3	MATH1010
	NCS3203	Fundamentals of Digital Forensics	3	NCS2101
		Total Credit Hours	**15**	

	Course Code	Course Title	Credit Hours	Prerequisite(s)
Summer	SSA3301	Linux-Unix Security Administration - OCT II	1	SSA3102
	SSA3302	Server Security Administration - OCT II	1	SSA2301
	SSA3303	Database Server Security - OCT II	1	SSA3202
	SSA3304	MS SharePoint Security Administration - OCT II	1	SSA2304
	SSA3305	Exchange Server Security - OCT II	1	SSA2306
	NCS3306	Digital Forensics and Investigation - OCT II	1	NCS3203
		Total Credit Hours	**6**	

4th Year (Senior)				
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**
Semester 1	HUM2011	Psychology	3	ENGL1012
	HUM1013	Arabic Communication Skills	3	NA
	ISET4101	Risk and Security Management	2	ICT1301
	SSA4101	Graduation Project I	3	Department Approval
	SSAxxx	Tech. Elective I	3	Department Approval
		Total Credit Hours	**14**	
Semester 2	ISET4201	Incident Handling and Response	3	ISET4101
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012
	ISET4202	Ethics, Law & Policy in Cyberspace	2	ICT1301
	SSA4201	Graduation Project II	3	SSA4101
	SSAxxx	Tech. Elective II	3	Department Approval
		Total Credit Hours	**14**	
Summer	SSA-4301	On Job Training (Internship)	6	Department Approval
		Total Credit Hours	**6**	

23.11 Information Security Engineering Technology Division Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Nedal Hussien Ahmad Ababneh	Department Head	Ph.D.	University of Sydney, Australia
Yasir Hamid	Assistant Professor	Ph.D.	Pondicherry University, India
Joseph Henry Arinze Anajemba	Assistant Professor	Ph.D.	Hohai University, China
Emir Vajzovic	Assistant Professor	Ph.D.	University of Sarajevo, B&H
Artur Koci	Instructor	Ph.D.	Epoka University, Albania
Deepa Pavithran	Instructor	Ph.D.	The British University in Dubai, UAE
Haitham Elmohamdy Khaled	Instructor	PhD	Edith Cowan University
Muhammad Atif Chowhan	Instructor	Masters	Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan
Erlind Cuka	Instructor	Masters	Polytechnic University Tirana, Albania
Kristo Kapshtica	Instructor	Masters	Polytechnic University of Tirana, Albania
Munavwar Mubarak Shaikh	Instructor	Masters	Indian School of Business Management-India
Mariam Talal Mohammed Ali Aljouhi	Lab Specialist/TA	Masters	Zayed University, UAE
Muris Cengic	Vocational Trainer ISET	Bachelors	University Dzemal Bijedic, B&H

24. Petroleum Engineering Technology

24.1 Introduction

As it stands today, Petroleum Engineering Technology (PET) department at ADPoly represents 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, ADPoly 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.

ADPoly 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 Chemical Engineering Technology. In addition to Bachelor degree, students graduate from this program with, at least, two international certificates in different disciplines such as: NEBOSH (National Examination Board in Occupational Safety and Health) and IWCF (International Well Control Forum). Our curricula reflect adherence to established national and international accreditation standards (such as CAA and 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 ADPoly 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 ADPoly 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 and Chemical Engineering Technology programs at ADPoly 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 setting and preparing them for the industrial revolution with the best quality of education and study environment.

24.2 Degrees

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

Applied Bachelors:

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

24.3 Program Accreditation and Delivery

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

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

Program Delivery	Duration	Language	Semester	Study location
Full Time	4.5 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

Applied Bachelors in Chemical Engineering Technology:

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

24.4 Program Mission

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

24.5 Program Objectives (POs/PEOs)

The Petroleum Engineering Technology – Program Educational Objectives (PET-PEOs) are derived from AD Polytechnic vision and educational goals. Three to five years after graduation, PET alumni shall:

- (PEO1) Contribute to innovative and practical applications towards upstream and downstream elements of advances in Petroleum Engineering Technology in UAE.

- (PEO2) Continue professional development through active participation in professional organizations, training or post graduate education.
- (PEO3) Adhere to ethical, social, and global responsibilities in the practice of Petroleum Engineering Technology and Oil & Gas Process Engineering Technology.

The Chemical Engineering Technology - Program Educational Objectives (CHETPEOs) are derived from AD Polytechnic vision and educational goals. Three to five years after graduation, ChET alumni shall:

- (PEO1) Contribute to innovative and practical applications and applied research in Chemical Engineering Technology in UAE.
- (PEO2) Continue professional development through active participation in professional organizations, training or post graduate education.
- (PEO3) Adhere to ethical, social and global responsibilities in the practice of Chemical Engineering Technology.

24.6 Program Learning Outcomes (PLOs/SLOs)

The Petroleum and Chemical Engineering Technology Programs Educational Objectives are derived from ADPoly vision and educational goals with more focus on Petroleum and Chemical Engineering Technology. The 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 ADPoly Petroleum Engineering Technology Division pursued ABET accreditation during the 2019/2020 academic year and used new convention of 5 SLOs for uniformity. The PET program SLOs are as follows.

- **(SO1)** an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly defined engineering problems appropriate to the discipline.
- **(SO2)** an ability to design systems, components, or processes meeting specified needs for broadly defined engineering problems appropriate to the discipline.
- **(SO3)** an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- **(SO4)** an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
- **(SO5)** an ability to function effectively as a member as well as a leader on technical teams.

24.7 Program Entry Requirements

Abu Dhabi Polytechnic admissions requirements fully apply to Petroleum Engineering Technology and Chemical Engineering Technology programs.

24.8 Curriculum for Applied Bachelor's in Petroleum Engineering Technology with Minor in Oil & Gas Process Engineering

Degree Requirements	Total Credit Hours: 158 Credit Hours
General Education Requirements	21
Program-based General Education courses	38
Program Major Requirements (compulsory)	69
Program Minor Requirements	18
Program and Humanities Electives	12

General Education Requirements				21Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH1001	Pre-calculus			3
MATH1010	Calculus I	MATH1001		3
ICT1011	Introduction to Programing & Problem Solving			3
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM3011	Creativity. Innovation. & Entrepreneurship	ENGL1012		3

Program-based General Education courses				38 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I			3
CHEM1012	Chemistry I Lab		CHEM1011	1
PHYS1011	Physics I			3
PHYS1012	Physics I Lab		PHYS1011	1
PHYS1013	Physics II	PHYS1011		3
PHYS1014	Physics II Lab		EMME1001	1
CHEM1013	Chemistry II	CHEM1011		3
CHEM1014	Chemistry II Lab		CHEM1013	1
MATH1020	Calculus II	MATH1010		3
MATH2012	Probability & Statistics	MATH1010		3
ENG1003	Mechanical Workshop			1

ENG2011	Thermodynamics	PHYS1011, MATH1010, CHEM1013		3
ENG2013	Fluid Flow & Heat Transfer	MATH1010, CHEM1011		3
Mandatory Humanities Courses				
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communication Skills			3
Humanities Electives:				
HUM1000	Lifelong Learning Skills			3
HUM2012	Applied Research & Development Skills			3

Program Major Requirements (compulsory)				**69 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
PET1011	Introduction to Petroleum Engineering			3
PET1012	Petroleum Geology	PET1011		2
PET1012P	Petroleum Geology Lab		PET1012	1
PET2021	Reservoir Rock Properties	PET1011		2
PET2021P	Reservoir Rock Properties Lab		PET2021	1
PET2022	Reservoir Fluid Properties	PET1011, ENG2011		2
PET2022P	Reservoir Fluid Properties Lab		PET2022	1
PET2023	Reservoir Engineering I	PET2021,	PET2022	3
PET2031	Drilling Technology I	PET2021		2
PET2031P	Drilling Technology I Lab		PET2031	1
PET2061	Pumps, Valves and Air Compressors	ENG2013		1
PET2062	Heat Exchangers & Steam Traps	ENG2013		1
PET2063	Experimental Fluid Mechanics	ENG2013		1
PET2065	Oil & Gas Testing	CHEM1013		1
PET2064	AC and DC Machines	PHYS1013		1
PET2066	Process Fundamentals Simulation, Instrumentation & Control	PHYS1013		1
PET3072	Health & Safety at Work	Advisor Approval		2
PET3032	Drilling Technology II	PET2031		2
PET3041	Well Logging	PET2031, PET2021	PET3071	2
PET3041P	Well Logging Lab		PET3041	1
PET3071	Subsurface Production Engineering	PET2023		3
PET3042	Well Completion & Workover	PET2031		3

PET3024	Reservoir Engineering II	PET2023		3
PET3090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
PET3061	Drilling	PET3032		1
PET3062	Well Control	PET3032		1
PET3063	Cementing	PET3032		1
PET3064	Well Head/Christmas Tree	PET3032		1
PET3065	Workover	PET3032		1
PET3066	Reservoir Stimulation	PET3071		1
PET3013	Petroleum Economics	Advisor Approval		2
PET3025	Reservoir Simulation	PET3024		3
PET3043	Well Testing	PET2023,		3
PET3073	Production System Design & Analysis	PET3071		3
PET3053	Water Treatment & Injection			2
PET3053P	Water Treatment & Injection Lab		PET3053	1
PET4090	Graduation Project II	PET3090		3
PET4099	Internship	Department Approval		6

Program Minor Requirements				**19 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHET3042	Chemical Reactors & Mixing	CHET2011		2
CHET3042P	Chemical Reactors & Mixing Lab		CHET3042	1
CHET2011	Elementary Principle in Process Eng.	CHEM1011, PET1011		3
CHET2031	Momentum, Heat & Mass	ENG2011, CHET2011		4
CHET3044	Process Plant Operation	CHET2031		4
CHET3041	Petroleum Refining & Processing	CHET2011		2
CHET3041P	Petroleum Refining & Processing Lab		CHET3041	1
CHET3011	Gas Processing & Treatment	CHET2011		2

Program Electives				**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET3051	Numerical Methods	MATH1012		3
PET3052	Enhanced Oil Recovery	PET3071		3
CHEM4011	Environmental Science and Analyses	Advisor Approval		3
PET3052	Special Topics in PET	Advisor Approval		3
CHET3054	Special Topics in ChET-I	Advisor Approval		3

24.9 Study Plan for Applied Bachelor's in Petroleum Engineering Technology with Minor in Oil & Gas Process Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH1001	Pre-calculus	3		
	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	PET1011	Intro To Petroleum Eng.	3		
	ICT1011	Intro. To Programming & Problem Solving	3		
	ENGL1001	English Skills	0		
	PHYS1011	Physics I	3		
	PHYS1012	Physics I Lab	1		PHYS1011
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH1010	Calculus I	3	MATH1001	
	CHEM1013	Chemistry II	3	CHEM1011	
	CHEM1014	Chemistry II Lab	1		CHEM1013
	PET1012	Petroleum Geology	2	PET1011	
	PET1012P	Petroleum Geology Lab	1		PET1012
	ENGL1011	Academic English I	3	ENGL1001	
	PHYS1013	Physics II	3	PHYS1011	
	PHYS1014	Physics II Lab	1		PHYS1013
	ENG1003	Mech. Workshop	1		
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	ENGL1012	Academic English II	3	ENGL1011	
	ENG2011	Thermodynamics	3	MATH1010, PHYS1011	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH1020	Calculus II	3	MATH1011	
	HUM1012	Emirates Society & Culture	3		
	PET2021	Reservoir Rock Properties	2	PET1012	
	PET2021P	Reservoir Rock Properties Lab	1		PET2021
	HUMxxxx	Humanities Elective	3		
	ENG2013	Fluid Flow & Heat Transfer	3	MATH1010, ENG2011	
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHET2011	Elementary Principles of Process Eng	2	CHEM1011, PET1011	
	PET2031	Drilling Technology 1	2	PET2021	
	PET2031P	Drilling Technology 1 Lab	1		PET2031
	PET2022	Reservoir Fluid Properties	2	PET1011, ENG2011	
	PET2022P	Reservoir Fluid Properties Lab	1		PET2022
	PET2023	Reservoir Eng. I	3	PET2021,	
	HUM1011	Islamic Culture	3		
	MATH2012	Probability & Statistics	3		
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET2061	Pumps Valves & Air Compressors	1	ENG2013	
	PET2062	Heat Exchangers & Steam Traps	1	ENG2013	
	PET2063	Experimental Fluid Mechanics	1	ENG2013	
	PET2065	Oil & Gas Testing	1	CHEM1013	
	PET2064	AC & DC Machines	1	PHYS1013	
	PET2066	Process Simulation & Instru. & Control	1	PHYS1013	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PET3072	Health & safety at Work (HSW)	2	Advisor Approval	
	PET3013	Petroleum Economics	2	Advisor Approval	
	PET3032	Drilling Technology II	2	PET2031	
	PET3041	Well Logging	2	PET2031 & PET2023	
	PET3041P	Well Logging Lab	1	PET3041	
	PET3024	Reservoir Engineering II	3	PET2023	
	PET3071	Subsurface Production Engineering	3	PET2023	
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	CHET3042	Chemical Reactors and Mixing	2	CHET2011	
	CHET3042P	Chemical Reactors and Mixing Lab	1		CHET3042
	CHET2031	Momentum, Heat & Mass Transfer	4	ENG2011 + CHET2011	
	PET3090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
	PET3073	Prod. Syst. Design & Analysis	3	PET3071	
	PET3025	Reservoir Simulation	3	PET3024	
		Total Credit Hours	**16**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET3061	Drilling	1	PET3032	
	PET3062	Well Control	1	PET3032	
	PET3063	Cementing	1	PET3032	
	PET3064	Well Head/Christmas Tree	1	PET3032	
	PET3065	Workover	1	PET3032	
	PET3066	Reservoir Stimulation	1	PET3071	
		Total Credit Hours	**6**		

4th Year (Senior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	CHET3044	Process Plant Operations	4	CHET2031	
	PET4090	Graduation Project II	3	PET3090	
	CHET3011	Gas Processing & Treatment	2	CHET2011	
	PETXXXX	Technical Elective	3	Advisor Approval	
	PET3053	Water Treatment and Injection	2	Advisor Approval	
	PET3053P	Water Treatment and Injection Lab	1		PET3053
Total Credit Hours			**15**		
Semester 2	PET3042	Well Completion & Workover	3	PET2031	
	HUM1013	Arabic Communication Skills	3		
	CHET3041	Petroleum Refining & Processing	2	CHET2011	
	CHET3041P	Petrol Refining & Processes Lab	1	CHET3041	
	PETXXXX	Technical Elective	3	Advisor Approval	
	PET3043	Well Testing	3	PET2023	
	PET3042	Well Completion & Workover	3	PET2031	
	HUM1013	Arabic Communication Skills	3		
		Total Credit Hours	**15**		
	PET 4099	Internship	6	Department Approval	
		Total Credit Hours	**6**		

24.10 Curriculum for Applied Bachelor's in Petroleum Engineering Technology

Degree Requirements	Total Credit Hours: 140 Credit Hours
General Education Requirements	21
Program-based General Education courses	38
Program Major Requirements (compulsory)	69
Program and Humanities Electives	12

General Education Requirements				21Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH1001	Pre-calculus			3
MATH1010	Calculus I	MATH1001		3
ICT1011	Intro to Programing & Problem Solving			3
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM3011	Creativity, Innovation and Entrepreneurship	ENGL1012		3

Program-based General Education courses				38 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I			3
CHEM1012	Chemistry I Lab		CHEM1011	1
PHYS1011	Physics I			3
PHYS1012	Physics I Lab		PHYS1011	1
PHYS1013	Physics II	PHYS1011		3
PHYS1014	Physics II Lab		PHYS1013	1
CHEM1013	Chemistry II	CHEM1011		3
CHEM1014	Chemistry II Lab		CHEM1013	1
MATH1020	Calculus II	MATH1010		3
MATH2012	Probability & Statistics	MATH1010		3
ENG1003	Mechanical Workshop			1
ENG2011	Thermodynamics	PHYS1011, MATH1010, CHEM1013		3
ENG2013	Fluid Flow & Heat Transfer	MATH1010, CHEM1011		3
Mandatory Humanities Courses				
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communication Skills			3
Humanities Electives:				
HUM1000	Lifelong Learning Skills			3
HUM2012	Applied Research & Dev Skills			3

Program Major Requirements (compulsory)				69 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**

PET1011	Introduction to Petroleum Engineering			3
PET1012	Petroleum Geology	PET1011		2
PET1012P	Petroleum Geology Lab		PET1012	1
PET2021	Reservoir Rock Properties	PET1011		2
PET2021P	Reservoir Rock Properties Lab		PET2021	1
PET2022	Reservoir Fluid Properties	PET1011, ENG2011		2
PET2022P	Reservoir Fluid Properties Lab		PET2022	1
PET2023	Reservoir Engineering I	PET2021,	PET2022	3
PET2031	Drilling Technology I	PET2021		2
PET2031P	Drilling Technology I Lab		PET2031	1
PET2061	Pumps, Valves and Air Compressors	ENG2013		1
PET2062	Heat Exchangers & Steam Traps	ENG2013		1
PET2063	Experimental Fluid Mechanics	ENG2013		1
PET2065	Oil & Gas Testing	CHEM1013		1
PET2064	AC and DC Machines	PHYS1013		1
PET2066	Process Fundamentals Simulation, Instrumentation & Control	PHYS1013		1
PET3072	Health & Safety at Work	Advisor Approval		2
PET3032	Drilling Technology II	PET2031		2
PET3041	Well Logging	PET2031, PET2021	PET3071	2
PET3041P	Well Logging Lab		PET3041	1
PET3071	Subsurface Production Engineering	PET2023		3
PET3042	Well Completion & Workover	PET2031		3
PET3024	Reservoir Engineering II	PET2023		3
PET3090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
PET3061	Drilling	PET3032		1
PET3062	Well Control	PET3032		1
PET3063	Cementing	PET3032		1
PET3064	Well Head/Christmas Tree	PET3032		1
PET3065	Workover	PET3032		1
PET3066	Reservoir Stimulation	PET3071		1
PET3013	Petroleum Economics	Advisor Approval		2
PET3025	Reservoir Simulation	PET3024		3

PET3043	Well Testing	PET2023,		3
PET3073	Production System Design & Analysis	PET3071		3
PET3053	Water Treatment & Injection			2
PET3053P	Water Treatment & Injection Lab		PET3053	1
PET4090	Graduation Project II	PET3090		3
PET4099	Internship	Department Approval		6

Program Electives				**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET3051	Numerical Methods	MATH1012		3
PET3052	Enhanced Oil Recovery	PET3071		3
CHEM4011	Environmental Science and Analyses	Advisor Approval		3
PET3052	Special Topics in PET	Advisor Approval		3

24.11 Study Plan Applied Bachelor's in Petroleum Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH1001	Pre-calculus	3		
	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	PET1011	Intro To Petroleum Eng.	3		
	ICT1011	Intro. To Programming & Problem Solving	3		
	ENGL1001	English Skills	0		
	PHYS1011	Physics I	3		
	PHYS1012	Physics I Lab	1		PHYS1011
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH1010	Calculus I	3	MATH1001	
	CHEM1013	Chemistry II	3	CHEM1011	
	CHEM1014	Chemistry II Lab	1		CHEM1013
	PET1012	Petroleum Geology	2	PET1011	
	PET1012P	Petroleum Geology Lab	1		PET1012
	ENGL1011	Academic English I	3	ENGL1001	
	PHYS1013	Physics II	3	PHYS1011	
	PHYS1014	Physics II Lab	1		PHYS1013
	ENG1003	Mech. Workshop	1		
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	ENGL1012	Academic English II	3	ENGL1011	
	ENG2011	Thermodynamics	3	PHYS1011, CHEM1013, MATH1010	
		Total Credit Hours	**6**		

2nd Year (Sophomore)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH1020	Calculus II	3	MATH1011	
	HUM1012	Emirates Society & Culture	3		
	PET2021	Reservoir Rock Properties	2	PET1012	
	PET2021P	Reservoir Rock Properties Lab	1		PET2021
	ENGL2011	Public Speaking	1	ENGL1012	
	ENGL2012	Literature Review	1	ENGL1012	
	ENGL2013	Report Writing	1	ENGL1012	
	HUMxxxx	Humanities Elective	3		
	ENG2013	Fluid Flow & Heat Transfer	3	MATH1010, CHEM1011	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH2012	Probability and Statistics	3	MATH1001	MATH2012
	PET2031	Drilling Technology 1	2	PET2021	
	PET2031P	Drilling Technology 1 Lab	1		PET2031
	PET2022	Reservoir Fluid Properties	2	PET1011,ENG2011	
	PET2022P	Reservoir Fluid Properties Lab	1		PET2022
	PET2023	Reservoir Eng. I	3	PET2021	
	HUM1011	Islamic Culture	3		
		Total Credit Hours	**15**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET2061	Pumps Valves & Air Compressors	1	ENG2013	
	PET2062	Heat Exchangers & Steam Traps	1	ENG2013	
	PET2063	Experimental Fluid Mechanics	1	ENG2013	
	PET2065	Oil & Gas Testing	1	CHEM1013	
	PET2064	AC & DC Machines	1	PHYS1013	
	PET2066	Process Simulation & Instru. & Control	1	PHYS1013	
		Total Credit Hours	**6**		

3rd Year (Junior)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	PET3072	Health & safety at Work (HSW)	2	Advisor Approval	
	PET3013	Petroleum Economics	2	Advisor Approval	
	PET3032	Drilling Technology II	2	PET2031	
	PET3041	Well Logging	2	PET2031 & PET2023	
	PET3041P	Well Logging Lab	1	PET3041	
	PET3024	Reservoir Engineering II	3	PET2023	
	PET3071	Subsurface Production Engineering	3	PET2023	
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	PET3053	Water Treatment and Injection	2		
	PET3053P	Water Treatment and Injection Lab	1	PET3053 (Co-req)	
	PET3042	Well Completion & Workover	3	PET2031	
	PET3025	Reservoir Simulation	3	PET3024	
	PET3090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
	PET3043	Well Testing	3	PET2023	
	PET3073	Prod. Syst Design & Analysis	3	PET3071	
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	PET3061	Drilling	1	PET3032	
	PET3062	Well Control	1	PET3032	
	PET3063	Cementing	1	PET3032	
	PET3064	Well Head/Christmas Tree	1	PET3032	
	PET3065	Workover	1	PET3032	
	PET3066	Reservoir Stimulation	1	PET3071	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET4090	Graduation Project	3	PET3090	
	PETxxxx	Technical Elective	3	Advisor Approval	
	PETxxxx	Technical Elective	3	Advisor Approval	
	HUM1013	Arabic Communication Skills	3		
		Total Credit Hours	**12**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET4099	Internship	6	Department Approval	
		Total Credit Hours	**6**		

24.12 Curriculum Applied Bachelor's in Chemical Engineering Technology

Degree Requirements	Total Credit Hours: 140 Credit Hours
General Education Requirements	21
Program-based General Education courses	33
Program Major Requirements (compulsory)	74
Program and Humanities Electives	12

General Education Requirements				21Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
MATH1001	Pre-calculus			3
MATH1010	Calculus I	MATH1001		3
ICT1011	Introduction to Programing & Problem Solving			3
ENGL1011	Academic English I	IELTS =5.5 or EmSAT=1100 or ENGL1001		3
ENGL1012	Academic English II	ENGL1011		3
ENGL2011	Public Speaking	ENGL1012		1
ENGL2012	Literature Review	ENGL1012		1
ENGL2013	Report Writing	ENGL1012		1
HUM3011	Creativity, Innovation and Entrepreneurship	ENGL1012		3

Program-based General Education courses				33 Credit Hours
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHEM1011	Chemistry I			3

CHEM1012	Chemistry I Lab		CHEM1011	1
PHYS1011	Physics I			3
PHYS1012	Physics I Lab		PHYS1011	1
PHYS1013	Physics II	PHYS1011		3
PHYS1014	Physics II Lab		PHYS1013	1
CHEM1013	Chemistry II	CHEM1011		3
CHEM1014	Chemistry II Lab		CHEM1013	1
ENG1001	Industrial Safety and Pro Ethics			2
MATH2012	Probability & Statistics	MATH1010		3
ENG1003	Mechanical Workshop			1
ENG2011	Thermodynamics	PHYS1011, MATH1010, CHEM1013		3
ENG1002	Engineering Drawing			2
Mandatory Humanities Courses				
HUM1011	Islamic Culture			3
HUM1012	Emirates Society & Culture			3
HUM1013	Arabic Communication Skills			3
Humanities Electives:				
HUM1000	Lifelong Learning Skills			3
HUM2012	Applied Research & Development Skills			3

Program Major Requirements (compulsory)				**74 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Co-requisite**	**Credit Hours**
CHET1011	Introduction to Oil & Gas Industry			3
CHET2011	Elementary Principles of Proc. Eng	CHEM1011 & CHET1011		2
CHET2021	Analytical Chemistry (Blended)	CHEM1013		2
CHET2022	Organic Chemistry (Lec + Lab)	CHEM1013		3
CHET2023	Physical Chemistry (Lec+Lab) (Blended)	CHEM1013		3
CHET2031	Momentum, Heat & Mass Transfer	CHET2011; ENG2011		4
CHET3041	Petroleum Refining & Processing	CHET2011		2
CHET3041P	Petroleum Refining & Processing Lab		CHET3041 (Co-req)	1
CHET3011	Gas Processing & Treatment	CHET2011		2
CHET3042	Chemical Reactors & Mixing	CHET2011		2
CHET3042P	Chemical Reactors & Mixing Lab		CHET3042 (Co-req)	1
PET3072	Health & Safety at Work (HSW)	ENG1001		2

CHET3024	Petrochemicals	CHEM1013		2
CHET3012	Unit Operations I	CHET2031		3
CHET3013	Unit Operations II	CHET3012		3
CHET3043	Chemical Reactor Design	CHET3042		2
CHET3071	Plant and Equipment Design	CHET2031		3
PET3013	Petroleum Economics	Senior Standing (Advisor Approval)		2
CHET3014	Process Control & Instrumentation	CHET2011		2
PET3053	Water Treatment and Injection	Senior Standing (Advisor Approval)		2
PET3053P	Water Treatment & Injection Lab			1
CHET3054	Special Topics in CHET-I	Senior Standing (Advisor Approval)		3
CHET2061	Pumps Valves & Air Compressors	CHET2011		1
CHET2062	Heat Exchangers & Steam Traps	CHET2011		1
CHET2063	Experimental Fluid Mech	CHET2011		1
CHET3061	Water Purification	CHEM1013		1
CHET3062	Oil Handling Systems & Facilities	CHET2011		1
CHET3063	Gas Handling Systems & Facilities	CHET2011		1
CHET3064	Separation Process	CHET2011		1
CHET3065	Oil & Gas Distillation	CHET2011		1
CHET3066	Reaction Engineering	CHET2011		1
CHET3067	Pipeline Pigging & Inspection	CHET2011		1
CHET3068	Tank Farm Operations	CHET2011		1
CHET3069	Control Room Operations	CHET2011		1
CHET3090	Graduation Project I	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR		3
CHET4090	Graduation Project II	CHET3090		3
CHET4099	OJT (Internship)	Department Approval		6

Program Electives				**6 Credit Hours**
Course Code	**Course Title**	**Prerequisite(s)**	**Corequisite**	**Credit Hours**
PET3051	Numerical Methods (3 CR)	ICT1001 OR ICT110		3
CHET3051	Process Modeling & Simulation (3 CR)	Advisor Approval		3
CHEM4011	Environmental Science and Analyses	Advisor Approval		3
CHET3055	Special Topics in CHET-II	CHET3054		3

