The Abu Dhabi Polytechnic

General Catalog

معهد التكنولوجيا التطبيقية
INSTITUTE OF APPLIED TECHNOLOGY

Abu Dhabi Polytechnic

General Catalog

January 2015

The purpose of this catalog is to provide information about the education and training programmes of the Abu Dhabi Polytechnic to prospective students, students, faculty, and staff of Abu Dhabi Polytechnic. Included is information concerning admissions, academic regulations and 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 in requirements, deadlines, curricula, and courses listed in this catalog.

The provisions of this catalog do not constitute a contract, expressed or implied, between any applicant, student, faculty, or staff member of Abu Dhabi Polytechnic or the Institute of Applied Technology. This catalog is for informational purposes only. Abu Dhabi Polytechnic reserves the right to change or alter any statement herein without prior notice. This catalog should not be interpreted to allow a student that begins their education under the catalog to continue the programme under the provisions in the catalog.

Document Revision Form

Document name: Abu Dhabi Polytechnic General Catalogue

Release #	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 Programme (PET) (Revised by Head of PET Programme)		
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 Programme.		
Rev 8	Sept 2014	Update to statement on page 9, Grading Chart p26/27, Failed courses P26, Attendance p 30, Undergraduate grading p38, Updates to coding for Academic Support p113-115, 117, 121-122, EMET p60-63, 96-113, AEET p55-58, p77, ISET 63-68,118-119,123-141.	See Student Handbook. Plus annual upgrading from HOPs.	October 2014
Rev 9	Oct 2014	Change AD Poly to Abu Dhabi Polytechnic	Director	October 2014
Rev 10	Dec 2014	P4-5 Table of contents(Updating Pages Number & Adding MET Program), P56 Updating statements to include Meteorology Science Program P78-82 Adding Diploma, Higher Diploma and Bachelor of Science Degrees in Meteorology Science Program	MET HOP	January 2015

		Requirements P84 Changing the sentence from alphabetical order into (Course descriptions of programs, which are offered in AD Polytechnic, are listed below.) P123 Adding ENGL-107 English for Met Course Description P129 Adding ICT-140 Modeling and Simulation I Course Description P130 ICT-210 Modeling and Simulation II Course Description P128 Adding MATH-104 Math IV, MATH-201 Statistics, and MATH-301 Advanced Math Course Descriptions P156 – P162 Adding MET Courses Course Descriptions		

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Dr. Ahmad Alawar

Welcome to Abu Dhabi Polytechnic

Welcome to the Abu Dhabi Polytechnic (Abu Dhabi Polytechnic). All of us here are delighted to welcome you and your family to the Abu Dhabi Polytechnic. Abu Dhabi Polytechnic is a governmental entity managed by the Institute of Applied Technology and licensed by the UAE Ministry of Higher Education and Scientific Research. Abu Dhabi Polytechnic is a strategic government initiative with the noble goal of developing a core of Emirati specialists in high technology areas to support the Abu Dhabi Economic Vision 2030. The training you will receive will be rigorous and challenging, but you will have the benefit of being the pioneers in the field of study and spearheading the development of these high-value industries. From today, you are part of this great vision for the UAE.

We are excited to offer you the opportunity to complete a Diploma/Higher Diploma Programme taught by our staff in collaboration with our global strategic partners. We aim to provide you with high quality learning opportunities during this important phase of your life and we believe that each student has the ability to achieve the targeted goals through the supportive environment at Abu Dhabi Polytechnic. Your diploma will take the innovative approach of combining face-to-face teaching alongside industry-based training attachments and projects which will be supervised by staff from the Abu Dhabi Polytechnic whether this is in Abu Dhabi or at the Al Ain campus. This will help you to identify your own personal strengths, develop project management, teamwork and personal skills and the ability to apply these to real-world situations. Additionally, for those interested in academic advancement, we plan to offer the Applied Bachelor degree in two years as a progression to the Higher Diploma.

We believe that each student has the ability to achieve his or her personal goals through the supportive environment present at Abu Dhabi Polytechnic, innovative programmes, and the opportunity to work with high quality faculty. For every generation, the future is an exciting challenge; we embrace it with confidence in the enormous potential of education, technology, and innovation. We invite you to join with us in creating an extraordinary future for the nation. We are sure that you will find this to be an exciting and rewarding time which will have a significant impact on the achievement of your future goals.

Dr. Ahmed Al Awar

Director, Abu Dhabi Polytechnic

1. General Information

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 the 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, the IAT relies on best practice teaching and learning processes underpinning a modern curriculum, conducted in state-of-the-art facilities. The aim of the 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.

Abu Dhabi Polytechnic

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

Academic Degrees and Job Qualification Certificates

Abu Dhabi Polytechnic currently offers accredited Diploma and Higher Diploma programmes that were developed with industrial partners and therefore tailor-made to meet industrial needs. Abu Dhabi Polytechnic intends to offer Applied Bachelor degree programmes to qualified students who are interested in pursuing further academic studies. Abu Dhabi Polytechnic's programmes thoroughly integrate knowledge and practical skills through balanced delivery of instructional material at IAT and on-the-job training by industrial training providers appropriate for each discipline. In addition to academic studies, Abu Dhabi Polytechnic students receive on-the-job training leading to industrial job qualification certificates.

Graduates of the intended educational programmes 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 programmes 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 programmes.