24.13 Study Plan Applied Bachelor's in Chemical Engineering Technology

1st Year (Freshman)					
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 1	MATH1001	Pre-calculus	3		
	CHEM1011	Chemistry I	3		
	CHEM1012	Chemistry I Lab	1		CHEM1011
	CHET1011	Intro to Chemical, Oil and Gas Industry	3		
	ICT1011	Intro. To Programming & Problem Solving	3		
	ENGL1001	English Skills	0		
	PHYS1011	Physics I	3		
	PHYS1012	Physics I Lab	1		PHYS1011
		Total Credit Hours	**17**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Semester 2	MATH1010	Calculus I	3	MATH1001	
	CHEM1013	Chemistry II	3	CHEM1011	
	CHEM1014	Chemistry II Lab	1		CHEM1013
	ENG1002	Engineering Drawing	2		
	CHET2011	Elementary Principles of Proc. Eng.	2	CHEM1011, CHET1011	
	ENGL1011	Academic English I	3	ENGL1001	
	PHYS1013	Physics II	3	PHYS1011	
	PHYS1014	Physics II Lab	1		PHYS1013
		Total Credit Hours	**18**		
	Course Code	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
Summer	CHET2061	Pumps Valves & Air Compressors	1	CHET2011	
	CHET2062	Heat Exchangers & Steam Traps	1	CHET2011	
	CHET2063	Experimental Fluid Mech	1	CHET2011	
	ENG1003	Mech. Workshop	1		
	ENG1001	Indust Safety & Pro Ethics	2		
		Total Credit Hours	**6**		

3rd Year (Junior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET3013	Petroleum Economics	2	Advisor Approval	
	CHET3024	Petrochemicals	2	CHEM1013	
	CHET3043	Chemical Reactor Design	2	CHET3042	
	CHET3012	Unit Operations I	3	CHET2031	
	CHETXXXX	CHET Technical Elective	3	Advisor Approval	
	HUM1001	Islamic Culture	3		
	CHET3014	Process Control & Instrumentation	2	CHET2011	
		Total Credit Hours	**17**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHET3071	Plant and Equipment Design	3	CHET2031	
	CHET3013	Unit Operations II	3	CHET3012	
	CHET3090	Graduation Project I	3	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR	
	HUM1003	Arabic Communication Skills	3		
	CHET3067	Pipeline Pigging & Inspection	1	CHET2011	
	CHET3068	Tank Farm Operations	1	CHET2011	
	CHET3069	Control Room Operations	1	CHET2011	
	ENGL2011	Public Speaking	1	ENG1012	
		Total Credit Hours	**16**		
Summer 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	PET3053	Water Treatment and injection	2	Advisor Approval	
	PET3053P	Water Treatment and injection Lab	1	PET3053	
	CHET3054	Special Topic in CHET-I	3	Advisor Approval	
		Total Credit Hours	**6**		
Summer		Facilities		CHET2011	
	CHET3063	Gas Handling Systems & Facilities	1	CHET2011	
	CHET3064	Separation Process	1	CHET2011	
	CHET3065	Oil & Gas Distillation	1	CHET2011	
	CHET3066	Reactors Engineering	1	CHET2011	
		Total Credit Hours	**6**		

4th Year (Senior)					
Semester 1	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHET4090	Graduation Project II	3	CHET3090	
	HUM1002	Emirates Society and Culture	3		
	CHETXXXX	CHET Technical Elective	3	Advisor Approval	
	HUM3011	Creativity, Innovation and Entrepreneurship	3	ENGL1012	
	HUMXXXX	Humanities Elective	3	Advisor Approval	
		Total Credit Hours	**15**		
Semester 2	**Course Code**	**Course Title**	**Credit Hours**	**Prerequisite(s)**	**Co-requisite**
	CHET4099	Internship	6	Department Approval	
		Total Credit Hours	**6**		

24.14 Petroleum Engineering Technology Department Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Antonio Mateo	Department Head, Principal Instructor	Ph.D.	Ohio State University, USA
Amar Sahed	Assistant Professor	Ph.D.	University of Limerick, Ireland
Mohamed Fawzy	Assistant Professor	Ph.D.	University of Bologna, Italy
Mustafa Ozyurtkan	Assistant Professor	Ph.D.	Istanbul Technical University, Turkey
Rana Saqer	Instructor	Master	United Arab Emirates University, UAE
Khalid Hussain	Instructor	Master	University of Stavanger, Norway
Arwa Alfarajat	Lab Technologist	Master	University of Jordan, Jordan
Muhammad Hussam	Lab Technologist	Master	Glasgow Caledonian University, UK

25. Meteorology

25.1 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.

25.2 Bachelor of Science

Abu Dhabi Polytechnic Meteorology Department offers the Bachelor of Science in Meteorology. A total of 141 credits are required to obtain this degree. These credit hours are fully prescribed under the following academic areas:

25.3 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

25.4 Program Mission

The mission of Meteorology Department 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.

25.5 Program Objectives (POs/PEOs)

Bachelor of Science PEO's

- PEO-1: Providing graduates with the knowledge, skills, and competencies of international standards to perform as meteorologists, researchers, leaders in academic, government and private sectors.
- PEO-2: Preparing graduates for a career in meteorology by providing on campus and work-based hands-on learning opportunities and understanding of the nature of their profession.
- PEO-3: Provide students with teamwork and leadership experiences while demonstrating effective communication skills and knowledge of related contemporary issues.
- PEO-4: Provide students with an understanding of professional and ethical responsibility and encourage lifelong learning.

25.6 Program Learning Outcomes (PLOs/SLOs)

Bachelor of Science Program Learning Outcomes

- MET SLO1: An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
- MET SLO2: An ability to formulate or design a system, process, procedure or program to meet desired needs.
- MET SLO3: An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
- MET SLO4: An ability to communicate effectively with a range of audiences.
- MET SLO5: An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
- MET SLO6: An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

25.7 Program Entry Requirements

In addition to the ADPoly general admissions requirements (see Section 7), the MET program has the following stipulations:

Bachelor of Science:

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

25.8 Curriculum

BSc. Degree Requirements	Total Credit Hours: 141
General Education Requirements	30
Program-based General Requirements	34
Program Requirements (compulsory)	53
OCT	12
Graduation Projects	6
OJT	6

GENERAL EDUCATION REQUIREMENTS (30 C.H)				
Subj Code & NO.	**COURSE TITLE**	**CR**	**SEM.**	**PRE- REQUISITE**
MATH1001	Precalculus	3	1, 2, 3	
MATH1010	Calculus I	3	1, 2, 3	MATH1001
ICT1011	Intro to Programming and Problem Solving	3	1, 2, 3	
ENGL1001	English skills	0	1,2,3	
ENGL1011	Academic English I	3	1,2,3	ENGL1001 or IELTS 5.5
ENGL1012	Academic English II	3	1, 2, 3	ENGL1011 or IELTS 6.0 or EMSAT 1500
ENGL2011	Public Speaking	1	1	ENGL1012
ENGL2012	Literature review (Blended L.)	1	2	ENGL1012
ENGL2013	Report Writing (Blended L.)	1	3	ENGL1012
HUM1011	Islamic Culture	3	1, 2, 3	
HUM1012	Emirati Society and Culture	3	1, 2, 3	
HUM1013	Arabic Communication Skills	3	1,2	
HUM3011	Creativity, Innovation and Entrepreneurship	3	1, 2, 3	ENGL1012
PROGRAM BASED REQUIREMENTS (34 C.H)				
CHEM1011	Chemistry I	3	1, 2, 3	CO REQ CHEM1012
CHEM1012	Chemistry I Lab	1	1, 2, 3	CO REQ CHEM1011
PHYS1011	Physics I	3	1, 2, 3	
PHYS1012	Physics I Lab	1	1, 2, 3	CO REQ PHYS1011
CHEM1013	Chemistry II	3	1, 2, 3	CO REQ CHEM1014
CHEM1014	Chemistry II Lab	1	1, 2, 3	CO REQ CHEM1013
MATH2012	Probability & Statistics	3	1, 2	MATH1010
MATH1020	Calculus II	3	1, 2, 3	MATH1010
PHYS1013	Physics II	3	1, 2, 3	PHYS1011, CO REQ PHYS1014
PHYS1014	Physics II Lab	1	1, 2, 3	CO REQ PHYS1013
MATH2114	Calculus III	3	1	MATH1020
MATH2011	Linear Algebra	3	1, 2	MATH1010
MATH2013	Differential Equations	3	1, 2	MATH1010
XXX-XXX	Elective from other department	3	1, 2, 3	

PROGRAM REQUIREMENTS (53 C.H)				
MET1001	Introduction to Meteorology	3	2	
MET2101	Atmospheric Thermodynamics	3	1	MET1001, CO REQ MATH1020
MET2202	Atmospheric Dynamics I	3	2	MET2101
MET2203	Climatology	3	2	MET1001, MATH2012
MET2204	Radiation and Cloud Physics	4	2	MET2101
MET2205	Aviation Meteorology	3	2	MET1001
MET2301	Synoptic Meteorology I	3	3	MET2202
MET3101	Synoptic Meteorology II	3	1	MET2301
MET3102	Atmospheric Dynamics II	3	1	MET2202
MET3201	NWP and Numerical Analysis	3	2	MET3102, MATH2013
MET3202	Satellite Meteorology	3	2	PHYS1013, MET3060
MET3203	Radar Meteorology	3	2	PHYS1013, MET3060
MET3103	Computer Programming FORTRAN Workshop	1	1	ICT1011
MET40XX	Elective A	3	1	
MET4102	Computer based Weather Analysis Workshop	1	2	MET3103
MET4103	Numerical Computing using MATLAB Workshop	1	3	ICT1011
MET4302	Climate Data Management Workshop	1	3	MET2203
MET40XX	Elective B	3	1	
MET4101	Tropical Meteorology	3	1	MET3101
MET4301	Planetary Boundary Layer Meteorology	3	3	MET3102
On-Campus-Training (OCT) – (12 C.H) (All OCTs are mandatory)				
MET2060	Met Instruments and Observations_OCT1	1	1	MET1001
MET2061	International Met codes_OCT2	1	2	MET2060
MET2062	Meteorology and Computing_OCT3	1	1	ICT1011
MET2063	Weather Broadcast 1_OCT4	1	s	MET1001
MET2064	Weather Chart Analysis 1_OCT5	1	s	MET1001
MET2065	Synoptic Met Practice and Tephigram_OCT6	1	s	MET2064
MET3060	Weather Chart Analysis 2_OCT7	1	s	MET2064
MET3061	Weather Broadcast 2_OCT8	1	s	MET2063
MET3062	Weather Analysis and Forecasting_OCT9	1	s	MET3101
MET3063	Satellite and Radar Analysis_OCT10	1	s	MET3202, MET3203
MET3064	Weather Forecasting Techniques_OCT11	1	s	MET3101
MET3065	Programming in C++_OCT12	1	s	ICT1011

Capstone/ Graduation Project (6 C.H) – Completion of 75 C.H				
MET3090	Graduation Project I	3	1	ENGL2011, ENGL2012, ENGL2013, Minimum of 100 CR
MET4090	Graduation Project II	3	2	MET3090
On-job training (Internship) (6 C.H) – Completion of 110 C.H				
MET4099	OJT	6	2	Department Approval
COMPULSARY CONCENTRATION ELECTIVES (6 C.H)				
Elective-A Basket (Choose 3 C.H)				
MET4050	Map & GIS	3	1	MET1001
MET4051	Oceanography	3	1	MET1001
MET4052	Environmental Quality	3	1	MET1001
MET4053	Agrometeorology	3	1	MET1001
MET4054	Hydrology and Water Resources	3	1	MET1001
Elective-B Basket (Choose 3 C.H)				
MET4060	Meso-Meteorology	3	1	MET3101
MET4061	Regional Synoptic Meteorology	3	1	MET3101
MET4062	Long Range Forecast	3	1	MET3101
MET4063	Global Climate Changes	3	1	MET2203
MET4064	Air Pollution	3	1	MET1001
MET4065	Atmospheric Waves	3	1	MET3102
MET4066	Marine Meteorology	3	1	MET1001

25.9 Bachelor of Science in Meteorology Study Plan

Year 1 (Freshman)							
	Course Code	**Course Title**	**LT**	**LB**	**TT**	**CH**	**CR**
Semester 1	MATH1001	Precalculus	4	0	2	6	3
	CHEM1011	Chemistry I	3	0	2	5	3
	ENGL1001	English Skills	3	0	2	5	0
	HUM1011	Islamic Culture	3	0	0	3	3
	ICT1011	Intro to Progr & Problem Solving	2	2	2	6	3
	CHEM1012	Chemistry I Lab	0	3	0	3	1
	HUM1013	Arabic Communication Skills	3	0	0	3	3
	Total		**18**	**5**	**8**	**31**	**16**
Semester 2	MATH1010	Calculus I	3	0	2	5	3
	CHEM1013	Chemistry II	3	0	2	5	3
	PHYS1011	Physics I	3	0	2	5	3
	ENGL1011	Academic English I	3	0	2	5	3
	CHEM1014	Chemistry II Lab	0	3	0	3	1
	PHYS1012	Physics I Lab	0	3	0	3	1
	MET1001	Introduction to Meteorology	3	0	0	3	3
	Total		**15**	**6**	**8**	**29**	**17**
Summer	MATH1020	Calculus II	3	0	2	5	3
	PHYS1013	Physics II	3	0	2	5	3
	PHYS1014	Physics II Lab	0	3	0	5	1
	Total		**6**	**3**	**4**	**15**	**7**
Year 2 (Sophomore)							
Semester 1	ENGL1012	Academic English 2	3	0	2	5	3
	MET2060	Met Instrum & Observ_OCT1	0	3	1	4	1
	MET2101	Atm Thermodynamics	3	0	1	4	3
	MATH2114	Calculus III	3	0	1	4	3
	MATH2012	Probability & Statistics	3	0	1	4	3
	MET40XX	Elective A	3	0	0	3	3
	Total		**15**	**3**	**6**	**24**	**16**
Semester 2	MET2202	Atm Dynamics I	3	0	1	4	3
	MET2204	Radiation and Cloud Physics	5	0	1	6	4
	MET2061	International Met Codes_OCT2	0	3	1	4	1
	MET2203	Climatology	3	0	0	3	3
	MET2062	Meteorology & Computing_OCT3	0	3	0	3	1
	MET2205	Aviation Met	3	0	0	3	3
	Total		**13**	**6**	**3**	**22**	**15**
Summer	MET2301	Synoptic Met I	3	0	1	4	3
	MET2064	Weather Chart Analysis 1_OCT5	0	3	1	4	1
	MET4099a	OJT- Observer (only for NQC Diploma Exit)					
	Total		**3**	**3**	**1**	**8**	**4**

Year 3 (Junior)							
Semester 1	MATH2013	Differential Equations	3	0	1	4	3
	MET3101	Synoptic Met II	3	0	1	4	3
	MET3102	Atm Dynamics II	3	0	1	4	3
	MET3103	Computer Programming Fortran Workshop	0	3	0	3	1
	ENGL2011	Public Speaking	2	0	0	2	1
	MATH2011	Linear Algebra	3	0	2	5	3
	MET3060	Weather Charts Analysis 2 OCT7	0	3	1	4	1
	Total		**14**	**6**	**6**	**26**	**15**
Semester 2	MET3201	NWP & Numerical Analysis	2	3	1	6	3
	MET3202	Satellite Meteorology	3	0	1	4	3
	MET3203	Radar Meteorology	3	0	1	4	3
	HUM1012	Emirates Society	3	0	0	3	3
	MET4102	Computer Based Wx Analysis Workshop	0	3	0	3	1
	ENGL2012	Literature Review	2	0	0	2	1
	MET3062	Weather Analysis and Forecasting OCT9	0	3	1	4	1
	Total		**13**	**9**	**4**	**26**	**15**
Summer	MET3065	Programming in C++ OCT12	0	3	0	3	1
	MET2063	Weather Broadcast 1 OCT4	0	3	0	3	1
	MET4103	Num Comp Using MATLAB Workshop	0	3	0	3	1
	MET3063	Satellite & Radar Analyses OCT10	0	3	0	3	1
	MET2065	Synoptic Met practice & Tephigram_OCT6	0	3	0	3	1
	ENGL2013	Report Writing	2	0	0	2	1
	Total		**2**	**15**	**0**	**17**	**6**
Year 4 (Senior)							
Semester 1	MET4101	Tropical Met	3	0	1	4	3
	MET3090	Graduation Project I	3	0	0	3	3
	XXX-XXX	Elective from other department	3	0	0	3	3
	MET3061	Weather Broadcast 2_OCT8	0	3	0	3	1
	MET40XX	Elective B	3	0	0	3	3
	HUM3011	Creativity, Innovation and Entrepreneurship	3	0	0	3	3
	Total		**15**	**3**	**1**	**19**	**16**
Semester 2	MET4099	OJT	0	30	0	30	6
	MET4090	Graduation Project II	3	0	0	3	3
	Total		**3**	**30**	**0**	**33**	**9**
Summer	MET4301	Planetary BL Met	3	0	1	4	3
	MET4302	Climate Data Management Workshop	0	3	0	3	1
	MET3064	Weather Forecasting Techniques_OCT11	0	3	0	3	1
	Total		**3**	**6**	**1**	**10**	**5**

25.10 Meteorology Division Teaching Staff

Faculty Name	Position	Highest Degree	Conferring Institution
Murat Elge	Head of Department Principal Instructor	Ph.D.	Istanbul University Institute of Marine Sciences and Management
Seyda Tilev	Assistant Professor	Ph.D.	Istanbul Technical University
Augustine Onyango	Instructor	Ph.D.	Institute of Atmospheric Physics, Chinese Academy of Sciences
Rajkumar Sivaprahasam	Instructor	M.Sc.	Cochin University of Science and Technology
Reshmi Mohan Puzhukkal	Lab Specialist	Ph.D.	Homi Bhabha National Institute

26. Course Descriptions

Descriptions of courses offered at ADPoly are listed below. The credit hours for each course are indicated after the course title. Credit hours are mainly based on the number of lecture hours per week and are less affected by the number of laboratory or on-the-job experience hours per week.

26.1 Academic Support Department courses

26.1.1 Chemistry (CHEM)

CHEM1011 Chemistry I (3 CR)
This course introduces the elementary principles of chemistry and enables students to develop their problem-solving skills and understanding the fundamentals of chemistry including SI units, unit conversions, significant figures, and periodic table and to equip learners with the critical thinking skills most relevant for further studies. 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 hours/week, Tutorial 1 hour/week.
Co-requisite: CHEM1012

CHEM1012 Chemistry Lab I (1 CR)
This lab is an experimental course intended to complement Chemistry I and designed for students majoring in 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 and to equip learners with the critical thinking skills most relevant for further studies. 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 chemistry I and continued with chemistry II.
Lab 3 hours/week
Co-requisite: CHEM1011

CHEM1013 Chemistry II (3 CR)
This course continues to provide the fundamentals of chemistry and to equip learners with the critical thinking skills most relevant for further studies. 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 hours/week, Tutorial 1 hour/week.
Pre-requisites: CHEM1011; CHEM1012
Co-requisite: CHEM1014

CHEM1014 Chemistry Lab II (1 CR)
This Lab is an experimental course intended to complement Chemistry II. The lab course explores chemistry concepts experimentally, which are covered in the Chemistry II course and equips learners with the critical thinking skills most relevant for further studies. Students will conduct, analyze, and interpret experiments on calorimetry, phase diagram, colligative properties, rate and catalyst, chemical equilibrium constant, acid-base and electrochemistry.
Lab 3 hours/week
Pre-requisites: CHEM1011; CHEM1012, Co-requisite: CHEM1013

CHEM4011 Environmental Science and Analyses (3 CR)
This course is a senior level science elective course designed for engineering students who are in the 4th year. The course focuses on the fundamentals of environmental science and engineering. It introduces the different environmental spheres: hydrosphere, lithosphere, atmosphere and biosphere

and their interaction with anthrosphere (technology). Furthermore, global environmental awareness has grown considerably and focuses on recent environmental challenges, environmental monitoring, and protection. The course covers air, water, and soil pollution. It discusses the major environmental measurements, types of pollutants and their emission, transport of pollutants in the environment, and other types of environmental analyses. The course introduces the proper engineering interventions to manage environmental stresses and proposes solutions related to air pollution, wastewater treatment, and waste management. Finally, students will be introduced to the Environmental Impact Assessment (EIA) processes and reporting.
Lecture 3 hours/week.
Pre-requisite: CHEM1011

26.1.2 Engineering Fundamentals (ENG)

ENG1002 Engineering Drawing (2 CR)
This course introduces engineering drawing tools, and engineering drawing operations. It provides the needed training to show typical drawing views and the proper way to show interior and exterior part details. This course relates lines and planes to orthographic projection to show the size and shape of objects. It includes application of principles and graphic elements of sectioning to show interior detail, and the dimensioning techniques and symbol usage common to all drafting disciplines. Lecture 1 hour/week, lab 2 hours/week

ENG1001 Industrial Safety and Professional Ethics. (2 CR) No change to syllabus
This course is a study of safety and health management in the workplace as it is 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 hours/week

ENG1003 Mechanical Workshop (1 CR)
This course is a hands-on course covering mechanical shop safety procedures and the 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.
Lab 3 hours/week

ENG1011 Introduction to Computer Electronics (3 CR)
Electronics is an integral part of computers; hence students of computer engineering and information technology need to know the fundamental of analogue 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 analogue 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 analyse the simulation results.
Lecture 2 hours/week, 2 hours lab/week
Pre-requisites: PHYS1011

ENG2011 Thermodynamics (3 CR)
In this course basic concepts and definitions of thermodynamics, properties of pure substances, the first law of thermodynamics for the closed and open systems, the second law of thermodynamics, Entropy analysis and thermodynamics cycles (Carnot cycle) are introduced.
Lecture 2 hours/week, 2 Tutorial, 2 hours lab/week
Pre-requisites: MATH1010, PHYS1011, and CHEM1013

ENG2012 Statics and Strength of Materials (3 CR)
This course aims at studying basic concepts and fundamentals of material science and engineering. Topics covered include atomic structure, arrangements, unit cells, types of engineering materials, testing, mechanical and electrical properties, processing, in service behavior, deformation.
Lecture 3 hours/week
Pre-requisite: MATH1001, PHYS1011

ENG2013 Fluid Flow and Heat Transfer (3 CR)
The overall course objective is to develop students' knowledge in principles of hydrostatic fluid mechanics including pressure variation, buoyancy, and manometers,
Additionally, the course covers principles related to fluid flow, concepts in heat transfer, and the fundamentals of heat exchangers. Furthermore, to equip learners with the critical thinking skills most relevant for further studies. Lecture 2 hours/week, Tutorial 2 hours/week, Lab 2 hours/week
Pre-requisite: MATH1010, CHEM1011

26.1.3 English (ENGL)

ENGL1001 English Skills (0 CR)
The overall objective of this course is to equip learners with the fundamental writing, reading, communication and critical thinking skills most relevant for further studies. These include active participation and engagement in real-life learning scenarios, the ability to generate and develop ideas in speaking and writing and showing understanding of extended spoken and written texts through summary and synthesis.
Lecture 3 hours/week,
Pre-requisite: Placement exam; EmSAT=1100 or IELTS score ≥ 5.0 or equivalent

ENGL1011 Academic English I (3 CR)
This course focuses on the development of intermediate English communication skills most needed for students preparing for further studies. Critical thinking competencies will be enforced throughout the course.
Lecture 4 hours/week,
Pre-requisite: Completion of ENGL1001 English Skills; IELTS 6.0 (all bands ≥5.5); EmSAT 1300

ENGL1012 Academic English II (3 CR)
This course focuses on the development of high-intermediate English communication skills most needed for students preparing for further studies.
Lecture 4 hours/week
Pre-requisite: Completion of Academic English I; ENGL1011 or IELTS 6 (with all bands 5.5 and above) or EmSAT (1500 or above)

ENGL2011 Public Speaking (1 CR)
This course prepares students for situations where public speaking is required. Through an e-learning approach to learning, this course will help students practice and develop effective communication skills to compose and present speeches appropriate to various audiences, purposes, and occasions. Topics will also include ethical responsibilities when speaking to others, overcoming fear, vocal aspects of speech delivery, nonverbal communications, and using appropriate visual aids. Critical thinking competencies will be incorporated in the course.
Lecture 2 hours/week Online
Pre-requisite: ENGL1012

ENGL2012 Literature Review (1 CR)
Through a blended approach to learning and critical thinking skills, this course focuses on the skills that students need to locate, identify, and select relevant sources of literature to compile an annotated bibliography and a structured literature review.
Lecture 2 hours/week online
Pre-requisite: ENGL1012

ENGL2013 Report Writing (1 CR)
This course enables learners to refine their writing skills in the genre of report writing through an online learning approach. Students will learn about key principles of report writing through a mixture of synchronous and asynchronous classes and workshops. The course will place an emphasis on students developing their critical thinking skills, will be able to apply the principles from the course to future writing in their degrees and careers.
Lecture 2hr/week online.
Pre-requisite: ENGL1012

26.1.4 Humanities (HUM)

HUM1011 Islamic Culture (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 hours/week

HUM1012 Emirati 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 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. The course will be an online course and it will be delivered as synchronous and asynchronous classes and workshops/assignments.
Lecture 3 hours/week

HUM1013 Arabic Communication Skills (3 CR)
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 hours/week

HUM2011 Introduction to Psychology (3 CR)
This course aims to provide a basic understanding of the psychology of human behavior and explain different subjects such as learning, development, cognition, and psychological disorders. The course enhances student's knowledge and understanding of how people think and act and provide insight into the student's own personality and reactions, so they will be able to deal with stress and problems. The course is delivered with theory and some practical activities to ensure that students know how to

apply their acquired knowledge.
Lecture 3hours/week
Pre-requisite: ENGL1012

HUM2012 Applied Research and Development Skills (3 CR)
This course 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 3 hours/week
Pre-requisite: ENGL1012

HUM3011 Creativity, Innovation, and Entrepreneurship (3 CR)
Creativity, innovation, and entrepreneurship are essential skills in gaining a competitive advantage in today's global economic environment. Increasingly, organizations are seeking employees that are creative and have innovative and entrepreneurial know-how. Through real world examples and research from experts in the field, students will learn how to incorporate design thinking, entrepreneurship, and growth and leadership into the UAE's society and their own personal and professional development mindset. Through real-world examples, case studies, and practical hands-on activities with a Project-Based and Blended learning approach, students will learn how to incorporate design thinking, prototyping, entrepreneurship, and leadership into the UAE's society and their own personal and professional development.
Lecture 3 hours/week
Pre-requisite: ENGL1012 (Students in the 2nd year and higher are recommended to take this course—not 1st year students.)

26.1.5 Information Computer Technology (ICT)

ICT1011 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 Python 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 hours/week; tutorial: Lab: 2 hours/week

26.1.6 Mathematics (MATH)

MATH1001 Precalculus (3 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, trigonometry, radian measure, and oblique triangles, plotting trigonometric functions, 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. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3 hours/week, Tutorial 1 hr. /week

MATH1010 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. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture: 3 hours/week, Tutorial: 1 hr./week
Pre-requisite: MATH1001 or grade greater or equal to 70% in the Math Placement Exam

MATH1020 Calculus II (3 CR)
This course is a continuation of Calculus I. 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, partial derivatives, complex numbers, and its forms. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture: 3 hours/week, Tutorial: 1 hr./week
Pre-requisite: MATH1010

MATH2011 Linear Algebra (3 CR)
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 (Cramer's 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. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3 hours/week, Tutorial 1 hr./week
Pre-requisite: MATH1001

MATH2012 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 of one of the following software packages (Excel or Jamovi) for implementation. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3 hours/week, Tutorial 1hr/week
Pre-requisite: MATH1010

MATH2013 Differential Equation for Engineering (3 CR)
This course is about Differential Equations, which are fundamental tools for scientists and engineers in modeling any physical system. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3 hours /week, Tutorial 1hr/week
Pre-requisite: MATH1020

MATH2015 Applied Mathematics (3 CR)
This course provides mathematical concepts and techniques that are most relevant to engineering disciplines arising from Linear Algebra and Differential Equations. Solution techniques are applied to engineering and science problems. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3hours/week, Tutorial 1hr/week.
Pre-requisite: MATH1020

MATH2114 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. In addition, the course is designed to enhance critical thinking and problem-solving skills.
Lecture 3 hours/week, Tutorial 1hr/week
Pre-requisite: MATH1020

26.1.7 Physics (PHYS)

PHYS1011 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. In addition, Critical thinking questions are embedded in the assignments.
Lecture 3 hours/week, Tutorial 1 hr./week.

PHYS1012 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. In addition, Critical thinking questions are embedded in the assignments.
This course is to run alongside Physics I, Lab 3 hours/week.

PHYS1013 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. In addition, Critical thinking questions are embedded in the assignments.
Lecture 3 hours/week, Tutorial 1 hr./week.
Prerequisite: PHYS1011, MATH1001

PHYS1014 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. In addition, Critical thinking questions are embedded in the assignments.
Lab 3 hours/week
Prerequisite: PHYS1011, PHYS-1012

PHYS1015 Physics I for Aviation (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. Critical thinking competencies questions are embedded within the course.
Lecture 3 hours/week, Tutorial 1 hr./week.

PHYS1016 Physics I Lab for Aviation (1 CR)
This Lab is an experimental course intended to complement Physics I for Aviation. The purpose of this lab course is to explore some of the main concepts experimentally, which are covered in PHYS1012.

Students will conduct, analyse, and interpret experiments on timing, motion, forces and energy, rotational motion and fluids. The students will analyse and prepare lab reports working either individually or in teams. This course is to run alongside Physics I for Aviation. In addition, Critical thinking questions are embedded in the assignments.
This course is to run alongside Physics I for Aviation, Lab 3 hours/week.

PHYS1017 Physics II for Aviation (3 CR)
The course covers the basic structure of atom, fundamentals of heat and thermodynamics, heat transfer, optics, waves, Gyroscopes, sound and vibration. Critical thinking competencies questions are embedded within the course.
Lecture 3 hours/week, Tutorial 1 hr./week.

26.2 Aircraft Engineering Technology (AET)

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)

26.2.1 Aircraft Engineering Technology – Aeromechanical (Higher Diploma)

Program Core Requirements

AME2110 Advanced Materials and Hardware I (3 CR)
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.
Prerequisite: PHYS1011

AME2112 Advanced Aerodynamics (3 CR)
This 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.
Prerequisite: PHYS111
Co-requisite: AME2113 Advanced Aerodynamics Lab

AME2113 Advanced Aerodynamics Lab (1 CR)
This 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.
Prerequisite: PHYS1011
Co-requisite: AME2112

AME2120 Advanced Maintenance Practices I (3 CR)
This 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.
Co-requisite: AME2121

AME2121 Advanced Maintenance Practices I Lab (2 CR)
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.
Co-requisite: AME2120

AME2122 Advanced Maintenance Practices II (3 CR)
This 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.
Prerequisite: AME2110, AME2120

AME2210 Advanced Materials and Hardware II (3 CR)
The course covers all types of fasteners and locking devices; this includes: 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.
Prerequisite: PHYS1011, AME2110

AME2212 Advanced Maintenance Practices III (3 CR)
This 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.
Prerequisite: AME2110, AME2120
Co-requisite: AME2213

AME2213 Advanced Maintenance Practices III Lab (1 CR)
This 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.
Prerequisite: AME2110, AME2120
Co-requisite: AME2212

AME2214 Advanced Maintenance Practices IV (3 CR)
This 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.
Prerequisite: AME2110
Co-requisite: AME2215

AME2215 Advanced Maintenance Practices IV Lab (2 CR)

Topics of this course 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.
Co-requisite: AME2214

AME2310 Advanced Maintenance Practices V (3 CR)
This course covers Aircraft Handling and Storage; Aircraft Jacking, Lifting, Weighing and Balancing, Taxiing, Choking, Mooring; Effects of Environmental Conditions on aircraft handling; Maintenance Procedure: basic concept of Maintenance Planning, Aircraft Maintenance Program and Maintenance Schedule; Aircraft Inspections; Aircraft Repair and Assembly Techniques and Trouble Shooting. The course also covers NDT/NDI, corrosion repair and protection.
Prerequisite: AME2110, AME2120
Co-requisite: AME2311

AME2311 Advanced Maintenance Practices V Lab (2 CR)
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.
Co-requisite: AME2310

AVN1010 Electrical Engineering I (3 CR)
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.
Prerequisite: Pre-Calculus (Math 1001) and Physics I (PHY 1011)
Co-requisite: Electrical Engineering I laboratory (AVN1011)

AVN1011 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.
Co-requisite: AVN1010 Electrical Engineering I

AVN1020 Electrical Engineering II (3 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. Frequency dependent devices are also covered.
Prerequisite: AVN1010 Electrical Engineering I
Co-requisite: Electrical Engineering II laboratory (AVN1021)

AVN1021 Electrical Engineering II Lab (1 CR)
This is a practical course that is conducted in a laboratory/workshop setting. This course covers the practical applications of AVN1020 Electrical Engineering II.
Prerequisite: AVN1010 Electrical Engineering I
Co-requisite: AVN1020 Electrical Engineering II

AVSC2010 Human Factors (3 CR)
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.

AVSC2012 Aviation Legislation – GCAA (3 CR)
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).

AVSC2014 Aviation Legislation – EASA (3 CR)
This 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 Organisation), the purpose of the documents required under aircraft certifications, the continuing airworthiness of the aircraft, approved maintenance organisations and the Continuing Airworthiness Management Organisations (CAMO).

PHYS1015 Physics I For Aviation (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
Co-requisite: Pre-calculus (MATH1001)

PHYS1016 Physics I Lab. For Aviation (1 CR)
This Lab is an experimental course intended to complement Physics I for Aviation. The purpose of this lab course is to explore some of the main concepts experimentally, which are covered in PHYS1012. Students will conduct, analyse and interpret experiments on timing, motion, forces and energy, rotational motion and fluids. The students will analyze and prepare lab reports working either individually or in teams. This course is to run alongside Physics I for Aviation
Co-requisite: PHYS1015

PHYS1017 Physics II for Aviation (3 CR)
The course covers the basic structure of atom, fundamentals of heat and thermodynamics, heat transfer, optics, waves, Gyroscopes, sound and vibration.
Prerequisite: PHYS1015

Compulsory Aeromechanical (B1.1) Concentration

AME3110 Gas Turbine Engines I (3 CR)
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.
Prerequisite: AME2112

AME3120 Advanced Aircraft Systems and Components I (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; the aircraft component and their construction. The course also includes the aircraft pressurization and air-conditioning systems. Aircraft Equipment and Furnishings are also covered.
Prerequisite: Advanced Aerodynamics AME2112

AME3122 Advanced Aircraft Systems and Components II (3 CR)
This 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.
Prerequisite: Advanced Aerodynamics AME2112

AME3210 Gas Turbine Engines II (2 CR)
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.
Prerequisite: AME3110
Co-requisite: AME3211

AME3211 Gas Turbine Engines II Lab (1 CR)
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.
Prerequisite: AME3110
Co-requisite: AME3210

AME3212 Propellers (3 CR)
The course covers blade element theory, propeller construction, propeller types and operation, propeller pitch control, synchronizing, ice protection system, propeller maintenance, storage and preservation.
Prerequisite: AME2112
Co-requisite: AME3110

AME3220 Advanced Aircraft Systems and Components III (3 CR)
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 oxygens, types of systems and uses. The course also covers potable water and waste systems.
Prerequisite: PHYS1015, AME3120 - Aircraft Structures and Systems I
Co-requisite: AME3223 -Aircraft Structures and Systems III

AME3221 Advanced Aircraft Systems and Components III Lab. (1 CR)
The tasks includes 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.
Prerequisite: PHYS1015
Co-requisite: AME3220

AME3224 Advanced Aircraft Systems and Components IV (3 CR)
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.

Prerequisite: AVN1020, AVN2008
Co-requisite: AME3225

AME3225 Advanced Aircraft Systems and Components IV (1 CR)
Practical tasks will 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.
Prerequisite: AVN1020, AVN2008
Co-requisite: AME3224

AVN2008 Electronics for B1 (3 CR)
This course introduces the functional principles of semiconductors and semiconductor devices such as diodes and transistors and their applications. The use of transistors and diodes in integrated circuits. The installation of semiconductors on printed circuit boards PCB and the basics of synchro servo techniques.
Prerequisite: AVN1020 Electrical Engineering II
Co-requisite: AVN2009

AVN2009 Electronics Lab for B1 (1 CR)
This course introduces the functional principles of semiconductors and semiconductor devices such as diodes and transistors and their applications. The use of transistors and diodes in integrated circuits. The installation of semiconductors on printed circuit boards PCB and the basics of synchro servo techniques.
Prerequisite: AVN1020 Electrical Engineering II and AVN1021 Electrical Engineering II Lab
Co-requisite: AVN2008

AVN2018 Digital Techniques for B1 (3 CR)
This course covers an advanced level of digital techniques with emphasis put on electronic instrument systems, numbering systems, data buses, data conversion and logic gates, processing of data, applications of digital techniques in aviation.
Prerequisite: AVN2008 Electronics for B1 AVN2009 Electronics Lab for B1
Co-requisite: AVN2019 Digital Techniques Lab for B1

AVN2019 Digital Techniques Lab for B1 (1 CR)
This course covers an advanced level of digital techniques with emphasis put on electronic instrument systems, numbering systems, data buses, data conversion and logic gates, processing of data, applications of digital techniques in aviation.
Prerequisite: AVN2009 Electronics Lab for B1 and AVN1021 Electrical Engineering Lab II
Co-requisite: AVN2018 Digital Techniques for B1

On-Job Training and Graduation Project

AME3080 Capstone Project I (3 CR)

Pre-requisite: 90 credit hours/HoD approval

AME4099 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.
Pre-requisite: AME3080

26.2.2 Aircraft Engineering Technology – Avionics (Higher Diploma)

Program Core Requirements

AME2110 Advanced Materials and Hardware I (3 CR)
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.
Prerequisite: PHYS1011

AME2112 Advanced Aerodynamics (3 CR)
This 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.
Prerequisite: PHYS111
Co-requisite: AME2113 Advanced Aerodynamics Lab

AME2113 Advanced Aerodynamics Lab (1 CR)
This 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.
Prerequisite: PHYS1011
Co-requisite: AME2112

AME2120 Advanced Maintenance Practices I (3 CR)
This 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.
Co-requisite: AME2121

AME2121 Advanced Maintenance Practices I Lab (2 CR)
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.
Co-requisite: AME2120

AME2122 Advanced Maintenance Practices II (3 CR)
This 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.
Prerequisite: AME2110, AME2120

AME2210 Advanced Materials and Hardware II (3 CR)
The course covers all types of fasteners and locking devices; this includes: 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.
Prerequisite: PHYS1011, AME2110

AME2212 Advanced Maintenance Practices III (3 CR)
This 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.
Prerequisite: AME2110, AME2120
Co-requisite: AME2213

AME2213 Advanced Maintenance Practices III Lab (1 CR)
This 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.
Prerequisite: AME2110, AME2120
Co-requisite: AME2212

AME2214 Advanced Maintenance Practices IV (3 CR)
This 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.
Prerequisite: AME2110
Co-requisite: AME2215

AME2215 Advanced Maintenance Practices IV Lab (2 CR)
Topics of this course 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.
Co-requisite: AME2214

AME2310 Advanced Maintenance Practices V (3 CR)
This course covers Aircraft Handling and Storage; Aircraft Jacking, Lifting, Weighing and Balancing, Taxiing, Choking, Mooring; Effects of Environmental Conditions on aircraft handling; Maintenance Procedure: basic concept of Maintenance Planning, Aircraft Maintenance Program and Maintenance Schedule; Aircraft Inspections; Aircraft Repair and Assembly Techniques and Trouble Shooting. The course also covers NDT/NDI, corrosion repair and protection.
Prerequisite: AME2110, AME2120
Co-requisite: AME2311

AME2311 Advanced Maintenance Practices V Lab (2 CR)
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.
Co-requisite: AME2310

AVN1010 Electrical Engineering I (3 CR)
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.
Prerequisite: Pre-Calculus (Math 1001) and Physics I (PHY 1011)
Co-requisite: Electrical Engineering I laboratory (AVN1011)

AVN1011 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.
Co-requisite: AVN1010 Electrical Engineering I

AVN1020 Electrical Engineering II (3 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. Frequency dependent devices are also covered.
Prerequisite: AVN1010 Electrical Engineering I
Co-requisite: Electrical Engineering II laboratory (AVN1021)

AVN1021 Electrical Engineering II Lab (1 CR)
This is a practical course that is conducted in a laboratory/workshop setting. This course covers the practical applications of AVN1020 Electrical Engineering II.
Prerequisite: AVN1010 Electrical Engineering I
Co-requisite: AVN1020 Electrical Engineering II

AVSC2010 Human Factors (3 CR)
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.

AVSC2012 Aviation Legislation – GCAA (3 CR)
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).

AVSC2014 Aviation Legislation – EASA (3 CR)
This 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 Organisation), the purpose of the documents required under aircraft certifications, the continuing airworthiness of the aircraft, approved maintenance organisations and the Continuing Airworthiness Management Organisations (CAMO).

PHYS1015 Physics I for Aviation (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.

PHYS1016 Physics I Lab. For Aviation (1 CR)
This Lab is an experimental course intended to complement Physics I for Aviation. The purpose of this lab course is to explore some of the main concepts experimentally, which are covered in PHYS1012. Students will conduct, analyse and interpret experiments on timing, motion, forces and energy, rotational motion and fluids. The students will analyze and prepare lab reports working either individually or in teams. This course is to run alongside Physics I for Aviation.

PHYS1017 Physics II for Aviation (3 CR)
The overall objectives of the course are to develop student understanding and skills in the basic structure of atom, fundamentals of heat and thermodynamics, heat transfer, optics, waves, Gyroscopes, sound and vibration.

Compulsory Avionics (B2) Concentration

AVN2010 Electronics for B2 (3 CR)
This course intended to develop student knowledge and skills in the area of basic semiconductor theory and semiconductor devices and to provide students with the necessary information required in integrated circuits and amplifiers and their applications in aircraft. This course provides a comprehensive overview of the aviation industry's theoretical principles of electronics. The syllabus covers a range of topics, including diodes, transistors, integrated circuits, and servomechanisms. Students will have the opportunity to explore the latest research and developments in the field and deepen their knowledge and understanding of electronics-related concepts. By the end of the course, students will have a strong understanding of the application of electronics in the aviation industry.
Co-requisite: AVN2011 Electronics Lab CAT B2

AVN2011 Electronics lab for B2 (1 CR)
This course expands on the functional principles of semiconductors and semiconductor devices such as diodes and transistors and their applications. The use of transistors and diodes in integrated circuits. The installation of semiconductors on printed circuit boards PCB and the basics of synchro servo techniques.
Prerequisite: AVN1020 Electrical Engineering II
Co-requisite: AVN2012 Electronics Lab CAT B2

AVN2020 Digital Techniques I for B2 (3 CR)
This course covers an advanced level of digital techniques with emphasis put on electronic instrument systems, numbering systems, data buses, data conversion and logic gates, processing of data, applications of digital techniques in aviation.
Prerequisite: AVN2010 Electronics for B2, AVN2011 Electronics Lab for B2
Co-requisite: AVN2021 Digital Techniques I Lab for B2

AVN2021 Digital Techniques LAB I for B2 (1 CR)
This course covers an advanced level of digital techniques with emphasis put on electronic instrument systems, numbering systems, data buses, data conversion and logic gates, processing of data, applications of digital techniques in aviation.
Prerequisite: AVN2010 Electronics for B2, AVN2011 Electronics Lab for B2
Co-requisite: AVN2020 Digital Techniques I For B2

AVN2022 Digital Techniques II for B2 (3 CR)
This course covers an advanced level of digital techniques with emphasis put on microprocessor, integrated circuits, display techniques, multiplexing, electromagnetic compatibility, applications of digital techniques in aviation.
Prerequisite: AVN2020 Digital Techniques I for B2, AVN2021 Advanced Digital Techniques LAB I for B2
Co-requisite: AVN2020 Digital Techniques Lab II for B2

AVN2023 Digital Techniques II LAB for B2 (1 CR)
This course covers an advanced level of digital techniques with emphasis put on microprocessor, integrated circuits, display techniques, multiplexing, electromagnetic compatibility, applications of digital techniques in aviation.
Prerequisite: AVN2020 Digital Techniques I for B2, AVN2021 Digital Techniques LAB I for B2
Co-requisite: AVN2022 Digital Techniques II for B2

AVN3110 Avionics Systems I (3 CR)
This 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 the 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.
Prerequisite: AVN2010 Electronics for B2, AVN2022 Digital Techniques II for B2, AME2112 Advanced Aérodynamics
Co-requisite: AVN3111 – Avionics Systems I LAB

AVN3111 Avionics Systems I Lab-OCT 8 (1 CR)
This course explains the theory of flight including aerodynamics, flight controls operations and systems and high-speed flight of airplanes. Other contents are; airworthiness requirements related to airplane structure, their components and their construction. The course also includes aircraft systems like pressurization and air-conditioning systems, hydraulic systems, pneumatics systems, fire systems, fuel system, ice control systems, oxygen systems, landing gears, water and waste systems an aircraft equipment and furnishings.
Prerequisite: AVN2010 Electronics for B2, AVN2022 Digital Techniques II, AME2112 Aerodynamics
Co-requisite: AVN3110 – Avionics Systems I

AVN3112 Avionics Systems II (3 CR)
This course covers the principles of auto-flight and its applications in modern aircrafts as well as the principles of communication and radio navigation systems used in civil aviation.
In Auto flight, systems such as Autopilot, Trim-, Yaw damper, Stability augmentation, Autothrottle-systems are covered. In Communication INTERCOMM, HF, VHF, ELT, CVR, ACARS systems are covered and in radio navigation, systems such as ADF, VOR, ILS, DME, MARKER BEACON, MLS, VLF/Omega, Flight director systems are covered. Also covered are practical aircraft installations, function tests and troubleshooting of the listed systems.
Prerequisite: AVN3110 – Avionics Systems I, AVN2010 Electronics for B2, AVN2022 Digital techniques II for B2
Co-requisite: AVN3113 – Avionics Systems II LAB

AVN3113 Avionics Systems II Lab-OCT9 (1 CR)
This course covers the principles of auto-flight and its applications in modern aircrafts as well as the principles of communication and radio navigation systems used in civil aviation. In Auto flight, systems such as Autopilot, Trim-, Yaw damper, Stability augmentation, Autothrottle-systems are covered. In Communication INTERCOMM, HF, VHF, ELT, CVR, ACARS systems are covered and in radio navigation, systems such as ADF, VOR, ILS, DME, MARKER BEACON, MLS, VLF/Omega, Flight director systems are covered. Also covered are practical aircraft installations, function tests and troubleshooting of the listed systems.
Prerequisite: AVN3111 – Avionics Systems I, AVN237 Electronics II, AVN2022 Digital techniques II
Co-requisite: AVN3112 – Avionics Systems II

AVN3210 Avionics Systems III (3 CR)
This course covers radar systems, inertial navigation, satellite navigation, flight management systems, aircraft electrical power systems and lights. This course also includes logical approach to fault diagnosis, and communicate technical information both orally and in the form of written technical reports.
Prerequisite: AVN3112, AVN2008, AVN2022
Co-requisite: AVN3211

AVN3211 Avionics Systems III Lab OCT10 (1 CR)
This course covers radar systems, inertial navigation, satellite navigation, flight management systems, aircraft electrical power systems and lights. This course also includes logical approach to fault diagnosis, and communicate technical information both orally and in the form of written technical reports.
Prerequisite: AVN3112, AVN2208 Electronics for B2, AVN2022 Digital techniques II
Co-requisite: AVN3210 – Avionics Systems III

AVN3212 Avionics Systems IV (3 CR)
This course covers aircraft systems at an advanced level to satisfy partial EASA/GCAA requirements for Module 13. Course covers flight instruments, On-board maintenance systems, integrated modular avionics, cabin systems and information systems.
Prerequisite: AVN3110 - Avionics Systems I
Co-requisite: AVN3213 – Avionics Systems IV LAB

AVN3213 Avionics Systems IV Lab OCT11 (1 CR)
This course covers aircraft systems at an advanced level to satisfy partial EASA/GCAA requirements for Module 13. Course covers flight instruments, On-board maintenance systems, integrated modular avionics, cabin systems and information systems.
Prerequisite: AVN3111 - Avionics Systems I
Co-requisite: AVN3212 – Avionics Systems IV

AVN3010 Propulsion and FADEC-OCT12 (2 CR)
This course intended to develop student knowledge and skills in construction, operation of Gas turbine engine and familiarize them with the system FADEC and how it meter fuel to the engine.
Prerequisite: AVN2112 Aerodynamics
Co-requisite: AVN2010 Electronics for B2

On-Job Training and Graduation Project

AVN3080 Capstone Project (3 CR)

Pre-requisite: 90 credit hours/HOD approval

AVN4099 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.
Pre-requisite: AVN3080
Co-requisite: None

26.3 Aircraft Maintenance Technology (AMT)

Course that are part of the AMT Diploma and Higher Diploma program are listed below. 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 Maintenance Technology-Aeromechanics (AMT)
- Aircraft Engineering Technology-Avionics (AVN)
- Aviation Science (AVSC)
- English (ENGL)
- Humanities (HUM)
- Information and Communications Technology (ICT)
- Mathematics (MATH)
- Physics (PHYS)

26.3.1 Aircraft Maintenance Technology (Diploma)

PHYS1015 - Physics I for Aviation (Mod 2A) (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.

PHYS1016 - Physics I Lab for aviation (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, analyse and interpret experiments on timing, motion, forces and Energy, rotational motion, forces and rotational energy and analyse and Prepare lab reports working either individually or in teams. This course is to run alongside Physics I.

AMT1101 - W/S Practices/Orientation (3 CR)
This course 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. 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.

AVT3101 - Electrical Engineering I (3 B) (3 CR)
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.
The objectives 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.

AVT3102 - Electrical Engineering I (3 B) 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 help student understanding the concepts of direct current circuits and verifies the theories behind their operation.

AMT1201 - Materials & Hardware (6 A) (3 CR)
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.
The objective of this course is to develop skills and understanding of aircraft materials and hardware as per EASA Cat A module 6 requirements, and to enable students to understand and use all types of fasteners, springs and cables.

AMT2103 - Maintenance Practices I (7 A) (3 CR)
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. 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. to be able to apply safety precautions in all his work in aviation field and how to use tools and equipment.

AVT1201 - Electrical Fundamentals (Mod 3A)
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 AC theory. This course introduces the concept of direct current circuits and studies its applications and its fundamental theories.

AVSC 1301 - Human Factors (9 B) (3 CR)
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. 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.

AVT1301 - Electronics (4 A) (3 CR)
This course 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. The objective of this course is to introduce the students to the fundamentals of electronics and develop their knowledge and skills in the integrated circuits and printed circuits technology.

AMT2102 - Basic Aerodynamics (8 A) (2 CR)
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. The objective of this course is to provide students with the basic principles of aerodynamics as per EASA Cat A requirements, and to equip students with the knowledge to understand the difference between turbulent and laminar airflow. Introduce students to Venturi's Principle, the Theory of flight and aircraft flight stability.

AMT2103 - Maintenance Practices II (7 A) (3 CR)
This course covers introduction to engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances, electrical cables, standard methods of checking aircraft parts.
The objective of this course is to develop students understanding and skills on engineering drawing as a part of EASA Cat A module 7, to be able to read and write technical documents and maintenance manuals.

AMT2104 - Aircraft Sys & Components I (11 A) (3 CR)
This course covers fundamentals of aero-plane theory of flight and flight controls, high speed flight, 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: hydraulic power, pneumatic systems, fire protection system, landing gear, ice protection system, fuel system and water and waste system. The intension of this course is to develop student understanding and skills in aircraft structure I as per EASA Cat A requirements and to enable the students to understand the operation and effect of common flight controls and high lift devices, principles of high-speed flight, general concepts of airframe structures, aircraft structural parts and systems related and arranged according to ATA concepts.

AMT2105 - Turbine Engines (15 A) (3 CR)
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 indication systems. The course also covers safety procedures, monitoring systems, engine ground operation, and thrust augmentation systems.
This course is intended to develop student understanding and skills on Gas Turbine Engines as per EASA Cat A module 15 requirements and to develop his knowledge in GTE, principles, construction, systems and operation needed as a maintenance personnel involved with Line Maintenance.

AVSC2201 - Aviation Legislation (10 B) (3 CR)
This 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

Organisation), the purpose of the documents required under aircraft certifications, the continuing airworthiness of the aircraft, approved maintenance organisations and the Continuing Airworthiness Management Organisations (CAMO).
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.

AMT2202 - Maintenance Practices III (7 A) (3 CR)
This course covers fundamental knowledge of electrical cables, connectors, and wiring protection methods, crimping tools connector pin, coaxial cables, wiring protection technique. The course also covers safetying of aircraft fasteners and electrical systems hardware. The objective of this course is to develop students understanding and skills on Electric cables and connections used in aircraft as well as wiring protection techniques as a part of EASA Cat A module 7.

AMT2203 - Maintenance Practices IV (7 A) (3 CR)
This course covers fundamental knowledge of Riveting: rivets and riveted joints, Inspection of riveted joints; Aircraft handling and operation, Pipes: Bending, Flaring, Inspection and testing ; Bearing and shafts, Safety precautions of aircraft operations, NDT Inspection, Corrosion, Aircraft storage methods, Composite repairs and tools, Aircraft Ground Support Equipment (GSE). The objective of this course is to develop students understanding and skills on cables and wiring used in aircraft structures as well as part of EASA Cat A module 7.

AVT2101 – Basic Digital Techniques (5 A) (3 CR)
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, and special handling of components sensitive to electrostatic discharges. The objectives of the course is to introduce students to the fundamentals of aircraft electronic instruments and their systems and computer terminology.

AMT2204 - Aircraft Sys. & Components II (11 A) (4 CR)
The course covers fundamentals of aircraft instrument systems: pitot static and gyroscopic; avionics systems: auto-flight, communication and navigation systems; electrical power: DC and AC generators and power distribution; Lights and on-board systems. The objective of this course is to provide students with skills and understanding of the aircraft electric and electronic systems as part of EASA Cat A module 11. To enable the students to understand the fundamentals and systems lay-out of aircraft electrical, instrument, electronic and avionics systems.

AMT2205 - Propellers (17 A) (2 CR)
This course 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. This course is intended to provide students with the fundamental principles, operation, safety and maintenance of propeller as per EASA Cat A module 17 requirements.

AMT2090 - OJT / 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. 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.

26.3.2 Aircraft Maintenance Technology–Aeromechanics (Higher Diploma – 3rd Year)

AMT3102 -Adv. Materials & Hardware I (6 B1) (3 CR)
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. The objective of this course is to develop students understanding and skills on the characteristics, types and uses of aircraft materials and familiarize them with the types, causes and removal of corrosion.

AMT3101 - Adv. Aerodynamics (8 B1) (3 CR)
This 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. This course is intended to introduce students to the advanced concepts of aerodynamics, flow dynamics and factors affecting aircraft stability and control.

AMT3103 - Adv. Maintenance Practices I (7 B1) (3 CR)
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 emphasizes engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances, standard methods for checking shafts, bearings, as well as electrical cables and connectors, wiring protection techniques, bonding practices and testing, riveting, pipes and hoses, springs, bearings, transmissions and control cables. The overall objectives of this course is to develop student understanding and skills as well as hands-on skills in reading and writing technical drawing, inspecting shafts, bearings, cables, rivets, pipes and control cables.

AVT3201 - Electronic Communication Techniques - (3 credit hours)
This course covers the basic principles of radio and electronic communication techniques. AM, FM and other modulation techniques are discussed along with the principles of the super-heterodyne receiver. Phase modulation is introduced, and its principles are discussed.

AVT3103 - Digital Techniques I (5 B1) (3 CR)
This course is a continuation of Digital Techniques I covering an advanced level with emphasis put on logic circuits, computer technology as applied in aircrafts. To introduce digital systems and the digital computer as an integral system in the construction of aircraft control systems. The objectives of this course are to develop student understanding and skills in the integral systems and operation of aircraft control systems.

AMT3104 - Adv. Aircraft Sys. & Components I (11B1) (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. To enable the students to understand the operation and effect of common flight controls and high lift devices. To introduce students to the principles of high speed flight, general concepts of airframe structures, aircraft structural parts and systems related and arranged according to ATA concepts.

AMT3201 -Adv. Materials & Hardware II (6 B1) (3 CR)
The course covers all types of fasteners and locking devices; this includes: 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. 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.

AMT3202 - Adv. Maintenance Practices II (7 B1) (3CR)
This course covers aircraft an advanced level of aircraft parts joining and repair methods comprising; 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. 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.

AMT3203 - Adv. Aircraft Sys. & Components II (11 B1) (3 CR)
Areas of study of this course 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. To enable the students to understand the General Air Transportation Association (ATA) concepts related to aircraft fire protection systems, fuel systems, hydraulic power, landing gear and On Board Maintenance systems, and how to operate and maintain these systems.

AMT3204 - Turbine Engines (15 B1) with Lab (4 CR)
This course covers an advanced level of gas turbine engine construction and engine systems layout. This includes covering 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. The overall objective of the course is to develop student understanding and skills on Gas Turbine Engine fundamentals, construction, operation and performance, Gas Turbine Engine lay- out, operation and functioning of engine systems, safety procedures, monitoring programs, ground operations, thrust augmentation systems, and standard servicing practices.

AMT3301 - Adv. Propellers (17 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.

AMT2201 - Aviation Legislation -GCAA (3 CR)
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). 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.

AVSC3080 - Capstone Project (3 CR)
The purpose of this course is to instill in the students some basic maintenance/technology management knowledge, and to guide them to complete a cycle managing an aviation related engineering project from start to finish. The instructor of the course will give a series of lectures pertaining to managing technology and provide the student with the opportunity to exercise his learning in implementing a project based on the principles discussed in class.

26.3.3 Aircraft Maintenance Technology – Avionics (Higher Diploma – 3rd Year)

AMT3102 - Adv. Materials & Hardware I (6 B1) (3 CR)
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. The objective of this course is to develop students understanding and skills on the characteristics, types and uses of aircraft materials and familiarize them with the types, causes and removal of corrosion.

AMT3101 - Adv. Aerodynamics (8 B1) (3 CR)
This 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. This course is intended to introduce students to the advanced concepts of aerodynamics, flow dynamics and factors affecting aircraft stability and control.

AMT3103 - Adv. Maintenance Practices I (7 B1) (3 CR)
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 emphasizes engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances, standard methods for checking shafts, bearings, as well as electrical cables and connectors, wiring protection techniques, bonding practices and testing, riveting, pipes and hoses, springs, bearings, transmissions and control cables. The overall objectives of this course is to develop student understanding and skills as well as hands-on skills in reading and writing technical drawing, inspecting shafts, bearings, cables, rivets, pipes and control cables.

AVT3201 - Electronic Comm. Tech. (3 CR)
This course covers the basic principles of radio and electronic communication techniques. AM, FM and other modulation techniques are discussed along with the principles of the super-heterodyne receiver. Phase modulation is introduced and its principles are discussed. To introduce basic electronic communication concepts, such as modulation, demodulation, transmission and reception of information signals using AM, FM techniques.

AVT3103 - Digital Techniques I (5 B1) (3 CR)
This course is a continuation of Digital Techniques I covering an advanced level with emphasis put on logic circuits, computer technology as applied in aircrafts. To introduce digital systems and the digital computer as an integral system in the construction of aircraft control systems. The objectives of this course are to develop student understanding and skills in the integral systems and operation of aircraft control systems.

AVT3202 - Adv. Avionics Systems I (13 B2) (3 CR)
This course covers flight theory, general concepts of aero-structures, auto-flight principles, comm. & navigation Systems, and Electrical power generation and regulations. This course is designed to develop student understanding and skills in aircraft structure, auto-flight, communication and navigation systems as well as electric power generation.

AMT3301 - Adv. Maintenance Practices II (7 B1) (3CR)
This course covers aircraft an advanced level of aircraft parts joining and repair methods comprising; 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. The objective of this course is to develop students understanding and skills on the safety precautions and testing as part of EASA module 7

AVT3301 – Avionics Systems II (13 B2) (3 CR)
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.

AVT3203 - Props and FADEC (14 B2) (3 CR)
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. This course intended to develop student knowledge and skills in construction, operation of Gas turbine engine and familiarize them with the system FADEC and how it meter fuel to the engine.

AMT2201 - Aviation Legislation -GCAA (3 CR)
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). 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.

AVSC3080 - Capstone Project (3 CR)
The purpose of this course is to instill in the students some basic maintenance/technology management knowledge, and to guide them to complete a cycle managing an aviation related engineering project from start to finish. The instructor of the course will give a series of lectures pertaining to managing technology and provide the student with the opportunity to exercise his learning in implementing a project based on the principles discussed in class.

26.3.4 Applied Bachelor in Aircraft Maintenance Management

AMT101 Workshop 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.

AMT113 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.

AMT114 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.

AMT115 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.

AMT116 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.

AMT117: 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.

AMT121 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.

AMT124 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, introduction to non-destructive inspection, corrosion, aircraft storage methods. The course also covers composite repairs and tools and aircraft ground support equipment (GSE).

AMT221 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.

AMT223 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.

AMT225 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.

AMT240 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.

AVT210 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.

AVT210P 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.

AVT211 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.

AVT211P 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.

AVT112 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.

AVT123 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.

AVT311 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.

AVT321 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.

AMT211 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.

AMT214 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.

AMT215 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.

AMT217 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.

AMT222 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.

AVSC210 Human Factors – EASA (3 CR)
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.

AVSC220 Aviation Legislation – EASA (3 CR)
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 (aircraft rules and regulations). This 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).

AVSC225 Aviation Legislation – GCAA (3 CR)
The topics covered in this course include the regulations of GCAA CAR 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).

AVT327 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.

AVT333 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.

AVT326 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.

AMT230 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.

AMT324 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.

AMT234 Aircraft Structures and Systems II-B1 (3 CR) (course code is wrong should be 234)
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.

AMT336 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: AME214; Co-requisite: AME324.

AVT401 Avionics and Instrumentation Systems Maintenance (3 Credits)
The overall objectives of this course is to develop students' ability to analyse avionics systems and their applications. This course covers avionic systems used in modern aircraft, the principles, operation, application and maintenance of aircraft radar and ground radar systems, aircraft data bus and integrated avionic systems, and systems for flight monitoring, automatic flight control (AFCS) and flight management (FMS).

AMT405 Aircraft Structural Analysis (3 Credits)
This course is intended to develop the students' knowledge and skills in aircraft structure analysis and to introduce the student to the basic and essential elements of aircraft structural analysis and provide them with some of the essential principle for the aircraft material failures. This course covers topics on principles of aircraft structure analysis that include: different types of stresses, stresses in thin walled pressure vessel, structural components of aircraft; function of structural components; loads affecting structural components; airframe loads; wing loads, the bearing members of fuselage and wings. Failure of materials: causes of failure, types of failures, fatigue failures, factors affecting fatigue life. The creep failure and the effect of stresses and temperature on component life are also covered.

AMT406 Inspection Procedures (3 Credits)
The objectives of this course are to help students develop the knowledge and skills necessary to perform specialized testing techniques that are required in aircraft maintenance, repair and overhaul. This course covers aircraft structure inspection, definition and classification of discontinuities: inherent, processing and services discontinuities, NDT general knowledge; basics, techniques, applications, and limitations of visual testing, dye penetrant method, Magnetic Particle Testing, ultrasonic testing, radiographic testing, eddy current testing and thermographic inspection. The course will encourage group discussions around practical problems and provide field expertise on how to resolve them. At the end of this course, the candidate will understand how to perform inspection of samples, identify defects and the corrective action.

AMT407 Aircraft Line, Base and Components Maintenance (3 Credits)
The overall objectives of this course are to develop students' ability to understand and perform Aircraft Line, Base and Component Maintenance, to carry out Aircraft Maintenance Checks and to recognize Recording and Certification of Aircraft Maintenance. This course covers the scope of work and activities of aircraft line and base maintenance; and the basic concepts of component maintenance and overhaul. More emphasis is directed towards the privileges and limitations of Line Maintenance and Base Maintenance; in-house aircraft component repair and overhaul capabilities for cost-effective pricing structure and exacting quality. The aircraft Maintenance Checks: A, B, C & D; Daily, Weekly and Transit Checks; and the Recording and Certification of aircraft maintenance will also be explored.

AMT420 Graduation Project (3 credits)
The purpose of this course is to instill in the students some basic engineering/technology research skills/ management knowledge, and to guide them to complete a cycle managing an aviation related engineering project from start to finish. The instructor of the course will give a series of lectures pertaining to engineering technology and provide the student with the opportunity to exercise his learning in implementing a project based on the principles discussed in class.

AVSC250 Technology Project Management (3 CR)
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. This course is conducted under the supervision of an instructor.

AMT403 Principle of Business for Engineers (3 Credits)
The overall objectives of this course are to develop students' ability to show knowledge and skills of fundamental principles of business for engineers. This course work covers organization function, organization structure, project management, phases of project management, project cost, project selection criteria, project financial analysis and control.

AMT404 Aviation Maintenance Technology and Management (3 Credits)
The overall objectives of this course are to develop students' ability to understand and apply Strategies, Techniques and Management of Aircraft Maintenance, and to use Aircraft Maintenance Program and Maintenance Manuals. This course covers the nature of maintenance objectives and philosophies, maintenance types and levels and maintenance strategies. The concepts of Reliability Cantered Maintenance (RCM), the Maintenance Steering Group (MSG) committee approach for the development of aircraft maintenance programs, and maintenance scheduling aspects will also be explored. The aircraft organizational level maintenance program, aircraft maintenance manuals, maintenance record-keeping system, maintenance management system will also be examined.

AMT408 – Aviation Inventory and Logistics (3 Credits)
This course prepares the students to examine ways for optimizing the physical flow of goods and materials within a firm from acquisition through production, and movement through channels of distribution. The course primarily focuses on applying logistics theory in materials handling, managing inventory, planning capacities, and locating distribution centres. This subject is a survey of the fundamental analytic tools, approaches, and techniques which are useful in the design and operation of aviation inventory and logistics systems. Both the fundamental approaches and the operational aspects of aviation logistics will be covered. The following topics are included in the course: Demand forecasting, planning, and management; Inventory planning, management, and control; and Transportation planning, management, and operations. After receiving a strong grounding in logistics the students will be exposed to the more complex relationships between the social aspects and operational planning. Aviation supply chain management is approached through the application of logistics problem- solving strategies.

AMT409 Quality Assurance in Aviation (QAA) (3 Credits)
This course familiarizes students with quality control techniques, quality assurance (QA) issues and quality management methods. The use of various methods and recent developments of quality are covered in detail. Introduce to the student's aviation quality system needed to ensure compliance with and adequacy of operational and maintenance activities requirements, standards, policies and procedures. Familiarize the students with the relevant documentation, includes the relevant part of the QA manual system, quality assurance program, quality inspection, auditing, monitoring and corrective action, management evaluation, and recording.

AMT410 Aviation Project Management (3 Credits)
This course provides the fundamentals of project management based on the Project Management Institute (PMI) standards and guidelines. The course develops a foundation of concepts and solutions that supports the planning, scheduling, controlling, resource allocation, and performance measurement activities required for successful completion of a project. In addition, the course prepares students for more advanced project management project management certification preparation programs, including Project Management Professional (PMP) certification. Topics covered in this course include project integration, scope, time management, cost management, project control, human resource management, risk management, quality management, procurement management, communications management and professional responsibility. Included also are project management methodologies and processes as well as culture, team building, and behaviour management in a global context.

AMT411 Automatic Flight Control Systems Maintenance (AFCSM) (3 Credits)
The overall objective of this course is to develop students' ability to understand automatic flight control systems and related maintenance. This course covers fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability augmentation system in helicopters; Automatic trim control; Autopilot navigation aids interface; Auto-throttle systems; Automatic landing systems: principles and categories, modes of operation, approach, glide slope, land, go-around, system monitors and failure conditions.

AVT402 Advanced Flight Instrument Systems (3 Credits)
The overall objectives of this course is to develop students' ability to understand and apply principles of advanced flight instrument systems. This unit covers properties and applications of gyroscopes in aircraft attitude indicators, application of directional references to aircraft systems, principles of operation and applications of air data systems and integrated flight deck instrument systems.

AVSC401 Introduction to marketing (3 Credits)
The purpose of this course is to develop an understanding of the principles of marketing and to provide students with a conceptual framework and analytical skills needed for analysing marketing activities in a dynamic environment. It will also consider the role that marketing plays in the aviation industry. Course would incorporate the tools of marketing to develop an understanding of marketing both generally and for aviation. It aims to provide a practical and a theoretical approach to the implementation of marketing principles.

AVSC402 Aviation Economics (3 Credits)
The purpose of this course is to build an understanding of the economic principles applied to corporate and public policy. This course expands on the costs, demand, pricing practices, marketing methods, techniques used to develop new routes and airline finance. This is a level 4 course developed for participants interested in learning about the applied economic strategies of Airports, Airline and general industry.

AVSC303 Safety Management Systems (3 Credits)
The objectives of this course is to develop student's understanding and skills in the fundamental principles of SMS, key component of SMS and how is Safety Management System (SMS) integrates modern safety risk management. This course covers topics on the fundamental principles of SMS as well as effective risk management techniques used to evaluate and identify hazards associated both within the organization, key components of an SMS, SMS components including their implementation.

26.4 Electro-Mechanical Systems Engineering Technology

26.4.1 EMSET common courses (EMET)

EMET2001 Health Safety and Environment (2 CR)
The objective of the course is to provide the students with the necessary fundamentals and basic understanding of Occupational Health and Safety (OHS) at workplace, Health and Safety Management System (H&S MS) based on ISO 45001– 2018, including OH&S policy, planning, resources, operational planning and control, performance monitoring, measurement, analysis and performance evaluation. Control of workplace hazards for safety transportation. Hazards and control associated with manual handling, work equipment, electricity, and fire safety. Hazards and control associated with hazardous substances. Hazards and control associated with working environment. Waste and pollution management system.
Lecture 2 hrs/wk.

EMET3001 Engineering Design and Project Planning (2 CR)
This course is an introductory exploration of the engineering design process through a "hands-on" project approach supported by instruction of the underlying engineering concepts. Appropriate computer-based modeling software will be employed in the design process. Since proper communication of an engineer's results is critical, there is emphasis on technical writing. The course is for either those planning to major in engineering, or those who wish to know more about the discipline. Students will have the opportunity to practice their creative abilities both individually and in group design projects.
Lecture 1 hr/wk, Lab 2 hrs/wk.

EMET4001 Business Start-up and Management (2 CR)
The course explores the creation and management of start-up businesses. It concentrates on initial strategy, location, financing, staffing, daily activities, controls and taxes. Students develop a business plan for a start-up business. This course evaluates the necessary qualities and characteristics of the successful entrepreneurial profile. It helps students recognize and determine the steps necessary to design and develop a startup for-profit business and to open and operate a small business enterprise. It describes the basic forms of small business ownership and identifies the necessary financial competencies needed by the entrepreneur. It further utilizes information, financial estimates and projections, logic and critical thinking needed to recognize opportunities.
Lecture 1 hr/wk, Lab 2 hrs/wk.

EMET4090 Graduation Project I (3 CR)
In this course, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their concentrations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.

EMET4095 Graduation Project II (3 CR)
This is the second course in a sequence of two courses that are based on supervised team projects. This is a continuation to the graduation project I. In this course students will learn and demonstrate project implementation, debugging, documentation, and testing. The focus of the course is on designing and implementing an acceptable solution based on the results and recommendations from graduation project I. Students are required to build one of the following: working model, simulated prototype, physical prototype, process, IT system, enhanced system service of their final solution concept. Students will broaden their technical and communication skills by contacting vendors, academic and industrial expertise in their disciplines. A standard technical report (encourage to be supported by paper format) and formal oral presentations are important course elements which are presented during final presentation of the project.

EMET4099 On Job Training (Internship) (6 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. It offers students the opportunity to explore and develop their careers through professional practice. The structured plan of education impacts student work readiness through a number of professional development skill-building activities, including goal setting; analysis and reflection; feedback from employer; informational interviewing and debriefing their experience. It has a strong focus on building and maintaining working relationships and building on corporate communication skills. Trainee will be following trainee's organization's safe working practices at all times and working within the work permit procedures.

10 -12 weeks, (minimum of 300 training hours), daily working hours to be determined by the training provider.

26.4.2 EMSET – Electrical Engineering Technology (EMEE)

EMEE1001 Electric Circuits I (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.

EMEE2090 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..
Lab 3 hrs/wk.

EMEE2091 Programmable Logic Controllers 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.
Lab 3 hrs/wk.

EMEE2092 AC & DC 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 AC machines. This course covers a number of AC & DC generators and motors. Introduce the students to the principles of AC & DC electrical machines; motors & generators.
Lab 3 hrs/wk.

EMEE2093 Electrical Circuits Simulation OCT (1 CR)
The purpose of the workshop training is to provide practice-oriented training of new key competencies in areas of electrical circuit simulation. This course covers a wide range of techniques in simulating circuits. The course offers direct experience in designing electrical circuits from simple to advanced stages by using different simulation software like Livewire & Multisim.
Lab 3 hrs/wk

EMEE2101 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.

EMEE2102 Electrical Circuit II (3 CR)
Sinusoidal Steady State Analysis: Characteristics of Sinusoids, Forced Response to Sinusoidal Functions, The Phasor, Phasor Relationships for R, L, and C, Impedance, Admittance; AC Circuit Power Analysis: Instantaneous Power, Average Power, Effective Values of Current and Voltage, Apparent Power and Power Factor, Complex Power; Three-Phase Circuits; Magnetically Coupled Circuits; Complex Frequency and Laplace Transform; Circuit Analysis in The s-Domain; Frequency Response; Two-Port Networks.
Lecture 2 hrs/wk, Lab 2 hrs/wk

EMEE2203 Electrical Machines (2 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

EMEE2204 Electrical Machines Lab (1 CR)
This course has been designed to give students a practical knowledge and understanding of a range of electrical machines and their applications. In particular, students will study and analyze different types of DC motors, single phase motors, three phase motors, synchronous generators and motors, and different types of transformers.in addition to, hands-on skills on some electrical machines application which include, but not limited to, petrol generators, washing machines and dryers. The Course acts as a good practical training for more in depth studies in specialist areas of electrical motors and transformers.
Lab 2 hrs/wk

EMEE2205 Electronic Devices I (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

EMEE2206 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

EMEE3090 Power Systems Operation & Control OCT (1 CR)
The overall objectives of workshop training are to develop student practical skills by analyzing the fundamentals of power system operations and control. Besides, the student's capabilities such as observation, measurement, recording data, data analysis, writing a technical report, presentation, and also to develop student team working skills.
Lab 3 hrs/wk

EMEE3091 Switchgear & Protection Systems OCT (1 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of switchgear and protection systems. Topics include: components of system protection, instruments transformers, circuit breakers, overcurrent relays, protection of radial systems, symmetrical components, per-unit sequence models of three-phase transformers and study cases on unsymmetrical faults.
Lab 3 hrs/wk

EMEE3092 Electrical Installation Design OCT (1 CR)
The purpose of the workshop training is to provide practice-oriented training of new key competencies in areas of electrical installation. This course covers a wide range of techniques in installation circuits. The course offers hands-on experience in setting up wiring circuits from simple to advanced stages.
Lab 3 hrs/wk

EMEE3093 Electronic Applications OCT (1 CR)
The purpose of the workshop is to provide practice-oriented training of new key competencies in areas of electronics. This course covers a wide range of electronic circuits and application of electronic equipment and circuits. The training is designed to build social skills through team interaction and technical competence through continuous hands-on training.
Lab 3 hrs/wk.

EMEE3101 Power Electronics (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 2 hrs/wk, Lab 2 hrs/wk.

EMEE3102 Signal and Systems (3 CR)
This course covers 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 2 hrs/wk, Lab 2 hrs/wk.

EMEE3203 Power Transmission (3 CR)
This unit aims to introduce students to the fundamentals of analysing 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

EMEE3204 Electronic Devices II (3 CR)
This course covers the basic concepts of linear integrated circuits and their applications as well as their design and operation.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE4101 Communication Systems (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. Structure of a modern electric power system (EPS); Communications system for EPSs; SCADA Systems for EPSs: Elements of a SCADA system, SCADA System Concept, Hardware and software for SCADA, CCC and ACCs, Determining Scan Interval, Functions of SCADA/EMS; Applications of GIS in EPSs; Computer applications to all studied topics using Matlab.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE4102 Power Systems Protection (3 CR)
This unit aims to introduce students to the fundamentals of analysing 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.

EMEE4203 Motor Drives and 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.

EMEE4204 Renewable Energy Systems (3 CR)
This course will introduce the basic concepts in renewable energy systems. World present and future needs of energy will be clearly discussed in this course. Importance of various types of alternate energy systems like solar, wind, tidal, geothermal, and biomass and its conversion methods covered in this course.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMEE4205 Digital Control Systems (3 CR)
This course aims to introduce students to the fundamentals knowledge of digital control theory and applications. Topics include: Introduction to Discrete Time Control System, Z transform theory and its application to discrete control system, z plane analysis of discrete time systems including impulse sampling, data hold, sampling theorem pulse transfer function and digital filters, design of discrete time control system by conventional methods including stability analysis and design based on the root locus method, frequency response method, digital PID controllers design. The course includes project work where students formed in teams perform design, analyze, and laboratory implementation of control systems for engineering applications.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

26.4.3 EMSET – Intelligent Systems Engineering Technology (EMIS)

EMIS2003 Control System Technologies (3 CR)
This course aims to introduce students to the fundamentals knowledge of control system technologies and technologies used in Process Control. Topics include: linear feedback control theory, mathematical modeling of physical systems, basic functions related to obtaining knowledge of plant documentation and manuals, transfer functions, block diagrams, test signals, transient response of control systems, time domain specifications, steady-state error and stability and PID controllers' analysis and design concept.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS2005 Intro to Programming C++ (2 CR)
This practical 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 without 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 1 hr/wk, Lab 3 hrs/wk

EMIS2090 Instrumentation & Process Control OCT (1 CR)
The overall objective of this module is to provide students with knowledge and hands-on skills in the area of process control technologies.
Lab 3 hrs/wk.

EMIS2091 Pneumatics and Hydraulics Systems OCT (1 CR)
This course covers training on Pneumatic and hydraulic equipment and schematic drawing of Pneumatic and Hydraulic circuits. The equipment used is produced by FESTO with the assist of FLUIDSIM software which can simulate the operation process of Pneumatic and Hydraulic circuits.
Lab 3 hrs/wk

EMIS2092 SCADA Systems OCT (1 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of 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.
Lab 3 hrs/wk.

EMIS2093 Embedded Systems Programming OCT (1 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.
Lab 3 hrs/wk.

EMIS2101 Introduction to Artificial Intelligent Systems (3CR)
This course will introduce the principles in artificial intelligence research. It will cover the representation schemes, problem solving paradigms, constraint propagation, and search strategies. Areas of application such as knowledge representation, natural language processing, expert systems, vision and robotics will be explored. The Prolog programming language will also be introduced.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS2102 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.

EMIS2204 Pneumatics and Hydraulics Systems (3 CR)
The aims of this course are to enable students to acquire the knowledge and skills to apply hydraulic and pneumatic principles to the design and control of automated systems. Topics covered in this course include: the basics of pneumatic, electro-pneumatic and hydraulic control circuits in a complex mechatronic system. Technical documentation such as data sheets, circuit diagrams, displacement step diagrams and function charts are also covered. The main learning outcome is the delivery to the students of a basic knowledge about hydraulics and pneumatics components that are used in modern automation systems design. The process of designing and implementation of such an integrated system follows up the rest of the course lectures that will provide to a student all necessary expertise in the field. Separated in two major branches, pneumatics and hydraulics will be explained in details not only as simple actuation systems but also as combined and complex operational systems of the same type that an automation engineer will face in any modern industrial environment in his career. 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.

EMIS2206 Data Structure and Algorithms (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 2 hrs/wk, Lab 2 hrs/wk

EMIS3090 Advanced Computational Programming OCT (1 CR)
The course focuses on practical aspects of building computational machine learning models. Students will be trained on programming linear and non-linear classification, regression and unsupervised data analysis techniques using the Python programming language.
Lab 3 hrs/wk

EMIS3091 Systems Modelling & Simulation OCT (1 CR)
Introduces the methods and techniques of model building skills and the use of the SIMULINK package for dynamic modelling. Topics covered are - purposes, uses & benefits of system modelling: model development; empirical and first principles models, steady state and dynamic models, time domain solutions, model validation: modelling techniques; lumped parameter models, absolute & deviation variables, linearisation: models of process systems; hydrodynamic, multistage, reacting, multivariable, distributed parameter, discrete event: transfer function models; block diagram representation, modelling of control loop elements, integration of process & control models: simulation; continuous system simulation, selection of numerical integration routines, discrete event simulation, functional testing.
Lab 3 hrs/wk

EMIS3092 Mobile Robotics Systems OCT (1 CR)
This training course module is intended to provide students with knowledge and hands-on skills in mobile robotics. The students will design, build, and maintain robots to solve problems in industries. The students will deal with logic, microprocessors, and computer programming and prepare specifications for the robot's capabilities as they relate to the work environment. The training will begin with a design and then a prototype which must be programmed to carry out different sequences in two different arenas and tested to make sure it offers a high and consistent level of performance. Besides programming, students have to test, to adjust sensor values and parameters, assemble and connect peripheral equipment and/or tools. In the case of hardware problems, students must be able to do troubleshooting and repairs on hardware and connections.
Lab 3 hrs/wk

EMIS3093 Mechatronics Systems OCT (1 CR)
The purpose of the mechatronics on-campus training is to provide practice oriented training of new key competencies in areas of Mechatronics and how to handle automated systems for industry. The student will get hands on skills in mechanics, pneumatics, electronically controlled systems ,programming, and robotics and systems development. The student will design, build, maintain and repair automated equipment, and program equipment control systems. They carry out mechanical maintenance and equipment building. They also deal with equipment for information gathering, components (sensors) and regulating units. Students will install, set-up, repair and adjust machine components and manage equipment control systems, including their programming.
Lab 3 hrs/wk

EMIS3094 Autonomous Systems OCT (1 CR)
Autonomous Systems training course whose purpose is to give a broad understanding of the wide area of autonomous systems and the foundational knowledge in the topic areas required to understand and develop autonomous systems. A hands-on introduction to programming autonomous systems such as UAV, AUV and mobile robotics. The focus of this course is on designing systems that navigate independently in complex environments. Specific topics include localization, mapping, kinematics, path planning and computer vision.
Lab 3 hrs/wk

EMIS3095 Payload System Design OCT (1 CR)
The purpose of the Payload System Design on-campus training is to provide practice-oriented training of new key competencies in areas of Payload systems and how to handle design and interface of the

payload components including functional and environmental testing at the payload and integrated system levels, and in the field. The student will get hands on skills in system design, integration, interface and autonomous system programming.

The student will design and build the payload including the CAD design, fabricate the prototype, install the instrumentations and sensors required. The student also will write a program code for system integration then testing his payload for further improvement.

This course covers advanced topics in payload design. Design philosophy, process and considerations for various payloads will be introduced. Payload design projects will be assigned to students during the course.
Lab 3 hrs/wk

EMIS3101 Intro to Applied Machine Learning (3 CR)
Introduction to Machine Learning and its Goals. Introduction to Data and Models. Memory based methods. Decision Trees. Error functions, Minimizing Error. Regression, Logistic Regression, Neural Networks. Margin Based Methods: Perceptron, Support Vector Machines. Naïve Bayes. Dimensionality Reduction. Clustering: K-means, Simple Gaussian Mixture Models, Hierarchical Clustering. Boosting Approaches. Model Averaging, Mixtures of Experts. Evaluation of Performance.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS3202 Intro to Computational Intelligence (3 CR)
This course aims at introducing the fundamental theory and concepts of computational intelligence methods, in particular neural networks, fuzzy systems, genetic algorithms and their applications in the area of machine intelligence.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4101 Intelligent Systems Design (3 CR)
This course presents the applications the field of Artificial Intelligence (AI) with emphasis on its use to solve real world problems for which solutions are difficult to express using the traditional algorithmic approach. It explores the essential theory behind methodologies for developing systems that demonstrate intelligent behavior including dealing with uncertainty, learning from experience and following problem solving strategies found in nature.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4102 Applied Computer Vision (3 CR)
Low-level and high-level vision including edge detection, connected component labelling, boundary detection, segmentation, stereopsis, motion analysis, and object recognition. Knowledge representation, knowledge retrieval and reasoning techniques in computer vision. Parallel computing, parallel architectures and neural computing for computer vision.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4103 Applied Robotics Systems (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, multi-rigid-body dynamic, singularities, actuators, and sensors, and control design. The applied component of the unit includes experimental work with robotic manipulators and a mechatronic design.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4204 Special Electrical Machines (3 CR)
Special electrical machines are finding ever-increasing applications, typically in position control systems, robotics and mechatronics, electric vehicles, and high speed transportation. A particular

feature of this course is that it does not stop at the basic principles of these complex machines but goes on to cover recent developments and current research, making it useful for senior graduate students and research scholars in the field of electrical machines and drives.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4205 Multi-Agent Systems (3 CR)
This course provides the basic theoretical knowledge about intelligent agents and multi-agent systems. The first part of the course covers the different types of agents, their properties and architectures. The second part includes a thorough description of several coordination methods in multi-agent systems.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMIS4206 Integrated Automation (3 CR)
The purpose of this course is twofold: 1) to provide an introduction to Totally Integrated Automation (TIA). Topics covered in this part of the course include the automation pyramid, analogue sensors and actuators, STEP 7 functions, MPI-Bus and PROFIBUS systems, and systems troubleshooting. IN the second part of the course, students will analyze and create a functional description of a complete system utilizing all sensors and actuators. The students will define their own unified programming specifications as well as system specifications according to industrial standards. After that, the participants will program complete modules of the real system including Graphical User Interfaces (GUIs) on Human Machine Interfaces (HMIs) and the connection of different modules via PROFINET as well as safety integration and the implementation of advanced motor control. Software handling will be an essential part of the course. The participants will learn to work with the Step7 software with its different features for programming and network setup, to create GUIs with WinCC Flexible and to use simulation tools such as SIMIT to test and evaluate their programs. The participants will read, analyze and use datasheets and diagrams of sensors and actuators implemented in the system. Additionally, they will use intelligent troubleshooting strategies to narrow down and pinpoint defective components on the real system.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

26.4.4 EMSET – Mechanical Engineering Technology (EMME)

EMME1001 Statics (3 CR)
This course aims to introduce force and moment vectors, resultants of more than one vector. Principles of statics on the equilibrium particle/body and construction of free-body diagrams. Equilibrium principles for Statically determinate problems. Distributed load members. Applications to simple trusses. Internal forces in beams.
Lecture 3 hrs/wk.

EMME2090 Thermo-Fluid OCT (1 CR)
This On-Campus Training (OCT) course provides hands-on training on thermos-fluid OCT. The course will cover operating, observing, measuring, and recording data, and data analysis when investigating and measuring the pressure loss Pv or the head loss hv for a straight pipe flow subject to friction. Demonstrating the water hammer effect and designing the heat exchanger using the LMTD and NTU methods will also be covered. Additionally, the students will do the simulation on the hydraulics principles by means of FESTO Fluid Sim software.
Lab 3 hrs/wk.

EMME2091 Pump and Compressors OCT (1 CR)
This On-Campus Training (OCT) course will provide hands-on training on air compressors and pumps. The course will cover the hands-on training on operating, measuring, testing, evaluating and controlling industrial piston air compressors and pumps.
Lab 3 hrs/wk.

EMME2101 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

EMME2102 Fluid Mechanics (3 CR)
The material in this course will provide the student with a fundamental background in the statics and dynamics of fluids. Introduction and basic concepts of fluid properties will be discussed. The basic conservation laws of mass, momentum and energy are analyzed in control volume. Properties of fluids, pressure and fluid statics will be focused. The student will learn how to choose the right formulation for fluid flow problems. The student will also learn fluid dynamics along with implementing Bernoulli, mass and energy equations, dimensional analysis with an emphasis on fluid behavior and know how to work with different frames of reference and use them to simplify problems. Real life applications of these fundamental concepts will be introduced in the lab. Interpretation of results from experiments of fluid flows will also be emphasized.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME2201 Engineering Thermodynamics (3 CR)
This course introduces fundamentals of thermodynamic principles such as basic concepts and definitions of thermodynamics. The course also discusses closed and systems of thermodynamic principles. Zeroth, First, and Second law of thermodynamics, entropy analysis and basic Rankine cycles are considered.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME3005 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 require 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.

EMME3090 Automobile Body - Interior OCT (1 CR)
The purpose of this course is to provide students with knowledge and hands-on skills in the area of internal parts of automobile assembly and disassembly. Students will acquire the skills and ability to identify different automobile internal components and understand their functions. Moreover, students will disassemble then assemble all the mechanical and electrical internal components of a commercial car. The knowledge and skills gained in this course are indispensable to relating an engineer's theoretical knowledge with actual practice.
Lab 3 hrs/wk.

EMME3091 Automobile Body - Exterior OCT (1 CR)
The purpose of this course is to provide students with knowledge and hands-on skills in the area of automobile external body assembly and disassembly. Students will acquire the skills and ability to identify different automobile components and understand their functions. Moreover, students will disassemble then assemble all the mechanical and electrical components of a commercial car. The knowledge and skills gained in this course are indispensable to relating an engineer's theoretical knowledge with actual practice.
Lab 3 hrs/wk.

EMME3092 Automobile Engine OCT (1 CR)
The purpose of this course is to provide students with knowledge and hands-on skills in the area of automobile Engine assembly and disassembly. Students will acquire the skills and ability to identify different automobile engine components and understand their functions. Moreover, students will disassemble then assemble all the engine components of a commercial car. The knowledge and skills gained in this course are indispensable to relating an engineer's theoretical knowledge with actual practice.
Lab 3 hrs/wk.

EMME3101 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.

EMME3102 Strength of Materials (3 CR)
Stress and strain; Material behavior; Hooke's law; Axial loading; Safety factors; Shear force and bending moment diagrams; Bending stresses and deflections; Shear stresses in beams; Torsion of circular members; Combined stresses; Mohr's circle; Buckling of columns; Engineering applications.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME3203 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.

EMME3204 Machine Design I (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; flexible and permanent joints; manufacture and assembly of automobile engine.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME4005 Vibration and Noise Control (3 CR)
This course introduces elements of vibrating systems, examples of vibratory motions, simple harmonic motion, vector representation. Systems with single and multiple degrees of freedom: linear and torsional vibrations, damped and undamped free vibrations, forced vibrations, vibration isolation. Vibration measuring instruments. Properties of vibrating systems. Noise measurements and vibration control.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME4101 Heat Transfer (3 CR)
The applied 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 and in designing the heat exchanger.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMME4102 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.

EMME4203 Machine Design II (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.

EMME4204 HVAC System Design (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.

26.4.5 EMSET – Smart Manufacturing Engineering Technology (EMMF)

EMMF2090 3D printing Technologies OCT (1 CR)
In this workshop-based course, the student will learn and prove his skills in 3D printing – Rapid Prototyping. 3D Printing is a method of creation that requires only some basic computer skills and a few rules of thumb. This class will allow students to discover for themselves the potential and limitations of 3D Printing through a build intensive design project. The student will learn and prove his skills in preparation and optimization of your model for 3D printing. The various factors that affect the outcome of a 3D printed part. Limitations & Advantages of 3D printing machines & Materials.
Lab 3 hrs/wk.

EMMF2091 CAD/CAM Technologies OCT (1 CR)
In this OCT based course, the student will learn and prove his skills in 2D CAD – Computer Aided Design. This unit covers knowledge and hands-on skill on advanced features of computer aided design software to produce solid modeling, assembly modeling and surface modeling. Students will use 3D modeling software to produce motion simulation modelling. The student will learn and prove his skills in 2D CAD/CAM – Computer Aided Manufacturing and Rapid Prototyping. The student will also learn to prove his skills in 3D CAD - Computer Aided Design & 3D CAD/CAM – Computer Aided Manufacturing and Rapid Prototyping.
Lab 3 hrs/wk.

EMMF2092 FABLAB Technologies OCT (1 CR)
This unit covers training on small-scale workshop offering (personal) digital fabrication (FAB Lab). The FAB Lab is generally equipped with an array of flexible computer- controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". The course will assist students in nurturing the ability to efficiently translate ideas and concepts into digitally produced physical objects. This FAB Lab concentrates on giving hands on experience on 2D, from designing, Laser cutting, Vinyl cutting, Routing & Engraving. The FAB lab includes Design software, Machining Software, 3D Printers, Laser Cutters, Vinyl Cutters, Milling Machines, 3D Scanners, Routers and Engravers.
Lab 3 hrs/wk.

EMMF2093 Metal Fabrication Technology OCT (1 CR)
The student will learn the fundamentals and various trends of fabrication and manufacturing. The student will be introduced various fabrication processes, including cutting, drilling, grinding, sheet metal, welding, joining, and surface operations.
Lab 3 hrs/wk.

EMMF2201 Manufacturing Processes (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.

EMMF3090 CNC Technologies OCT (1 CR)
The student will learn the fundamentals of computer technology is precision manufacturing. CNC main functions and structures will be introduced. The student will learn the programming skill for CNC machines. The student will be familiar with the various types of tools and work holding devices to be used in CNC machining of a components.
Lab 3 hrs/wk.

EMMF3091 Advanced FABLAB Technologies OCT (1 CR)
This unit covers training on small-scale workshop offering (personal) digital fabrication (FAB Lab). The FAB Lab is generally equipped with an array of flexible computer- controlled tools that cover several different length scales and various materials, with the aim to make "almost anything". The course will assist students in nurturing the ability to efficiently translate ideas and concepts into digitally produced physical objects. This FAB Lab concentrates on giving hands on experience on 3D, from modelling, scanning, printing machining & pattern cutting. The FAB lab includes 3D Printers, Laser Cutters, Vinyl Cutters, Milling Machines, 3D Scanners and Engravers.
Lab 3 hrs/wk.

EMMF3092 Fibre Composite Manufacturing Technologies OCT (1 CR)
This unit provides training on the manufacturing processes of the fibre reinforced composite materials. Fibre composite material technology is an introductory manufacturing process course focusing on the basics of composite properties, manufacturing processes, design guidelines for composite components with various fibre reinforcements and laminate stacking sequences. The manufacturing process of the fibre reinforced composite technology will cover the hand lay-up techniques, vacuum assisted resin transfer moulding technology, spray lay-up techniques, Autoclaves techniques and heat press technology. Synthetic fibre (glass fibre) and natural fibre (date palm fibre) will be used as reinforcement and thermoset and thermoplastics will be used as matrix materials. After completing this course, students will learn the unique manufacturing technics and technical know-how of the advanced composite manufacturing technology and be able to apply their knowledge and skills in the advanced composite material industry sectors.
Lab 3 hrs/wk.

EMMF3093 Automation in Manufacturing Process OCT (1 CR)
This course introduces students to the field of automation. The students will be able to; describe the structural and functional characteristics of various types of automated systems, identify Industrial robot terminology and classification, define end of the arm tooling, mechanical components within the robotic systems and automated support systems, record positions, design and write robot programs for material handling, assembly and welding applications, prepare programs, set up and operate computer numerically controlled mill, identify automated system safety guidelines and challenges of automated system justification.
Lab 3 hrs/wk.

EMMF3094 Precision Machining Technology OCT (1 CR)
This course is to familiarize the students in the Art and Science of Precision Engineering. To provide and enhance the technical knowledge in precision engineering, its components and applications.
Lab 3 hrs/wk.

EMMF3095 Mould Design Technology OCT (1 CR)
The course will cover the fundamentals of mold design and give the student and understanding of mold design and function. Topics include: Mold types, Molds materials, shrinkage allowances, gate locations, cooling, Ejectors, slide molds, two and three plate designs as well as molding machine considerations.

Over the semester, the students will have the experience of collaborating to develop a complete mold design from scratch. Hands-on examination of parts, molds, and drawings are featured as well as CAD demos and a plant tour.
Lab 3 hrs/wk.

EMMF3101 Manufacturing Planning & Control (3 CR)
With the global marketplace constantly changing, it is crucial that your Manufacturing Planning and Control (MPC) system evolve to stay current with technology, product and market conditions. This course is essential if you are working in any capacity of operations in the supply chain because you'll gain a thorough understanding of Manufacturing Planning and Control key elements. Regardless of what industry or business you work in, understanding all the various systems involved in Manufacturing Planning and Control is ideal if you're looking to advance your career and increase your organization's bottom line.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF3202 Sensors and Control Systems in Manufacturing (3 CR)
The student will learn about sensor signal characterization and manufacturing techniques and how to optimize the accuracy of sensors. You will also learn about more advanced sensors, proportional-integral-derivative (PID) control, and how this method is used to give you a closed loop sensor feedback system.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF3203 Computer Integrated Manufacturing (3 CR)
Computer Integrated Manufacturing (CIM) is the study of manufacturing planning, integration, and implementation of automation. The course explores manufacturing history, individual processes, systems, and careers. In addition to technical concepts, the course incorporates finance, ethics, and engineering design. This reflects an integrated approach that leading manufacturers have adopted to improve safety, quality, and efficiency.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4101 Advanced CAD/ CAE (3 CR)
The student will acquire the knowledge in the field of CAE (Computer Aided Engineering) with focus on tools based on a numerical analysis and relations of the tools to other parts of the CAE. Introduction to: software, methods, requirements to CAD models for CAE purposes, basic procedures of analyses, typical procedures of numerical model building in various engineering analyses.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4102 Advanced Manufacturing Processes & Technology (3 CR)
Engineering/Advanced Manufacturing is the study of the engineering, design, production, supervision and management utilized to remain competitive in today's technologically advanced manufacturing facilities.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4203 Biomimetics: Sustainable Materials and Manufacturing (3 CR)
This course introduces the concepts of biomimicry and sustainable design. Countless examples illustrate the wisdom of nature in how organisms are adapted for survival, such as in body style, physiological processes, water conservation, thermal radiation and mutualistic relationships, to assure species perpetuation. The course focus on applying the ecological principles of the previous lessons to the future design of our human-centred world, study to improve human practices and ultimately protect natural systems, helps students to grasp the value of industry and urban mimetic designs to assure protection of global resources, minimize human impact and conserve non-renewable resources.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4204 Technology of Non-metallic Materials Processing (3 CR)
This course provides an introduction to non-metallic materials processing science, with an emphasis on heat transfer, chemical diffusion, and fluid flow. We use an engineering approach to analyse

industrial-scale processes, with the goal of identifying and understanding physical limitations on scale and speed, and cover non-metallic materials of all classes, including ceramic, polymers, electronic materials, and ceramics. Specific processes, such as melt-processing of polymers, deposition technologies (liquid, vapor, and vacuum), colloid and slurry processing, viscous shape forming, and powder consolidation are considered.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4205 Fixture and Tool Design (3 CR)
Design and development of jigs and fixtures for given component- Types of Jigs – Post, Turnover, Channel, latch, box, pot, angular post jigs – Indexing jigs – General principles of milling, Lathe, boring, broaching and grinding fixtures – Assembly, Inspection and Welding fixtures – Modular fixturing systems- Quick change fixtures.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4206 Process Tolerance Design and Analysis (3 CR)
Students gain knowledge of application of tolerances, representation and analysis of surface finish and application nanotechnology for attaining accuracy.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

EMMF4207 Manufacture and Assembly Design (3 CR)
Design for manufacture and assembly; modern manufacturing philosophies and practices; lean manufacturing; manufacturing cost and time analysis; quality control.
Lecture 2 hrs/wk, Lab 2 hrs/wk.

26.5 Information Security Engineering Technology (ICT, NCS, SSA, and SSD)

26.5.1 Information Security Engineering Technology common courses

ICT1201 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, collection classes and iteration. Moreover, an introduction to programming practice using an IDE (modularity, testing, and documentation) will be presented. Consequently, students will be able to write a complete Java program, compile, debug and run.
Lecture: 2 hrs/week; tutorial: 1 hr/week; Lab: 2 hrs/week

ICT1202 Introduction to Computer Networks (3 CR)
This course equips students with the technical skills needed to securely establish, maintain and troubleshoot the essential networks that businesses rely on. It provides 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. The course also covers Local Area Networks and OSI layer model, 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: 2 hrs/week; tutorial: 1 hr/week; Lab: 2 hrs/week

ICT2101 Discrete Mathematics (3 CR)
This course introduces the foundations of basic discrete mathematics needed for information security disciplines. Topics include functions, relations and sets, series, basic logic, proof techniques, combinatorial problems, recursion, basics of counting, recurrence relationship, and enumeration. It also

covers basics of probability theory, discrete random variables and probability distributions, expected value, variance and standard deviation. Binomial, normal and Poisson distributions, random sampling and data description, point estimation of parameters, statistical intervals for a single sample, and tests of hypotheses for a single sample, and correlation and regression.
Lecture: 3 hrs/week; tutorial: 2 hrs/week

ICT2103 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: 2 hrs/week; tutorial: 1 hrs/week; Lab: 2 hrs/week

ICT1301 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 mainly covers five major dimensions from perspective of information security that include: understanding existence of threats, attacks, and vulnerabilities; explaining security implications in different architecture and design settings; implementing cybersecurity network solution; understanding the importance of policies, processes and procedures for incident response; and developing an understanding about importance of policies for organizational security.
Lecture: 2 hrs/week; Lab: 2 hrs/week

ICT2203 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; software process, software development, requirement engineering, system modeling, architectural design and implementation for building secure systems. The course then introduce common software vulnerabilities such injection, cross site scripting, insecure direct object reference, command injection, integer and buffer overflow and caching exception in the context of web technologies development..

Lecture: 2 hrs/week; Lab: 2 hrs/week

ICT2201 Data Structure and Algorithms (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 pattern matching.
Lecture: 2 hrs/week; tutorial: 1 hrs/week; Lab: 2 hrs/week

ICT2102 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. Additional topics include fundamentals of database architecture, data warehousing, data quality and integration.
Lecture: 2 hrs/week; Lab: 2 hrs/week

ICT2202 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.
Lecture: 2 hrs/week; Lab: 2 hrs/week

NCS2101 Network Security (3 CR)

This course covers 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. 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: 2 hrs/week; Lab: 2 hrs/week

NCS2201 Ethical Hacking and Penetration Testing (3 CR)
This course provides the knowledge and skills required for a security professional to effectively evaluate the security of an organization. The skills acquired through this course can make one to understand the essential concepts to perform Ethical hacking and Penetration Testing activities, uncover the vulnerabilities and propose solutions to mitigate the risk of attack. In this course you will also discuss the scenarios with advanced tools to identify, detect, and exploit any vulnerability discovered in the target network environment.
Lecture: 2 hrs/week; Lab: 2 hrs/week

ISET2201 Intro to Applied Cryptography (3 CR)
The course outlines principles and applications of cryptography to secure data and network with different encryption algorithms and techniques symmetric key cryptography concepts, protocols and applications, asymmetric (public-key) encryption, authentication, key management, digital signatures, and pseudo-random number generation ciphers. Both the classical and Modern Ciphers will be introduced in this course. Topics include Classical Ciphers, Symmetric and Asymmetric Key Cryptography, authentication algorithms and digital signatures, Block Ciphers and Stream Ciphers. 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
Lecture: 2 hrs/week; Lab: 2 hrs/week

SSD2201 Web Programming and Security (3 CR)
This course teaches students the technologies used for developing static and dynamic Web content using a combination of client and server-side web programs with an emphasis on web technologies: HTML5, JavaScript Cascading Style Sheet (CSS), and PHP. Students will develop Web pages using various technologies and make them publicly available online. Students will learn the process on how to validate forms, build interactive web sites, manage web databases and publish web sites to a web server. The course also presents common web attacks such as Cross Site Scripting and SQL injection. Further topics such as the security and authentication techniques used in web applications are discussed.
Lecture: 2 hrs/week; Lab: 2 hrs/week

26.5.2 Secure Software Development Concentration (SSD)

SSD2301 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: 3 hrs/day; Lab: 3 hrs/day, two weeks delivery

SSD2302 Secure Software Design and Implementation (OCT-I) (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: 3 hrs/day; Lab: 3 hrs/day, one week delivery

SSD2303 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: 3 hrs/day; Lab: 3 hrs/day, one week delivery

NCS2303 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: 3 hrs/day; Lab: 3 hrs/day, one weeks delivery

SSD2305 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: 3 hrs/day; Lab: 3 hrs/day, one week delivery

SSD2306 Client Server Security Administration (OCT-I) (1 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: 3 hrs/day; Lab: 3 hrs/day, one week delivery

SSD3101 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 2 hrs/week

SSD3102 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

SSD3104 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 2 hrs/week

NCS3104 Cloud 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: 2 hrs/day; tutorial: 2 hrs/day; Lab: 3 hrs/day

ISET3101 InfoSec Project Management (2 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0hrs/week

SSD3201 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 2 hrs/week

SSD3202 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

SSD3203 Secure Databases Development (3 CR)
The course explores 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

NCS3203 Fundamentals of Digital Forensics(3 CR)
This course introduces students to the principal activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, file carving, etc. Upon successful completion of this course, students shall know the role digital evidence plays in criminal and civil investigations and incident response.
Lecture: 2 hrs/week; Lab: 2 hrs/week

SSD3301 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.
Lab: 5 hrs/week

SSD3302 Database Programming and Security (OCT-II) (1 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.
Lab: 5 hrs/week

SSD3303 Software Vulnerability Assessment (OCT-II) (1 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
Lab: 5 hrs/week

SSD3304 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
Lab: 5 hrs/week

SSD3305 Secure Mobile Applications Development (OCT-I) (1 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.
Lab: 5 hrs/week

NCS3306 Digital Forensics & Investigations – OCT II **(1 CR)**
This course introduces students to the hands-on activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, cloud forensics, etc. Upon successful completion of this course, students shall know the workability of various tools and techniques in a digital forensic environment in a practical approach.
Lab: 5 hrs/week

ISET4101 Risk and Security Management (2 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 1hrs/week

SSD4101 Graduation Projects I **(3 CR)**
In this course, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their specializations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.

SSD4201 Graduation Projects II **(3 CR)**
This course brings together the knowledge and skills acquired by students in earlier courses and apply them to a real-world secure system development project. Students will work in teams to develop a solution to solve a real-world problem that have business viability. The Graduation project comprises two courses, NCS4101 (GP-I) and NCS4201 (GP-II) and four phases. In GP-I, student would complete requirements analysis (Phase I), and project design (Phase II). As part of GP-II, students would complete two cycles of development (Phases III and IV) to implement, test, deliver, and deploy the project in a real-world environment.
lecture: 2 hrs/wk; laboratory: 2 hrs/wk

ISET4201 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

ISET4202 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 highlights 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 2 hrs/week

SSD4301 Field Training (OJT) **(6 CR)**

The internship course seeks to provide a dynamic element to ISET program and introduce the principles of learning through work and allowing the student to apply theoretical constructs taught in other courses to a 'real world' situation. This course shall be conducted collaboratively with AD Polytechnic Industrial partner for a total of full 8 weeks. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. 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. The workplace will be as required by the individual organization.
Department Approval is required

Elective ISET4001 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4002 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0hrs/week

Elective ISET4003 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4004 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4005 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0 hrs/week

Elective SSD 4001 Data Artificial Intelligence (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: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4006 Blockchain Technology and Security (3 CR)

Blockchain is the distributed and decentralized database technology behind cryptocurrency. This course explores the fundamentals of the public, transparent, secure, immutable and distributed

database called blockchain. Blockchains can be used to record and transfer any digital asset not just currency. This course will introduce students to the workings and applications of this potentially disruptive technology. Smart contact programming using Solidity will be introduced. Its potential applications on financial services, government, banking, contracting and identity management will be discussed.
Lecture: 2 hrs/week; Lab: 2hrs/week

Elective NCS4001 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, 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD4002 Reverse Engineering (3 CR)

This course covers fundamental problems, principles, and techniques in software reverse engineering of binaries including static analysis techniques, disassembly algorithms, dynamic analysis techniques, automated static and dynamic analysis techniques, malware analysis techniques, anti-analysis techniques, and malware obfuscation and packing techniques; many of the techniques will be demonstrated and practiced using IDA. It also involves research opportunities to analyze new malware samples and firmware's and develop new analysis tools.
Lecture: 2 hrs/week; Lab: 2 hrs/week

Elective NCS4004 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD 4004 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 SSD4005 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective SSD 4006 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: 2 hrs/week (optional); Lab: 2 hrs/week

Elective SSD 4007 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0 hrs/week

26.5.3 Network and Cyber Security Concentration (NCS)

NCS2301 Routing & Switching (OCT-I) (1 CR)

The purpose of this on-campus-training module is to provide the students with required tools and skills and practice concepts covered in the prerequisite course(s) in the Cisco training academy and other specialized labs. Topics include fundamentals of computer networks with emphasis on cisco routing and switching It includes all the topics covered by CCNA such as basic configurations of routers and switches, routing protocols, VLANs implementation etc.
Lab: 5 hrs/week

NCS2302 Secure Network Design (OCT-I) (1 CR)
This course provides a two-week hands-on training and practice on concepts covered in the prerequisite course(s). The course consists of practical sessions that will be conducted in 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. The network design for both LAN and WAN will be based on security requirements.
Lab: 5 hrs/week

NCS2303 Network Security (OCT-I) (1 CR)
The course provides hands on and practice on concepts covered in the prerequisite course(s). This course consists of practical sessions that will be conducted in the training academies and specialized labs. Topics include: network attacks, viruses, worms and Trojan horses, web server security, denial of service attacks, authentication protocols, firewalls, intrusion detection systems, intrusion prevention systems, data encryption methods, public key cryptography (RSA, DES), email viruses, email attachments. The students will receive preparation to CompTIA Security+ certification
Lab: 5 hrs/week

NCS2304 Ethical Hacking & Penetration Testing (OCT-I) (1 CR)
The purpose of on-campus-training module to provide the students with hands on experience of tools and techniques used by hackers and information security professionals alike to break into an organization. In this practical oriented course, the students will learn to utilize offensive tools and techniques to perform scanning, enumeration, and exploitation of wide range of systems, applications, and servers. It complements and reinforces the knowledge gained in NCS2201 by focusing more on

the practical aspects of ethical hacking and penetration testing. The goal is to evaluate the security of corporate and government information assets by taking and offensive approach
Lab: 5 hrs/week

NCS 2305 Web and Database Security- OCT I (OCT-I) (1 CR)
The purpose of this on-campus-training module is to practice advanced 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, etc. Students will also learn of vulnerabilities and attacks that exist within various database environments or that have been used to attack databases.
Lab: 5 hrs/week

NCS2306 Penetration testing in-depth (OCT-I) (1 CR)
The purpose of this on-campus-training module is to provide students with advanced penetration testing skills that they can user to evaluate the security of an organization. In this practical intensive course students will need to maneuver web applications and host penetration testing tools and tricks in an internal and external context to ultimately pwn the hosts and exfiltrate data required to complete the challenges. The goal is to challenge your pen-testing skills against a multi-layered network architecture with defense-in-depth controls.
Lab: 5 hrs/week

NCS3101 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: 2 hrs/week; Lab: 2 hrs/week

NCS3102 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 defenses 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: 2 hrs/week; Lab: 2 hrs/week

NCS3103 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. The course also discusses the design principles, the pros and cons of various security trade-offs involved in the design of such protocols and describes vulnerabilities of these protocols. Cryptographic Algorithms & Protocols (Encryption and data authentication; Algorithms related to cryptographic operations; Key management and key generation; Implementation of algorithms will also be discussed. Students will complete hands-on exercises and case projects for testing and evaluating various firewall techniques.
Lecture: 2 hrs/week; Lab: 2 hrs/week

NCS3104 Cloud 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. The labs and assessment of the course are designed to

ensure that candidate has the knowledge and skills required to understand standard cloud methodologies; to implement, maintain, and deliver cloud technologies (e.g., network, storage, and virtualization technologies); and to understand aspects of IT security and use industry best practices related to cloud implementations.
Lecture: 2 hrs/day; tutorial: 1 hrs/day; Lab: 3 hrs/day

NCS3203 Fundamentals of Digital Forensics (3 CR)
This course introduces students to the principal activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, file carving, etc. Upon successful completion of this course, students shall know the role digital evidence plays in criminal and civil investigations and incident response.
Lecture: 2 hrs/week; Lab: 2 hrs/week

NCS3201 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, Routers, proxies, application firewalls, virtual private networks, network address translation (NAT), deep packet inspection, IPS, IDS, and Unified Threat Management (UTM) appliances
Lecture: 2 hrs/day; Lab: 3 hrs/day

SSD3201 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 executable 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: 2 hrs/week; Lab: 2 hrs/week

NCS3202 Advanced Penetration Testing & Ethical Hacking (3 CR)
This course focuses on network and information systems security from red team’s offensive point of view. Students will learn advanced penetration testing techniques used to identify, validate, and assess system vulnerabilities within highly secured environment. Topics include stealth scanning and enumeration, vulnerability analysis and validation, advanced memory attacks, data collection and reporting.
Lecture: 2 hrs/week; Lab: 2 hrs/week

ISET3201 InfoSec Project Management (2 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: 2 hrs/week;

NCS3301 Linux/Unix Security Administration (OCT-II) (1 CR)
The purpose of this on-campus-training module is to practice advanced hands-on sessions on using tools provided by Linux/Unix. Students will become accustomed with using a Linux/Unix system and will become introduced to 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.
Lab: 5 hrs/week

NCS3302 Server Security Administration (OCT-II) (1 CR)
The purpose of this on-campus-training module is to practice configuring Windows Server and Linux OS through hands on sessions by providing training on implementing, configuring, managing and troubleshooting Servers. It covers the essential skills and information required to install, configure, and manage server hardware and operating systems (OSs) by implementing proper security controls, successfully troubleshooting common server problems, and demonstrating an understanding of key disaster recovery concepts
Lab: 5 hrs/week

NCS3303 Advanced Routing and Switching (OCT-II) (1 CR)
The purpose of this 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 CCNA certification.
Lab: 5 hrs/week

NCS3304 Network Perimeter Protection- OCT II (1 CR)
The objective of this course is to cover the various technical and administrative aspects of network border control and protection. This course provides advanced understanding of 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 Unified Threat Management (UTM) appliances.
Lab: 5 hrs/week

NCS3305 Intrusion Detection & Response (OCT-II) (1 CR)
The purpose of this on-campus-training module is to practice advanced 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
Lab: 5 hrs/week

NCS3306 Digital Forensics & Investigations – OCT II **(1 CR)**
This course introduces students to the hands-on activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, cloud forensics, etc. Upon successful completion of this course, students shall know the workability of various tools and techniques in a digital forensic environment in a practical approach.
Lab: 5 hrs/week

NCS3202 Advanced Penetration Testing & Ethical Hacking (3 CR)
This course focuses on network and information systems security from red team's offensive point of view. Students will learn advanced penetration testing techniques used to identify, validate, and assess system vulnerabilities within highly secured environment. Topics include stealth scanning and enumeration, vulnerability analysis and validation, advanced memory attacks, data collection and reporting.
Lecture: 2 hrs/week; Lab: 2 hrs/week

ISET4101 Risk and Security Management (2 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 selection of controls, and roles and responsibilities. Risk Management Strategies (Avoidance, Transference, Mitigation, and Acceptance), Counter-Measures, and Cost Benefit Analysis of Info Security investments.
Lecture: 2 hrs/week; tutorial: 2 hrs/week (optional);

NCS4101 Graduation Projects I **(3 CR)**
In this course, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their specializations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and
determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.

NCS4201 Graduation Projects II **(3 CR)**
This course brings together the knowledge and skills acquired by students in earlier courses and apply them to a real-world secure system development project. Students will work in teams to develop a solution to solve a real-world problem that have business viability. The Graduation project comprises two courses, NCS4101 (GP-I) and NCS4201 (GP-II) and four phases. In GP-I, student would complete requirements analysis (Phase I), and project design (Phase II). As part of GP-II, students would complete two cycles of development (Phases III and IV) to implement, test, deliver, and deploy the project in a real-world environment.
lecture: 2 hrs/wk; laboratory: 2 hrs/wk

NCS4201 Incident Handling and Response (3 CR)
This course equips students with the core concepts and skills in incident response and incident management domain. Students will learn the processes involved in efficient incident handling plan and how it contributes to overall mission of an organization. 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: 2 hrs/week; Lab: 2 hrs/week

NCS4202 Ethics, Law & Policy in Cyberspace (2 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. 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: 2 hrs/week; tutorial: 2 hrs/week (optional)

NCS4301 Field Training (OJT) **(6 CR)**

The internship course seeks to provide a dynamic element to ISET program and introduce the principles of learning through work and allowing the student to apply theoretical constructs taught

in other courses to a 'real world' situation. This course shall be conducted collaboratively with AD Polytechnic Industrial partner for a total of full 8 weeks. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. 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. The workplace will be as required by the individual organization.

Department Approval is required

Elective ISET4001 Homeland Security (3 CR)

This course introduces the topic of analysis and deployment of resources and controls toward developing homeland security (HS) capabilities. This course examines the effects the focus on homeland security 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: 2 hrs/week; Lab: 2 hrs/week

Elective NCS4004 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD4005 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: 2 hrs/week: 2 hrs/week

ISET4002 Advanced Cryptography (3 CR)

This course covers advanced topics in Cryptography including: multiple key public key encryption, secret sharing, formal analysis of authentication and key exchange protocol, proxy signature, group signature, fail-stop signature, blind signature, identity based public key cryptography and key management techniques.

Lecture: 2 hrs/week; Lab: 2hrs/week

Elective ISET4003 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 will possess detailed knowledge about the role of policies, standards and guidelines for controls and will be capable of applying his/her knowledge in case studies.

Lecture: 2 hrs/week; Lab: 2hrs/week

Elective ISET4006 Blockchain Technology and Security (3 CR)

Blockchain is the distributed and decentralized database technology behind cryptocurrency. This course explores the fundamentals of the public, transparent, secure, immutable and distributed database called blockchain. Blockchains can be used to record and transfer any digital asset not just currency. This course will introduce students to the workings and applications of this potentially disruptive technology. Smart contact programming using Solidity will be introduced. Its potential applications on financial services, government, banking, contracting and identity management will be discussed.

Lecture: 2 hrs/week; Lab: 2hrs/week

Elective NCS4001 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, 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD4002 Reverse Engineering (3 CR)

This course covers fundamental problems, principles, and techniques in software reverse engineering of binaries including static analysis techniques, disassembly algorithms, dynamic analysis techniques, automated static and dynamic analysis techniques, malware analysis techniques, anti-analysis techniques, and malware obfuscation and packing techniques; many of the techniques will be demonstrated and practiced using IDA. It also involves research opportunities to analyze new malware samples and firmware's and develop new analysis tools.

Lecture: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4005 Security Architectures and Models (3 CR)

The course covers the broad domain of security architecture and models. The course will also demonstrate advanced concepts in OM-AM (Objective, Model, Architecture and Mechanism layers) framework, role-based access control (RBAC), security architectures and models, system security infrastructures, access control multilevel security models, and biometric authentication and authorization architecture models. The course also provides analysis and evaluation of the security related functions of monitoring systems, telecommunication systems, and smart grid systems. The course will serve as a prerequisite to the CISSP certification..

Lecture: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective NCS4002 Wireless Ethical Hacking and Defense (3 CR)

This course takes an in-depth look at the security challenges of many different wireless technologies, exposing the students to wireless security threats through the eyes of an attacker. Using readily available and custom-developed tools, students will learn the techniques attackers use to exploit Wi-Fi networks, including attacks against WEP, WPA/WPA2, RADIUS, PEAP, etc. 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 on wireless hacking tools and techniques. While these hacking skills can be used for malicious purposes, this class teaches students how to use the same hacking techniques to perform a white-hat, ethical hack, on the organization.
Lecture: 2 hrs/week Lab: 2 hrs/week

Elective NCS4004 Network Security Trends (3 CR)

This course will offer participants advanced topics in network and cyber security. The course will be constantly updated to reflect new technologies, solutions, models, and approaches in the field of 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 with a focus on the latest trends in network security.

Lecture: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4005 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. Students learn concepts and methods for creating technologies and related policies taking into consideration privacy protection. 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. Some case studies from different domains are presented. The course includes a privacy-related project.

Lecture: 2 hrs/week; Lab: 2 hrs/week

26.5.4 Systems and Servers Security Administration Concentration (SSA)

SSA2301 MS Windows Server Security (OCT-I) (1 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: 3 hrs/day; Lab: 3 hrs/day, two weeks delivery

SSA2302 MS Exchange Server Security (OCT-I) (1 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: 3 hrs/day; Lab: 3 hrs/day, two weeks delivery

SSA2303 Linux/UNIX Operating Systems Security (OCT-I) (1 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
Lab: 5 hrs/week

SSA2304 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
Lab: 5 hrs/week

SSA2305 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
Lab: 5 hrs/week

SSA2306 Ethical Hacking and Pen. Testing (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
Lab: 5 hrs/week

SSA3101 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 1hrs/week

SSA3102 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

SSA3103 Emerging trends in systems security (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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

NCS3103 Cloud 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: 2 hrs/day; tutorial: 2 hrs/day; Lab: 3 hrs/day

ISET3201 InfoSec Project Management (2 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: 2 hrs/week;

SSA3201 Vulnerability Analysis and Pen.Testing (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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

SSD3201 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.
Lab: 5 hrs/week

SSA3202 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

NCS3203 Fundamentals of Digital Forensics(3 CR)
This course introduces students to the principal activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, file carving, etc. Upon successful completion of this course, students shall know the role digital evidence plays in criminal and civil investigations and incident response.
Lecture: 2 hrs/week; Lab: 2 hrs/week

SSA322 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

SSA324 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 1hrs/week

SSA3301 Linux/Unix Operating Systems Security Administration (OCT-II) (1 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
Lab: 5 hrs/week

SSA3302 Server Security Administration (OCT-II) (1 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.
Lab: 5 hrs/week

SSA3303 Database Server Security Administrations (OCT-II (1 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.
Lab: 5 hrs/week

SSA3304 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
Lab: 5 hrs/week

SSA3305 Exchange Server Security (OCT-II) (1 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
Lab: 5 hrs/week

NCS3306 Digital Forensics & Investigations – OCT II **(1 CR)**
This course introduces students to the hands-on activities and state-of-the-art techniques involved in developing digital forensics systems. Topics covered may include forensic analysis of modern filesystems and reconstruction, network forensics, mobile device forensics, memory forensics, and anti-forensics, cloud forensics, etc. Upon successful completion of this course, students shall know the workability of various tools and techniques in a digital forensic environment in a practical approach.
Lab: 5 hrs/week

ISET4101 Risk and Security Management (2 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 1hrs/week

SSD4101 Graduation Projects I **(3 CR)**
In this course, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their specializations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.

SSD4201 Graduation Projects II **(3 CR)**
This course brings together the knowledge and skills acquired by students in earlier courses and apply them to a real-world secure system development project. Students will work in teams to develop a solution to solve a real-world problem that have business viability. The Graduation project comprises two courses, NCS4101 (GP-I) and NCS4201 (GP-II) and four phases. In GP-I, student would complete requirements analysis (Phase I), and project design (Phase II). As part of GP-II, students would complete two cycles of development (Phases III and IV) to implement, test, deliver, and deploy the project in a real-world environment.
lecture: 2 hrs/wk; laboratory: 2 hrs/wk

ISET4201 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

ISET4202 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 highlights 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 2 hrs/week

SSD4301 Field Training (OJT) **(6 CR)**

The internship course seeks to provide a dynamic element to ISET program and introduce the principles of learning through work and allowing the student to apply theoretical constructs taught in other courses to a 'real world' situation. This course shall be conducted collaboratively with AD Polytechnic Industrial partner for a total of full 8 weeks. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. 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. The workplace will be as required by the individual organization.

Department Approval is required

Elective ISET4001 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4002 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0hrs/week

Elective ISET4003 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4004 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective ISET4005 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: 2 hrs/week; tutorial: 2 hrs/week (optional); Lab: 0 hrs/week

Elective ISET4006 Blockchain Technology and Security (3 CR)

Blockchain is the distributed and decentralized database technology behind cryptocurrency. This course explores the fundamentals of the public, transparent, secure, immutable and distributed database called blockchain. Blockchains can be used to record and transfer any digital asset not just currency. This course will introduce students to the workings and applications of this potentially disruptive technology. Smart contact programming using Solidity will be introduced. Its potential applications on financial services, government, banking, contracting and identity management will be discussed.
Lecture: 2 hrs/week; Lab: 2hrs/week

Elective NCS4001 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, 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD4002 Reverse Engineering (3 CR)

This course covers fundamental problems, principles, and techniques in software reverse engineering of binaries including static analysis techniques, disassembly algorithms, dynamic analysis techniques, automated static and dynamic analysis techniques, malware analysis techniques, anti-analysis techniques, and malware obfuscation and packing techniques; many of the techniques will be demonstrated and practiced using IDA. It also involves research opportunities to analyze new malware samples and firmware's and develop new analysis tools.
Lecture: 2 hrs/week; Lab: 2 hrs/week

Elective NCS4004 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: 2 hrs/week; Lab: 2 hrs/week

Elective SSD4005 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective SSA 4001 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective SSA 4002 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

Elective SSA 4003 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: 2 hrs/week; tutorial: 2 hrs/week; Lab: 2 hrs/week

26.6 Petroleum Engineering Technology courses

26.6.1 Petroleum Engineering Technology (PET)

PET1011 Introduction to Petroleum Engineering (3 CR)
Overview of petroleum industry and petroleum engineering including nature of oil and gas reservoirs, petroleum exploration, drilling, formation evaluation, well completion & production, surface facilities, reservoir mechanics, and improved oil recovery.
Lecture 3 hrs/wk.

PET1012 Petroleum Geology (2 CR)
PET1012P Petroleum Geology Lab (1 CR)
This course (with lab) is an introduction to petroleum geology for petroleum engineering students. The objective of the course is 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 2 hrs/wk; Lab: 3 hrs/wk.

PET2021 Reservoir Rock Properties (2 CR)
PET2021P Reservoir Rock Properties Lab (1 CR)
This course (with lab) provides 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 is also studied.
Lecture 2 hrs/wk; Lab: 3 hrs/wk,

PET2022 Reservoir Fluid Properties (2 CR)
PET2022P Reservoir Fluid Properties Lab (1 CR)
This course (with lab) deals with study of the basic phase behavior of hydrocarbon systems as related to petroleum recovery, ideal and real gas behavior, single and multicomponent two-phase systems, and properties of reservoir fluids under various conditions of pressure and temperature. Laboratory tests on reservoir fluids are also conducted.
Lecture 2 hrs/wk, Lab 3 hrs/wk

PET2023 Reservoir Engineering I (3 CR)
This course serves as an introduction to a more complete "understanding" of the characteristics of oil and gas reservoirs, from fluid and rock characteristics through reservoir definition, delineation, classification, development plan, and production.
Lecture 3 hrs/wk

PET2031 Drilling Technology I (2 CR)
PET2031P Drilling Technology I Lab (1 CR)
This course (with lab) introduces basic drilling techniques and drilling fluid properties. It covers aspects of rig components and fundamental operation associated with drilling a well for petroleum exploration and production. Lab measurements of drilling fluid properties are conducted.
Lecture 2 hrs/wk; Lab: 3 hrs/wk

PET2061 Pumps, Valves & Air Compressors (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to different equipment units such as pumps, valves, and air compressors.
OCT: 3 hrs/wk

PET2062 Heat Exchangers & Steam Traps (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to different equipment units such as heat exchangers and steam traps.
OCT: 3 hrs/wk

PET2063 Experimental Fluid Mechanics (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts of fluid mechanics like measurement of Reynold's Number, flowrates, cavitation onset and pressure losses.
OCT: 3 hrs/wk

PET2064 AC & DC Machines (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to alternating current (AC) and direct current (DC) machines.
OCT: 3 hrs/wk

PET2065 Oil and Gas Testing (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to oil and gas testing like distillation of binary and multicomponent mixtures, and refining processes.
OCT: 3 hrs/wk

PET2066 Process Simulation, Instrumentation and Control (1 CR)
On-Campus-Training I (OCT-I)
This course provides the basics of petroleum (oil & gas) simulation, instrumentation and measurement. Oil and gas operations have a sensitive and critical importance as they deal with high temperature and pressure and extreme natural conditions. A student geared towards this industry should be equipped with a sound theoretical background of measurement instruments and techniques. In addition, it imparts basic knowledge of process variables related to instrumentation and control.
OCT: 3 hrs/wk

PET3051 Numerical Methods (3 CR)
This course deals with the use of numerical methods in solving a variety of petroleum and chemical engineering problems; numerical differentiation and integration; root finding; numerical solutions; curve fitting and interpolation.
Lecture 3 hrs/wk.

PET3043 Well Testing (3 CR)
This course covers reservoir characterization by pressure test analysis. It introduces students to the theory of well testing and its applications, emphasizing the importance of well testing as a tool for reservoir description and evaluation. It highlights the importance of well testing as a diagnostic tool for evaluating the ability of a formation to produce reservoir fluids and monitoring well performance.
Lecture 3 hrs/wk.

PET3071 Subsurface Production Engineering (3 CR)
This course presents an introduction to petroleum production systems and properties of oil and natural gases that are essential for designing and analyzing oil and gas production systems. In addition, it covers the performance of oil and gas wells, techniques used to forecast well production for economic analysis, and empirical models for production decline analysis.
Lecture 3 hrs/wk.

PET3041 Well Logging (2 CR)
PET3041P Well Logging Lab (1 CR)
This course (with lab) 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 applied. Computer and commercial software packages are used to handle data, create graphs, log traces, and determine reservoir parameters.
Lecture: 2 hrs/wk; Lab: 3 hrs/wk.

PET3024 Reservoir Engineering II (3 CR)
The course includes application of reservoir engineering data to calculate recovery potentials and to analyze and predict reservoir performance under a variety of production methods to achieve maximum conservation.
Lecture 3 hrs/wk

PET3072 Health and Safety at Work (HSW) (2 CR)
This course is designed to equip students with the knowledge and skills needed to identify and deal with hazards at the workplace, suggest risk control measures, and conduct risk assessment.
Lecture 2 hrs/wk

PET3032 Drilling Technology II (2 CR)
This course deals with additional topics in drilling engineering, namely directional and horizontal well drilling, stuck pipe mechanisms, cementing design, casing selection design, managed pressure drilling, offshore and subsea well control, and well planning.
Lecture 2 hrs/wk.

PET3042 Well Completion & Workover (3 CR)
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 and the most important downhole equipment of any hydrocarbon well are discussed. The ways of opening the formation for production and the different types of perforating oil and gas wells are studied. Workover procedures including remedial cementing and well stimulation methods are covered along with the required design procedures.
Lecture 3 hrs/wk

PET3061 Drilling (1 CR)
On-Campus-Training II (OCT-II)
This OCT covers drilling practices and problems from spud to completion in accordance with API standards and raises the student awareness of drilling and well operations. In addition, it develops student's skills such as observation, data acquisition, data analysis, communication, and technical report writing.
OCT: 3 hrs/wk

PET3062 Well Control (1 CR)
On-Campus-Training II (OCT-II)
This OCT covers the concepts and equipment of well control in accordance with API standards and raises the student awareness of well problems including kick detection, lost circulation and stuck pipe.
OCT: 3 hrs/wk

PET3063 Cementing (1 CR)
On-Campus-Training II (OCT-II)
This OCT covers cement operations, evaluation and properties in accordance with API standards. These properties include cement rheology, thickening time, permeability and compressive strength.
OCT: 3 hrs/wk

PET3064 Well Head/Christmas Tree (1 CR)
On-Campus-Training II (OCT-II)
This OCT covers logic sequence of wellhead construction, Xmas tree completion and workover, API standards, tubing head design and well intervention.
OCT: 3 hrs/wk

PET3065 Workover (1 CR)
On-Campus-Training II (OCT-II)
The OCT covers remedial work done on the well (production stopped) to maintain, restore, or improve production by a workover in accordance with API standards. This includes both solving mechanical problems and well clean-out.
OCT: 3 hrs/wk

PET3066 Reservoir Stimulation (1 CR)
On-Campus-Training II (OCT-II)
This OCT covers determination of permeability changes of a formation sample as it is exposed to a variety of test fluids and raise the student awareness of all types of formation treating methods in

accordance with API standards.
OCT: 3 hrs/wk

PET3090 Graduation Project I (3 CR)
In this project, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their concentrations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions in accordance with API standards. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into the course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.
GP: 3 hrs/wk (2 hrs class by advisor + 1 hr lecture/workshop by GP unit)

CHET3011 Gas Processing & Treatment (2 CR) "For PET with Minor O&G"
The course is designed for students to enhance their understanding about gas processing and treatment. The students will apply the knowledge in natural gas origins and properties, products and side products, dehydration processes, sweeting and acid treatment, gas-liquid absorption and gas-solid adsorption, compression and refrigeration systems, and gas transport.
Lecture 2 hrs/wk.

PET3013 Petroleum Economics (2 CR)
This course provides an understanding of the fundamental concepts, theories and practices of petroleum economics. It covers a range of topics related to the petroleum industry including forecast oil production, methods of defining reserves, operational costs, interest rate, compound interest rate, cash flow techniques, present worth, future worth, contractual arrangements, and inflations.
Lecture 2 hrs/wk,

PET3052 Enhanced Oil Recovery (3 CR)
This course covers the recovery improvement possibilities at all stages in the reservoir life cycle. It thereby enables the students to select the most beneficial method and set realistic expectations on production behavior changes and recovery improvement.
Lecture 3 hrs/wk

PET3025 Reservoir Simulation (3 CR)
This course provides a solution to reservoir engineering problems using state-of-the-art commercial reservoir simulation software which makes use of data commonly available in industry. In addition, this course covers reservoir description, reservoir model design and calibration, production forecasting and optimization, economic analysis and decision making under uncertainty.
Lecture 3 hrs/wk,

PET3053 Water Treatment and Injection (2 CR)
PET3053P Water Treatment and Injection Lab (1 CR)
The course covers both theory and practice applications of water treatment for injection as part of a secondary recovery scheme or disposal of produced waters. It also provides students with an overview of different types of water treatment methods and water quality specifications.
Lecture 2 hrs/wk Lab: 3 hrs/wk

PET3073 Production System Design and Analysis (3 CR)
This course provides students with necessary principles of production fluid behavior, conditioning, and processing from the production stage (wellhead) to the process stage. The students will learn oilfield production handling at the surface, the treatment equipment, and the subsurface processes.
Lecture 3 hrs/wk,

PET3054 Special Topics in Petroleum Engineering Technology (3 CR)
The course covers range of special topics related to petroleum engineering technology. The course presents selected current and emerging applications depending on industrial needs. Topic(s) can be selected according to the faculty expertise and the students' interest.
Lecture 3 hrs/wk

PET4090 Graduation Project II (3 CR)
This is the second course in a sequence of two courses that are based on supervised team projects. This is a continuation to the graduation project I. In this course students will learn and demonstrate project implementation, debugging, documentation, and testing. The focus of the course is on designing and implementing an acceptable solution based on the results and recommendations from graduation project I. Students are required to build one of the following: working model, simulated prototype, physical prototype, process, IT system, enhanced system service of their final solution concept. Students will broaden their technical and communication skills by contacting vendors, academic and industrial expertise in their disciplines. A standard technical report (encourage to be supported by paper format) and formal oral presentations are important course elements which are presented during final presentation of the project.
GP: 3 hrs/wk (2 hrs class by advisor + 1 hr lecture/workshop by GP unit)

PET4099 Internship (6 CR)
The internship course is basically On-the-Job-Training which will take place during the fourth year for AB students. ADPoly will arrange with one of the leading oil & gas service companies or operating companies, operating in UAE, to allocate training places for course students ahead of time. Each student must participate in an approved training/performance (internship) program in either upstream or downstream industries. 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; the student grade will be either P OR NP (Pass or Non-Pass).
Practical Training: 8 wks (~300 hrs)

26.6.2 Chemical Engineering Technology (ChET)

CHET1011 Introduction to Oil & Gas Industry (3 CR)
This course introduces the student to the terminology and techniques used in oil and gas industry from chemical engineering point of view. Moreover, it provides an overview of the oil and gas industry, including the chemical nature and characteristics of hydrocarbons, their sources, and the three industry sectors. Students will learn about separators, chemical reactors, rock and fluid properties, and midstream and downstream unit operations. The course will cover surface treatment and storage of oil and gas, API standards, refinery processes, and the role of chemical engineers in the industry.
Lecture 3 hrs/wk.

CHET2011 Elementary Principles of Process Engineering (2 CR)
This course intends to introduce students to the basic principles of process engineering and provide solution of elementary problems by application of mass balances, energy balances, and equilibrium relationships. Students will learn the fundamentals of process engineering, including process engineering nomenclature, systems of units and dimensions, process variables, and basic unit operations. In addition, students will learn how to solve process engineering problems systematically, identify variables, draw process flow charts, perform degrees of freedom analysis, and formulate mathematical expressions. The course will provide practical skills for students to apply in their future careers in process engineering.
Lecture 2 hrs/wk

CHET2021 Analytical Chemistry (2 CR)
The course defines and illustrates the analytical approach to chemical 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. Moreover, this course provides an in-depth understanding of analytical chemistry principles, methods of analysis, and strategies for sample quantification. Students will gain necessary laboratory skills in qualitative and quantitative analysis using common analytical instrumentation (as applicable). The course emphasizes adherence to good laboratory practices and standard documented methods, as well as effective presentation and interpretation of scientific data.
Lecture 2 hrs/wk

CHET2022 Organic Chemistry (3 CR)
This is an introductory course in organic chemistry designed to give chemical engineering technology students a knowledge and understanding of the fundamental chemical concepts of organic chemistry. It provides a foundation in the laws of nature and organic chemistry principles as they apply to chemical engineering processes and unit operations. Students will learn to identify organic compounds by molecular framework and functional group and solve related problems in chemical process industries through organic laboratory experiments (as applicable). Successful completion of the course will enable students to apply basic concepts of organic chemistry in their future careers.
Lecture 3 hrs/wk

CHET2023 Physical Chemistry (3 CR)
This course gives an overview of some of the topics in physical chemistry – atomic and molecular structure, spectroscopy, statistical thermodynamics, and electrochemistry. It covers thermodynamics principles, including equations of state, thermochemical calculations, phase co-existence conditions, and equilibrium concentrations. Students will gain laboratory skills (as applicable) in physical chemistry instrumentation and analysis related to chemical engineering technology.
Lecture 3 hrs/wk

CHET2031 Momentum, Heat & Mass Transfer (4 CR)
This course covers the fundamental mechanisms of momentum, heat, and mass transfer related to unit processes and operations. It includes principles of convective momentum, heat energy, and mass transport in homogeneous or two-phase (liquid-gas or oil-gas) systems. The course emphasizes transfer mechanisms, differential mass, heat, and momentum balances, and their applications to process equipment design.
Lecture 4 hrs/wk,

CHET3041 Petroleum Refining & Processing (2 CR)
CHET3041P Petroleum Refining & Processing Lab (1 CR)
This course focuses on the core building blocks of the refining process systems, equipment, and economics. IT covers the characteristics and types of crude oil, thermo-physical properties of crude oil fractions, empirical equations for estimating properties, crude oil distillation and fractionation, the Mc Cabe-Thiele stage-wise graphical technique, raw hydrocarbon conversion processes, equipment unit set-ups for reforming, cracking, and coking of crude oil, refinery flow sheet components and operational functions, as well as hazards and risks involved in downstream operations.
lecture: 2 hrs/wk; Lab: 3 hrs/wk.

CHET3011 Gas Processing and Treatment (2 CR)
This course covers the basic chemical principles involved in petroleum processing, main processing steps in the movement of natural gas, key processes in gas industry such as dehydration and natural gas sweetening, NGL recovery and separation, refrigeration, and compression systems. It also covers gas absorption process design, data analysis on gas processing and two-phase flow, industry standard gas process and product requirements. It also emphasizes on the design and selection criteria of major process equipment used in gas processing such as three-phase separators, slug collector, and turbo-expanders, as well as safety, health, and environmental concepts associated with natural gas processing.
Lecture 2 hrs/wk,

CHET3042 Chemical Reactors and Mixing (2 CR)
CHET3042P Chemical Reactors and Mixing Lab (1 CR)
This course focuses on chemical reactors used in chemical industries, with an in-depth study of batch, tubular and perfect mixers. Students will learn to perform mass/mole balances and energy balances on reactors, apply design equations based on balanced chemical equations, and apply knowledge to batch and continuous reactors. Students will also solve reactor problems and learn to adjust variables when designing reactors to achieve specific conversions and volumes under certain constraints.
Lecture 2 hrs/wk; Lab 3 hrs/wk.

CHET3024 Petrochemicals (2 CR)
This course covers identifying petrochemical industries, describing petrochemical technologies and associated products, defining basic petrochemical feedstock, describing petrochemical processes, and associated chemical reactions, and outlining downstream industries and their added value.
Lecture 2 hrs/wk

CHET3012 Unit Operations I (3 CR)
This course introduces the fundamental concepts of chemical engineering, including unit processes, fluid mechanics, material balances, and equipment performance. Topics covered include incompressible and compressible flow, pump and compressor selection, and impeller design for mixing and agitation. Students will learn to analyze and optimize unit operations in a variety of industrial applications.
Lecture 3 hrs/wk

CHET3013 Unit Operations II (3 CR)
This course focuses on the fundamental concepts of heat transfer and mass transfer in chemical engineering unit operations. Students will learn to distinguish between steady-state and unsteady-state conditions for mass and heat flows at different modes, analyze mass and heat flow in fluids, packed beds, and agitated vessels, and analyze independent and simultaneous heat and mass transfer systems. The course will also cover the performance of mass transfer and heat-exchange equipment units, the principles of equilibrium stage operations, and equipment designs of different process plant units.
Lecture 3 hrs/wk

CHET3043 Chemical Reactor Design (2 CR)
This course introduces the design and analysis of chemical reactors. Students will learn about different types of reactors and their design, including homogeneous and heterogeneous reactors. The course will cover how to analyze and design reactors under isothermal-isobaric conditions and non-isothermal, non-isobaric conditions, and how to use computer software to solve open-ended reactor design problems. Students will apply their knowledge to illustrate numerical techniques and analysis of an industrial reactor in a term project and will write and present orally a reactor design report.
Lecture 2 hrs/wk

CHET3071 Plant and Equipment Design (3 CR)
This course covers the design of process equipment, including process and pressure vessels. Students will learn about the fundamental concepts of process equipment design and the different types of equipment used in chemical processes. The course will cover how to design process and pressure vessels using API standards, including the selection of appropriate materials for different equipment types. By the end of the course, students will have a basic understanding of process equipment design and the skills necessary to design and select materials for various equipment types.
Lecture 3 hrs/wk

CHET3014 Process Control and Instrumentation (2 CR)
This course introduces instrumentation and control (I&C) in chemical engineering. Students will develop a basic understanding of I&C, including the basic theory of temperature, pressure, level, and flow detection, sensors, and their types. The course will cover the structure of each instrument, including temperature, pressure, level, and flow sensors, and the physical characteristics of sensors. Students

will learn how to measure process temperature, pressure, level, and flow, and will be introduced to the concept of control automation and control valves. By the end of the course, students will have a basic understanding of I&C and the skills necessary to measure and control process variables in chemical engineering applications.
Lecture 2 hrs/wk

CHET3054 Special Topics in CHETET (3 CR)
This course covers special topics in the field of chemical engineering, providing students with an opportunity to explore advanced concepts and emerging technologies. Students will learn about the latest developments in areas such as green engineering, bioprocessing, nanotechnology, and renewable energy. The course will also cover case studies of industrial applications of similar technologies. By the end of the course, students will have a deeper understanding of the latest trends and innovations in chemical engineering technology and be equipped with the knowledge and skills necessary to tackle the complex challenges facing the industry.
Lecture 3 hrs/wk

CHET2061 Pumps, Valves & Air Compressors (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to different equipment units such as pumps, valves, and air compressors.
OCT: 3 hrs/wk

CEHT-2062 Heat Exchangers & Steam Traps (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts related to different equipment units such as heat exchangers and steam traps.
OCT: 3 hrs/wk

CEHT-2063 Experimental Fluid Mechanics (1 CR)
On-Campus-Training I (OCT-I)
This course introduces the students to basic concepts of fluid mechanics like measurement of Reynold's Number, flowrates, cavitation onset and pressure losses.
OCT: 3 hrs/wk

CHET3061 Water Purification (1 CR)
On-Campus-Training II (OCT-II)
This course introduces the students with basic concepts related to water treatment and water purification technologies using the ADPoly Process Plant Unit 100. It covers the fundamentals of water treatment in the oil and gas industry, the analysis of physical, chemical, and biological processes including sedimentation, filtration, disinfection, and membrane separation work. Students will also learn technical report writing, presentation skills, and teamwork.
OCT: 3 hrs/wk

CHET3062 Oil Handling Systems & Facilities (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers oil transport, flow metering devices, process flow diagram tracing, tank farm & pigging operations, calculations for Unit 500, and technical report writing. Students will also learn about instrumentation devices, safety systems, and teamwork.
OCT: 3 hrs/wk

CHET3063 Gas Handling Systems & Facilities (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the

subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers gas transport through metering devices, pipes, vessels, compressors, and turbines, as well as gas flow control, emergency handling, and safety procedures. Students will also learn technical report writing, presentation skills, and teamwork.
OCT: 3 hrs/wk

CHET3064 Separation Processes (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers processes involving gas absorption, scrubbing, stripping, filtration, and three-phase separation in Unit 600, as well as pressure drop calculations. Students will also learn technical report writing, presentation skills, and teamwork.
OCT: 3 hrs/wk

CHET3065 Oil and Gas Distillation (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers the principles, design, efficiency, operation, safety, and environmental considerations of distillation processes in the oil and gas industry. Students will also analyze case studies and develop technical report writing, presentation skills, and teamwork.
OCT: 3 hrs/wk

CHET3066 Reactors Engineering (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields.
This course covers batch and continuous reactor operations, including kinetics, rate laws, plug flow reactors, and instrumentation. Students will also learn about operational principles, process flow diagrams, calculations, and concentration calculations for IBR, PFR, and CSTR operations. Additionally, technical report writing, presentation skills, and teamwork will be developed.
OCT: 3 hrs/wk

CHET3067 Pipeline Pigging & Inspection (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers pipeline pigging operations, pipeline intervention systems, troubleshooting flow problems, in-plant pipeline repairs and maintenance, as well as technical report writing, presentation skills, and teamwork.
OCT: 3 hrs/wk

CHET3068 Tank Farm Operations (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility which is mimicking the real oil & gas fields. This course covers the operations and management of oil and oil product terminals, planning and scheduling techniques for storage and transfer systems, terminal planning and transfer requirements, terminal management skills, and safe practices and procedures, including oil spill contingency and emergency response plans. Additionally, technical report writing, presentation skills, and teamwork will be developed.
OCT: 3 hrs/wk

CHET3069 Control Room Operations (1 CR)
On-Campus-Training II (OCT-II)
This primarily provides hands-on training modules for chemical engineering technology students in the subject matter related to key oil and gas process equipment through utilization of the state-of-the-art ADPoly Process Plant Training Facility Unit 700 which is mimicking the real oil & gas fields. This course covers the general operation of a plant control system, communications, administrative tasks, readiness for day-to-day, abnormal, and emergency operation, integration with process and remote control, controlling production during normal operation and maintenance activities, and emergency operations. Additionally, emergency situation roles and responsibilities, technical report writing, technical oral presentation skills, and teamwork will be developed.
OCT: 3 hrs/wk

CHET3051 Process Modeling & Simulation (3 CR)
This course covers the development of steady-state and dynamic mathematical models of chemical engineering systems from first principles, writing computer programs to simulate chemical engineering processes with or without controllers, validating and analyzing simulation results, converting optimization problems from words to mathematical statements, solving optimization problems using analytical and numerical methods, and applying optimization methods to chemical engineering problems.
Lecture: 3 hrs/wk

CHET3090 Graduation Project I (3 CR)
In this project, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their concentrations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions in accordance with API standards. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into the course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.
GP: 3 hrs/wk (2 hrs class by advisor + 1 hr lecture/workshop by GP unit)

CHET4090 Graduation Project II (3 CR)
This is the second course in a sequence of two courses that are based on supervised team projects. This is a continuation to the graduation project I. In this course students will learn and demonstrate project implementation, debugging, documentation, and testing. The focus of the course is on designing and implementing an acceptable solution based on the results and recommendations from graduation project I. Students are required to build one of the following: working model, simulated prototype, physical prototype, process, IT system, enhanced system service of their final solution concept. Students will broaden their technical and communication skills by contacting vendors, academic and industrial expertise in their disciplines. A standard technical report (encourage to be supported by paper format) and formal oral presentations are important course elements which are presented during final presentation of the project.
GP: 3 hrs/wk (2 hrs class by advisor + 1 hr lecture/workshop by GP unit)

CHET4099 Internship (6 CR)
The internship course is basically On-the-Job-Training which will take place during the fourth year for AB students. ADPoly will arrange with one of the leading chemical, oil and gas companies, operating in UAE, to allocate training places for course students ahead of time. Each student must participate in an approved training/performance (internship) program in either upstream or downstream industries applying chemical engineering concepts. 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; the student grade will be either P OR NP (Pass or Non-Pass).
Practical Training: 8 wks (300 hrs)

26.7 Meteorology (MET)

MET1001 Introduction to Meteorology (3 CR)
This course covers introduction to Meteorology, the Earth atmosphere, Earth's radiative balance, air temperature, atmospheric pressure, winds, humidity, condensation, clouds, fog, precipitation, thunderstorms and atmospheric optics.
Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET2101 Atmospheric Thermodynamics (3 CR)
This course covers math review, basic concepts, gases laws, 1st law of thermodynamics, enthalpy and specific heat, thermodynamics processes, air stability, 2d law of thermodynamics, thermodynamics diagrams.
Lecture: 3 hrs, Tutorial: 1 hr, Lab: 0 hrs.

MET2202 Atmospheric Dynamics I (3 CR)
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 hr, Lab: 0 hrs.

MET2203 Climatology (3 CR)
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.

MET2204 Radiation and Cloud Physics (4 CR)
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 B (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, cloud feedback on Earth-Atmosphere Radiation Budget.
Lecture: 5 hrs, Tutorial: 1 hrs, Lab: 0 hrs.

MET2205 Aviation Meteorology (3 CR)
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.

MET2301 Synoptic Meteorology I (3 CR)
This course covers introduction to synoptic meteorology, fronts and jets, precipitation systems in the midlatitudes, instability, cyclogenesis and anticyclogenesis, the classical midlatitude cyclone.
Lecture: 3 hrs, Tutorial: 1 hrs, Lab: 0 hrs.

MET3101 Synoptic Meteorology II (3 CR)
This course covers analysis of midlatitude systems using the balance equation, quasi-geostrophic theory, the formation and movement of surface pressure systems, the formation and movement of upper level systems and isentropic potential vorticity.
Lectures: 3 hrs, Tutorial: 1 hrs, Lab: 0 hrs.

MET3102 Atmospheric Dynamics II (3 CR)
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 hr, Lab: 0 hrs.

MET3103 Computer Programming FORTRAN Workshop (1 CR)
This course introduces scientific computing in FORTRAN, parallel computing concepts and High-Performance Computing.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET3201 NWP & Numerical Analysis (3 CR)
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 hr, Lab: 3 hrs.

MET3202 Satellite Meteorology (3 CR)
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: 1 hr, Lab: 0 hrs.

MET3203 Radar Meteorology (3 CR)
This course covers introduction to radar, radar hardware and operations, the electromagnetic wave theory, RADAR equation, distributed targets, radar reflectivity, Doppler radar, Doppler spectrum, meteorological targets, dual-polarimetric radar theory, observations and applications.
Lecture: 3 hrs, Tutorial: 1 hr, Lab: 0 hrs.

MET4101 Tropical Meteorology (3 CR)
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: 1 hr, Lab: 0 hrs.

MET4102 Computer based Weather Analysis Workshop (1 CR)
This covers analysis of using advanced software packages in weather analysis, forecasting, and data visualization.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET4103 Numerical Computing using MATLAB Workshop (1 CR)
This course gives an overview of using MATLAB for solving a wide range of meteorological problems, statistical analysis and modeling.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3hrs

MET4301 Planetary Boundary Layer Meteorology (3 CR)
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: 1 hr, Lab: 0 hrs.

MET4302 Climate Data Management Workshop (1 CR)
This course covers 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

MET2060 Meteorological Instruments & Weather Observations_OCT1 (1 CR)
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: 1 hr, Lab: 3 hrs.

MET2061 International Meteorological Codes_OCT2 (1 CR)
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 hr, Lab: 3 hrs.

MET2062 Meteorology and Computing_OCT3 (1 CR)

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 to 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.

MET2063 Weather Broadcast 1_OCT4 (1 CR)
This training course covers weather broadcasting preparation, including broadcast newswriting, broadcast reporting, and television/radio production.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET2064 Weather Charts Analysis 1_OCT5 (1 CR)
This course introduces weather chart analysis and covers variety of surface and upper air weather charts, meteograms, station plotting techniques.
Lecture: 0 hrs, Tutorial: 1 hr, Lab: 3 hrs

MET2065 Synoptic Met Practice & Tephigram_OCT6 (1 CR)
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: the Tephigram, the skew-T/Log P diagram and Stuve diagram, case study.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET3060 Weather Charts Analysis 2_OCT7 (1 CR) This course covers analysis of surface and upper air charts and utilize the analyses for forecasting of regional weather.
Lecture: 0 hrs, Tutorial: 1 hr, Lab: 3 hrs

MET3061 Weather Broadcast 2_OCT8 (1 CR)
This training course aims at developing skills in weather broadcasting preparation, broadcast newswriting, broadcast reporting, and television/radio production.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET3062 Weather Analysis and Forecasting_OCT9 (1 CR)
This training course covers analysis of upper air charts, analysis of surface weather chart.
Lecture: 0 hrs, Tutorial: 1 hr, Lab: 3hrs

MET3063 Satellite and Radar Analyses_OCT10 (1 CR)
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: 3 hrs

MET3064 Weather Forecasting Techniques_OCT11 (1 CR)
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: 3 hrs

MET3065: Programming in C++_OCT12 (1 CR)
This training course gives an exposure to object-oriented programming concepts in C++ for implementation in a scientific problem solving.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET3090 Graduation Project I/ Capstone Project (3 CR)

In this course, the students are expected to utilize their learned knowledge and hands on skills gained throughout the previous core courses in their concentrations by undertaking an applied engineering technology / applied science project. During the project, students engage in the entire process of the analysis of a problem and determination of the best solution and/or course of action. They will be able to define, design and develop engineering technology solutions. Planning and designing alternatives that meet cost, performance, and user-interface goals are emphasized. Project planning, scheduling, and management techniques are studied. Different design approaches are compared. Teamwork, global and societal concerns, and professional ethics are integrated into course project. The students will be able to discuss and present their project findings in an oral presentation and a written report and/or a research paper.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

MET4090 Graduation Project II (3 CR)
This is the second course in a sequence of two courses that are based on supervised team projects. This is a continuation to the graduation project I. In this course students will learn and demonstrate project implementation, debugging, documentation, and testing. The focus of the course is on designing and implementing an acceptable solution based on the results and recommendations from graduation project I. Students are required to build one of the following: working model, simulated prototype, physical prototype, process, IT system, enhanced system service of their final solution concept. Students will broaden their technical and communication skills by contacting vendors, academic and industrial expertise in their disciplines. A standard technical report (encourage to be supported by paper format) and formal oral presentations are important course elements which are presented during final presentation of the project.
Lecture: 0 hrs, Tutorial: 0 hrs, Lab: 3 hrs

Electives A:

MET4050 Mapping and GIS (3 CR)
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.

MET4051 Oceanography (3 CR)
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.

MET4052 Environmental Quality (3 CR)
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 warming, biological indicators of the environment quality and environmental pollution in Arabian Gulf.
Lecture 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs

MET4053 Agrometeorology (3 CR)
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.

MET4054 Hydrology & Water Resources (3 CR)
This course covers introduction to hydrology, basic parameters of water, water balance, surface water, soil-water, groundwater, water measurements, flood events, irrigation, dams, water quality, water treatment, estimates of rainfall by remote sensors, international, regional, and local water allocation laws.
Lecture 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs

Electives B:

MET4060 Mesometeorology (3 CR)
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.

MET4061 Regional Synoptic Meteorology (3 CR)
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.

MET4062 Long Range Weather Forecasts (3 CR)
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, sea-surface temperature anomalies, the use of Arctic and North Atlantic oscillations for seasonal forecasts, Rossby waves effects, intra-seasonal weather analysis for tropics, inter-tropical convergence zone effects, seasonal forecasts validation..
Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs.

MET4063 Global Climate Changes (3 CR)
This course covers introduction to climate changes, climate history of the Earth, 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

MET4064 Air pollution (3 CR)
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

MET4065 Atmospheric Waves (3 CR)
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

MET4066 Marine Meteorology (3 CR)
This course covers introduction to marine meteorology, observations and instruments, 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, problems associated with route ships and oil tankers.
Lecture: 3 hrs, Tutorial: 0 hrs, Lab: 0 hrs

27. Student Information and Services

27.1 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 ADPoly. Their focus is on helping students develop strategies to independently revise their own work and manage their study.

27.2 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 ADPoly. Students are given opportunities to discuss their careers with sponsors visiting ADPoly 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 ADPoly. 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.

27.3 Dining

Abu Dhabi Polytechnic Abu Dhabi campus offers a variety of food outlets for students and staff. ADPoly understands that everyone has different tastes, appetites, and eating habits. Therefore, ADPoly 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 ADPoly functions and conference groups of all sizes. ADPoly 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.

27.4 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.

27.5 Extracurricular Activities and Groups

The Student Council (described below) is officially recognized by ADPoly to organize students to work with staff to enrich ADPoly's extracurricular activities such as coordinating athletic and cultural activities and forming organized groups of students for particular purposes. Examples, ADPoly sponsors an annual 'Aircraft Pulling Competition' in which teams of students pulled our Bell helicopter around a track on National Day. ADPoly 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. ADPoly 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.

27.6 Health Services

Abu Dhabi Polytechnic provides medical care for students during the day. Minor complaints are attended to by the ADPoly nurse. Injuries and major complaints are sent to a nearby hospital.

27.7 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 ADPoly.

27.8 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.

27.9 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.

27.10 Office Hours

Students may access ADPoly faculty and staff during usual business hours by making an appointment or dropping in during posted Office Hours – 8am – 4pm.

27.11 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 ADPoly 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 ADPoly 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.

27.12 Smoking Policy

Abu Dhabi Polytechnic is a smoke free zone at both campuses. There is no smoking on or immediately outside the premises.

27.13 Student Council

The Student Council is an officially recognized organization that advises the ADPoly 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 ADPoly 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 ADPoly'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.

27.14 Transportation

Details are to be determined.

27.15 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.

27.16 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 ADPoly.

28. Library Policies and Procedures

28.1 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.

28.2 Vision

The vision of the library is to take a leading role in the fulfillment of the ADPoly'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

28.3 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.

28.4 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.

28.5 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 ADPoly Director and the Librarian will be responsible for recommending any changes to current practice in response to survey findings.

28.6 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.

28.7 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.

28.8 Library Hours

The Library is open for students, staff and training sections for the majority of the teaching day at the ADPoly.

28.9 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 ADPoly.
- Staff members of ADPoly.

28.10 Student Borrowers

Students must present their ADPoly 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.

28.11 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 ADPoly 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.

28.12 Circulation of Materials (Borrowing)

Circulation of materials is a basic function of the Library. All students and staff of the ADPoly 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.

28.13 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.

28.14 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.

28.15 Library Current Awareness Services

The Library aims to provide current awareness to support the information needs of staff and students at the ADPoly.

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.

28.16 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.

28.17 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 ADPoly, 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 ADPoly 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.

28.18 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 ADPoly community can reasonably expect when engaged in ADPoly 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 ADPoly 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.

28.19 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 ADPoly 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 ADPoly 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 ADPoly Director or that officer, such a registration would adversely affect services to ADPoly 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 ADPoly 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 ADPoly Portal. As in compliance with the contractual agreements, the affiliated ADPoly 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 ADPoly 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 ADPoly Director whose decision shall be final.

29. Internship Policy

29.1 Work Experience

Internships are work-based activities in which students engage in learning through practical and relevant experiences at various internship sites. These structured experiences involve the practical application of previously studied theory through course work. Internships are targeted to the students' meaningful future plans and allow students to explore careers that require additional degrees, certification, or On-the-Job Training (OJT).

The internship course is an arrangement involving the student, the student's parents/guardians, the institute, and the businesses/industries and organizations of the community. Each of these will benefit from the existence and operation of an effective internship course. Some benefits of the internship include but are not limited to:

- Students receive guidance and feedback during the entire internship period.
- Business/industry and organizations are utilized for specialized training.
- Internship experiences assist in exploring future career choices.
- The private sector is provided with opportunities to take an active part in the education and career preparation of students in the local community.
- Job experiences are supplemented with technical information and encounters that cannot be simulated in the classroom.

In addition to these general benefits, internships offer specific advantages to the student, institute, and the community. ADPoly has broadened the curriculum through the utilization of many community resources and hence meets the needs of a rapidly changing field. Besides, ADPoly establishes a cooperative working relationship with the surrounding community, interacts with professionals outside the institute environment who are involved in the training of young people, and enforces the concept that education is indeed a community-wide partnership.

An internship is an opportunity for students to receive hands-on experience in a field of their interest and to develop and enhance skills acquired during their training. In addition, an internship is a platform to launch a career by developing a personal professional network of contacts often leading to employment. During an internship, students acquire or enhance their soft skills and understanding of what is required to present effective resumes and acceptable interview etiquette while job-hunting. Internships complement gained classroom knowledge and training while enabling students to explore career opportunities in an active learning environment.

An internship is not just like a job – it is a job. Students are more likely to succeed at an internship if they treat their internship as a first job, which may likely be their most important job. This first job will place a student firmly within an employer's network and could lead to employment and further opportunities such as referrals to other organizations and relationships that may benefit them throughout their professional career. Internships are also a great way to help determine if a student's chosen field holds the promise of fulfillment for which they hoped.

Companies and organizations that offer internships often use their programs as an opportunity to preview potential employees; a practice that can give students an edge upon graduation. When an internship is properly directed and used by the student, the student will benefit from all it has to offer.
It is important to remember that the impression a student makes during their internship will have an impact on the image of ADPoly and will influence opportunities for future internships. ADPoly students are ADPoly's ambassadors, and they carry the responsibility of representing the values of the institution.

29.2 Professional Behavior

Abu Dhabi Polytechnic is committed to assisting students to become responsible professionals; therefore, there is a need to emphasize the role of fostering professional behaviors and attitudes in the conduct of students during their internship. The behaviors outlined below describe professional characteristics and activities students are expected to develop and demonstrate during their internship. Appropriate demonstration of these professional responsibilities will be assessed by workplace supervisors and organization personnel:

- The student acts in a manner that maintains the honor and dignity of the profession and ADPoly.
- The student acts in a responsible manner that includes being punctual, dependable, trustworthy, consistent, and reliable.
- The student treats colleagues, peers, management, and customers with dignity and respect and is considerate of their circumstances.
- The student must notify ADPoly and the internship site in advance of unavoidable absences.
- The student maintains positive interpersonal relationships by contributing, cooperating, participating, and working with others in a flexible and adaptable way.
- The student responds to feedback by listening, evaluating, and responding to suggestions.
- The student demonstrates a commitment to work through interest in learning about internship site, building positive relationships, interacting with people and working hard.
- The student respects the confidentiality of information.

29.3 Settings and Characteristics of an Effective Internship

An effective internship course contains the following:

- The application, interview, communication with students including their orientation to the internship course and acceptance into the internship course.
- ADPoly -directed coordination of instruction, preparation, and internship experiences.
- A goal of facilitating the student's personal and career growth, including a student's ability to adapt to business/industry trends and to become the manager of his/her own career development.
- Student instruction and/or practice in decision making, problem solving, teamwork, internship expectations, terminology and protocol, and adaptation to unexpected or unusual events at work. Careful placement of each student according to their meaningful future plan and readiness to participate in the internship course.
- An internship agreement signed by all individuals identifying responsibilities of the student intern, worksite supervisor/mentor, and faculty internship/OJT supervisor.
- An internship training plan listing tasks, assignments, and/or observations specific to each internship site.
- Communication by the internship coordinator with all participants during the internship experience, including handling of problem situations.
- Evaluation of the internship course by interns, worksite supervisors/mentors, and faculty internship/OJT supervisor.
- Intern reflection of internship experience and visitation of meaningful future plan to identify next steps in career development.
- Policies that address liability and insurance, transportation, absences, confidentiality, local legal regulations, etc.

29.4 Internship Practices and Procedures

Pre-Internship Seminar

Abu Dhabi Polytechnic publishes the field training dates each semester and deadlines at the beginning of the academic year in which the internship course is to be conducted. Validated dates and deadlines for the internship course are provided by the OJT/internship office. Subsequently, ADPoly organizes a seminar for all students eligible for the internship prior to the semesters of the field training. This seminar is conducted to all eligible students in the first semester of the final or third year. At the seminar, students will be introduced to all issues related to the place of internship and extensive highlight of the internship guidelines.
Qualifying for an Internship/OJT

Students should meet any necessary prerequisites including number of credits, academic standing, background check, and approval from both department and potential employers in order to enroll in the internship learning experience. Students who are on academic probation must receive approval from the academic program department to enroll in the internship/OJT courses.
Students can register for the OJT in semester 1, semester 2, and summer 1 if prerequisites are satisfied.

Moreover, OJT is offered in summer 2 only for graduating students who completed all the required courses to graduate except for the OJT.

OJTs which start in between semesters shall be allowed to start but their students will be registered in Banner in the subsequent semester. Likewise, OJTs may end after the end of a semester but before the start of the next semester. This is allowed and its students only need to be registered in the semester prior to its end date and the end date in Banner will be the last day of that semester.

Internship/OJT Waiving

All students enrolled in any of ADPoly programs are required to register, abide by all regulations, and complete the supervised field-based study period in each program with a satisfactory performance. Furthermore, students who are working in companies with a major relevance to their major in ADPoly may be able to conduct the OJT in the same company they work for.
The following criteria will be followed:

- Use the job description, requirements, responsibilities and documentation of the work to evaluate the level of competencies attained or knowledge learned.
- In addition, make sure that the student has actually acquired the learning and skills required for the academic program.
- The output competency of the work will be mapped with course learning outcomes in the OJT syllabus.
- The student should submit the OJT requirements for grading and assessment.

International Internships

With pre-approval by the academic program department and appropriate permissions from ADPoly, students may enroll in one or two semesters of internship study in an international setting. Students who are interested in this option should contact the internship field supervisor for additional details early in their program of study. Permission must be received from the student's guardians, a minimum of three months prior to departure.

Leaves and Absences

At the beginning of each period of the field training, students are required to meet with the worksite supervisor to discuss a schedule of hours to be completed during the semester and as per agreements with the industrial partners. Vacations and finals week schedule should be discussed with the worksite supervisor at that time.

The OJT is an academic course and students are expected to observe the academic schedule and holidays. In situations where holidays may interfere with continuity of service, students usually follow the training provider work schedule, exceptions can be made by agreement between students and supervisors. For sick leave and during inclement weather, students must notify their worksite supervisor if they are unable to attend a scheduled day of internship/OJT experience. Any missed time must be made up on a schedule agreed to by the student and the worksite supervisor.

Accommodation

Each student is expected to meet the essential functions of performance with or without accommodations to participate in an internship/OJT learning experience. It is the policy of IAT and ADPoly to provide academic accommodations for students. Students requiring special arrangements during their internship should report this need to the internship coordinator before the beginning of the internship.

Changing Placements

A student who plans to change the site of the internship should notify the OJT coordinator approximately six weeks before the new placement is to begin or as early as a decision is made. The student shall clearly justify the reasons for this change and an approval process will be initiated. Upon approval or denial, the student will be notified within two weeks of filing his/her request.

Dismissal from an Internship

Abu Dhabi Polytechnic, the academic program department, or the Worksite Supervisor with the approval of ADPoly Director has the right to terminate a student's placement at any point in the semester for unprofessional behavior or unsatisfactory performance. A dismissal due to unprofessional behavior, excessive absenteeism, or unsatisfactory performance typically results in an unsatisfactory grade and loss of rights including financial issues for the semester. In some circumstances, dismissal from a placement may also result in probation or dismissal from the program. Determinations are made on a case-by case basis during the student review committee meeting. In situations where the student is dissatisfied with the placement, ADPoly may go for formal attempt at resolution.

On the other side, unusual or unanticipated emergencies at the internship site may result in the partner's inability to continue to support student field learning. ADPoly will make necessary arrangements for the student to be placed in a different place.

Withdrawing from Internship

With department approval and for unusual circumstances, students who elect to leave a placement or field training during the course of a semester will need to withdraw from the internship/OJT course and re-enroll in a subsequent semester, if applicable. Hours that were completed during the semester in which the withdrawal took place cannot be applied towards coursework in later semesters.

Incomplete (I) Grades During Internship

In the rare event that a student is unable to complete internship hours prior to the end of a semester, the student may request an incomplete (I) grade. The "I" grade is subject to approval of the academic program department and the student should show information on how and when the hours will be completed during the following semester. At the discretion of the worksite supervisor and department, a student may not be allowed to enroll in a subsequent semester of internship until "I" grade requirements are satisfied.

Allegations of Misconduct

When the academic program department of ADPoly receives a complaint of serious misconduct by an internship student that is alleged to have taken place within the context of industrial partner work, the student will be placed on immediate leave from the placement. If there is reason to believe that misconduct is of a criminal nature, then ADPoly will cooperate with law enforcement officials and make any necessary notifications as required by mandated reporting laws. If the situation is not resolved within two weeks of the initial report, the department will provide the student with a determination regarding continuation in the placement. On the other hand, a student can start an academic grievance appeal process by filling an appeal and adhere the strict timelines when filing a grievance, and all grievances must originate with the student going to the individual (worksite supervisor) or entity (department) that made the initial decision.

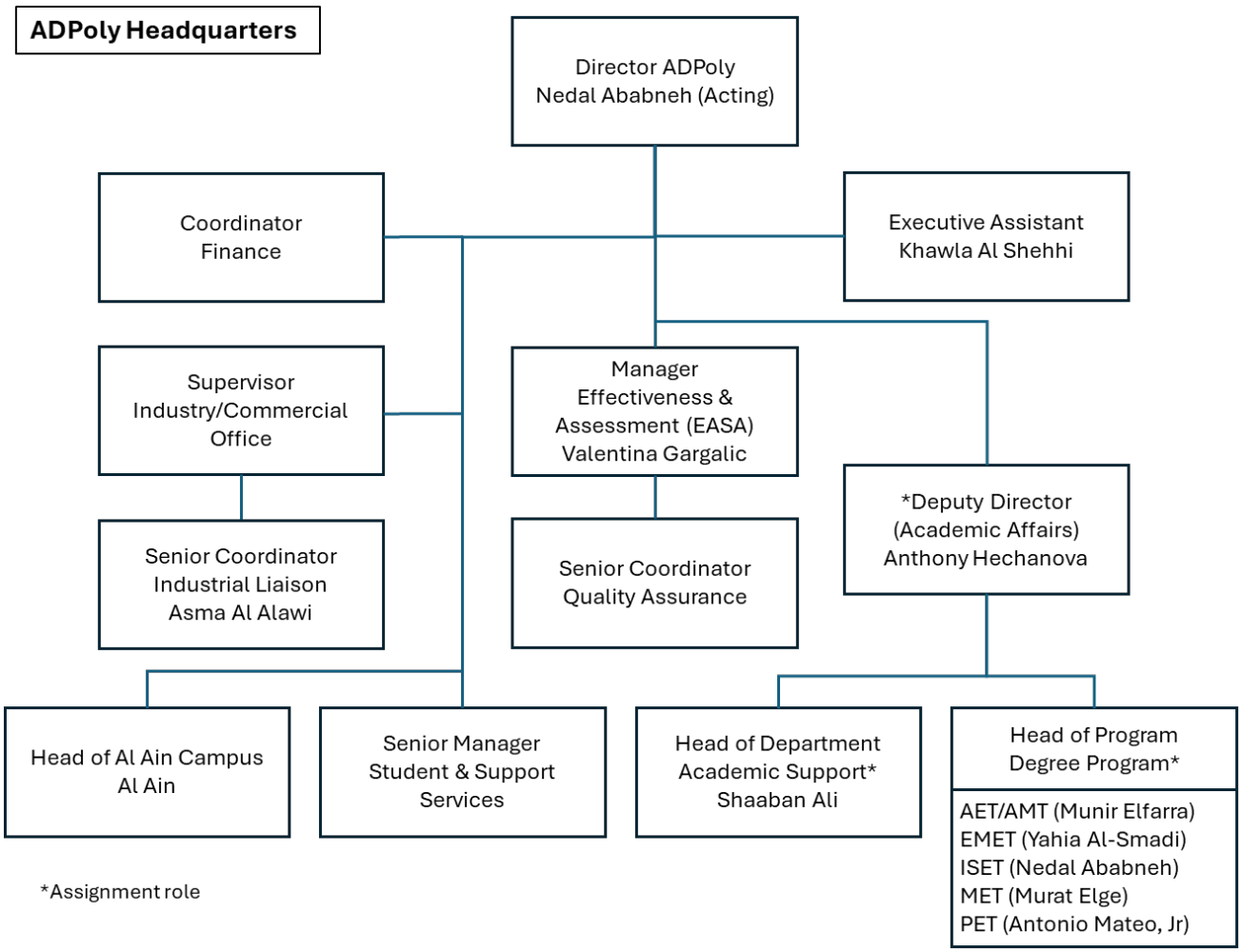
Level of Commitment

Internship courses require a commitment of time and resources. Successful programs have support at all levels of the internship course, as well as cooperation of all participating college personnel. Planning, coordination, and continuing communication with the education staff and internship worksite supervisors/mentors are crucial. Industrial partners should allocate sufficient and appropriate classroom, office space, equipment, and materials for teaching the seminars/classes associated with the internship or as per the regulations of the internship workplace.

Safety in the Internship/OJT

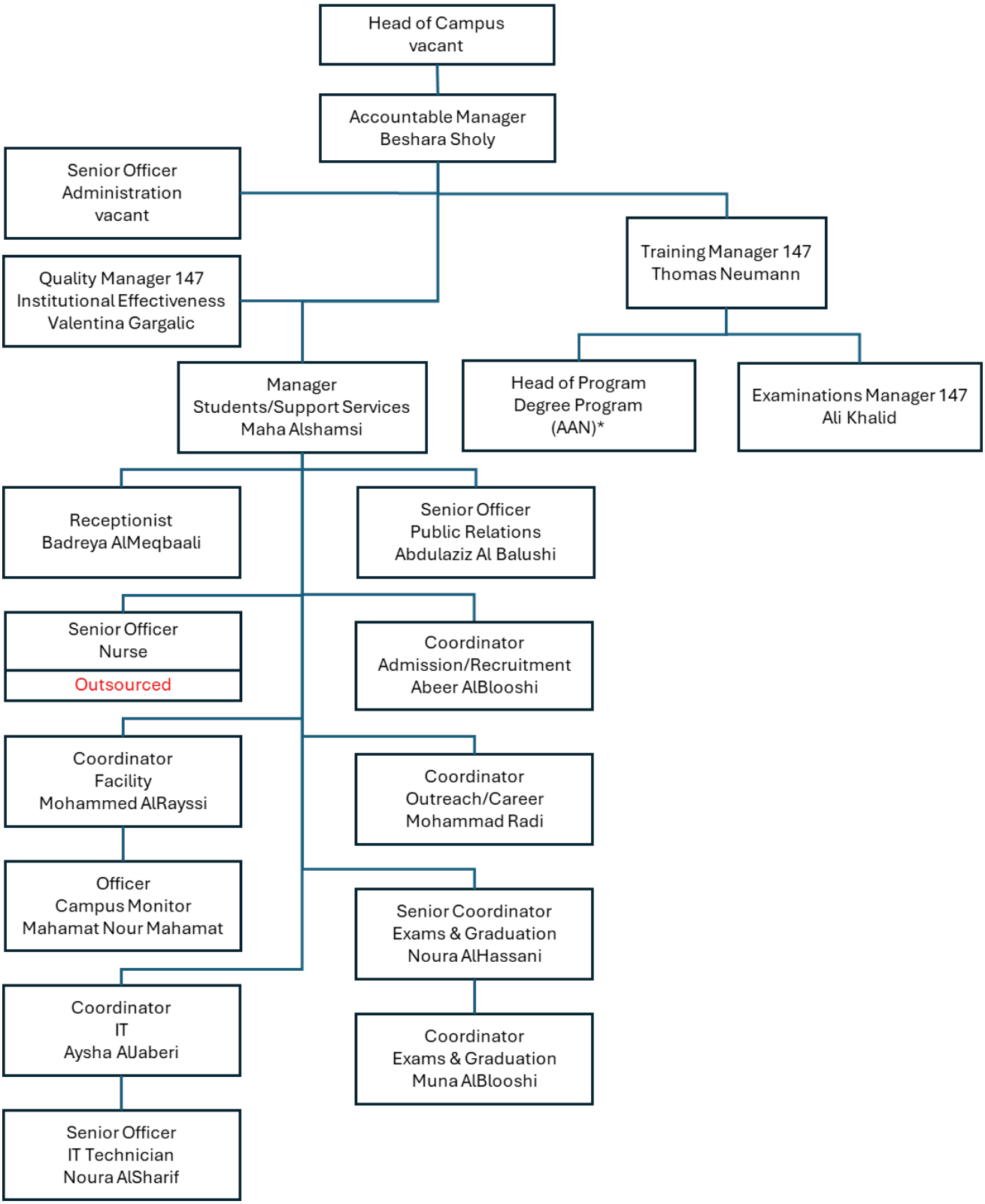
Each placement organization (industrial partner) is required to orient students to the safety policies and procedures using orientation sessions, as well as during supervision meetings. It is important to discuss guidelines for prevention and crisis/safety plans with all interns. Discussion should also include safety issues in the community, within the building(s), with particular clients prone to violent behavior, and safeguarding of personal belongings. Students are required to sign the acknowledgement of risk and consent for treatment form indicating understanding of the inherent risks associated with a field placement.

Appendix A – Abu Dhabi Polytechnic Organization Chart

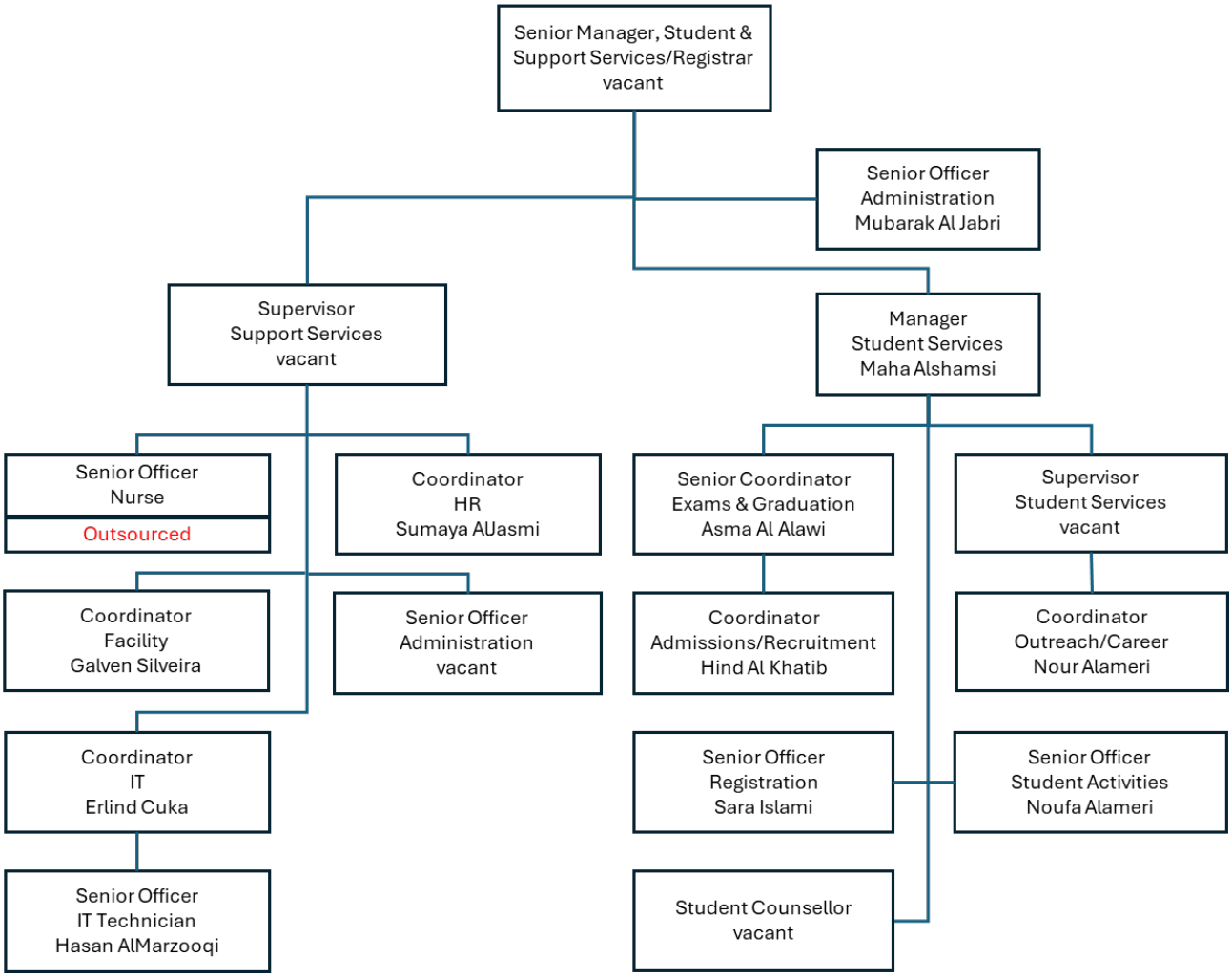


*Assignment role

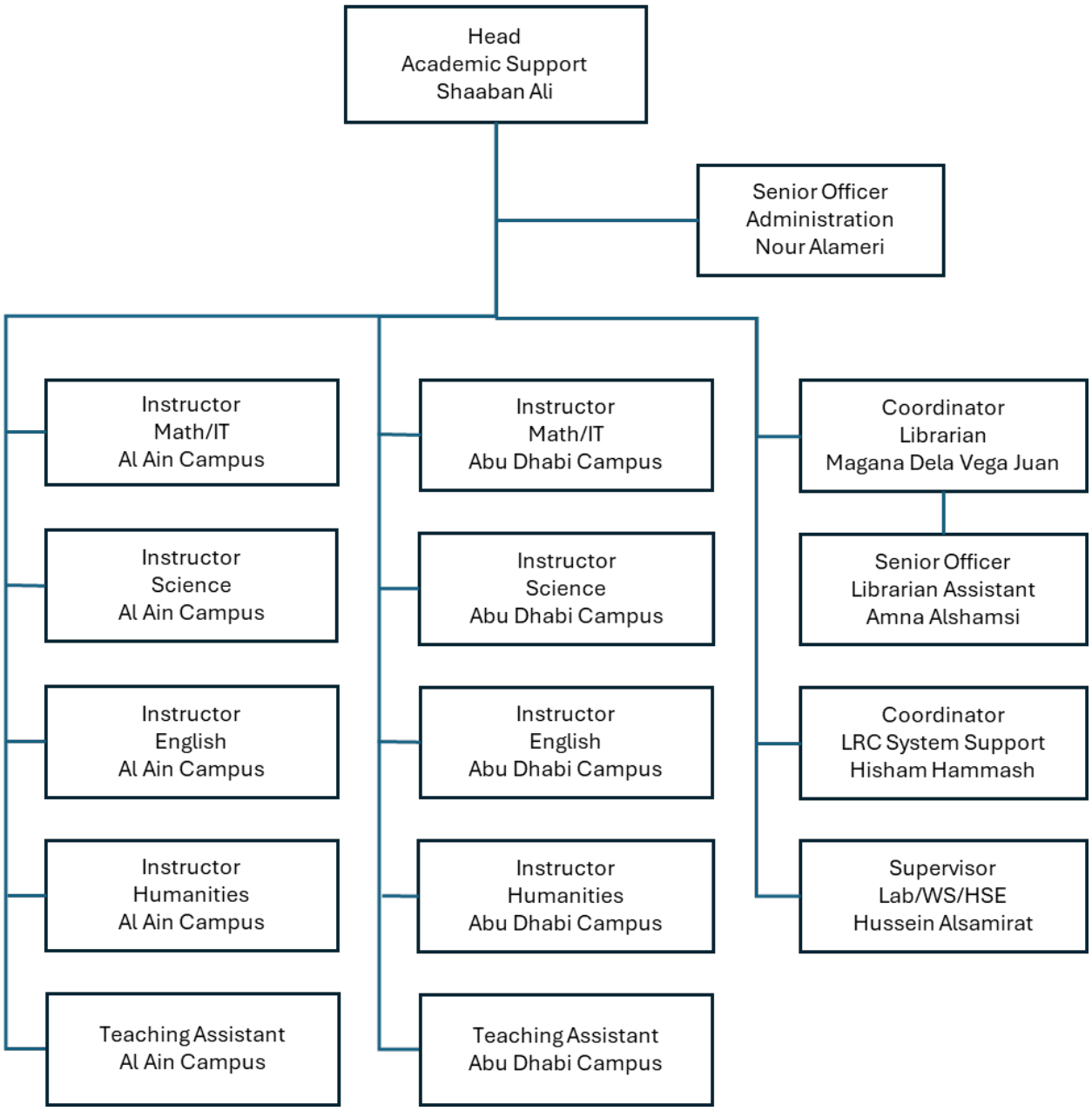
ADPoly Al Ain Campus



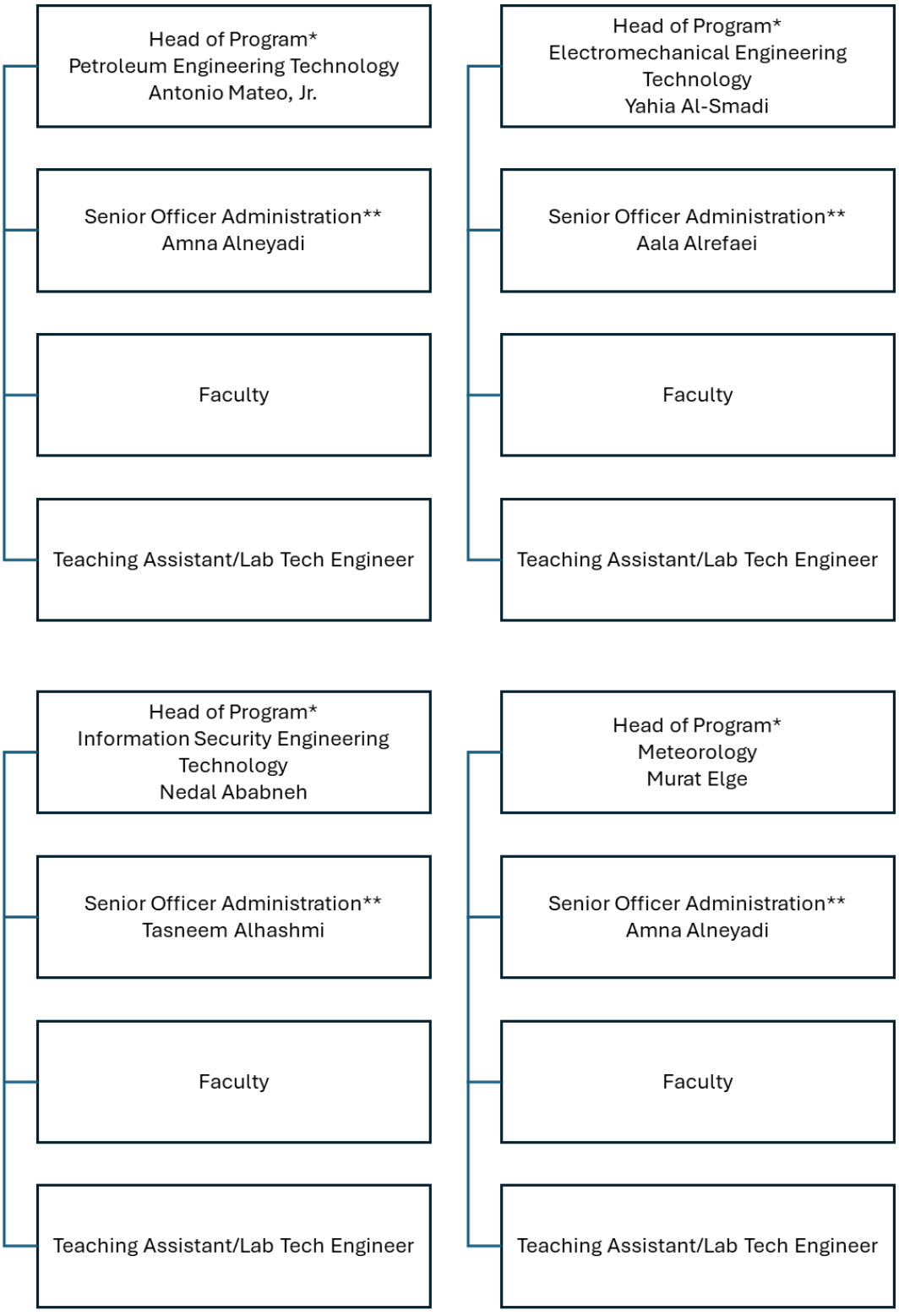
ADPoly Student Support Services



ADPoly Academic Support Department

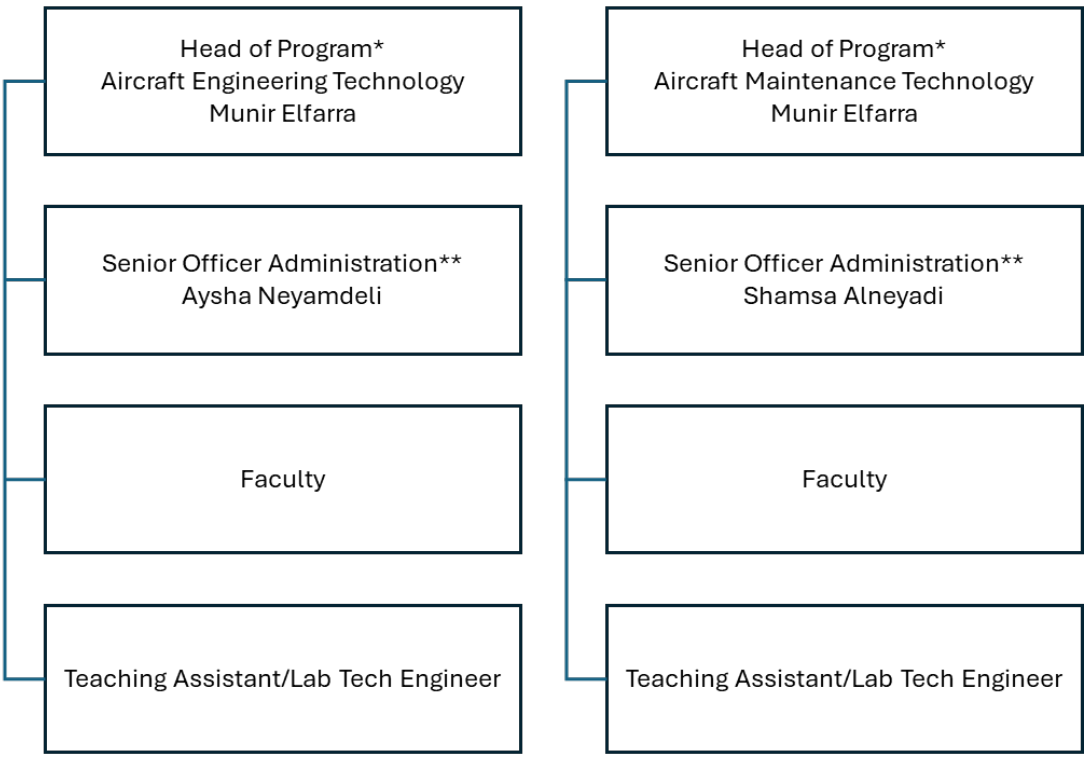


ADPoly Abu Dhabi Campus



* Assignment role
** Filled for programs with 60+ students
All Academics positions are subject to Student Numbers

ADPoly Al Ain Campus



* Assignment role
** Filled for programs with 60+ students
All Academics positions are subject to Student Numbers

Appendix B – Board of Trustees

Members of the Board of Trustees

Board Member	Company	Position
Eng. Hussain Ibrahim Al Hammadi (Chairman)	United Arab Emirates	Ambassador
H.E. Dr. Faisal Al Ayyan	Higher Colleges of Technology	President and CEO
Mr. Ibrahim Hassan Abdulla Nassir	Emirates Integrated Telecommunications Company - Du	Chief Human Resources Officer
Dr. Abdulla Nasser Al-Suwaidi	Institute of Applied Technology	Assigned Board of Trustees Member
Dr. Faisal Mohamed Albakeri	Ministry of Education	Advisor to the Minister of Education
Dr. Yousef Ibrahim Alakraf	Dubai Electricity and Water Authority	Executive Vice President, Business Support & Human Resources
Prof. Reyadh Abdullatif Almehaideb	Zayed University	University Vice President
Mr. Rabea Saleem Al Jneibi	Tawazun Precision Industry	Manager Human Resources and General Services
Eng. Dhafer Ayed Al Ahbabi	Union International General Trading Company LLC	Chairman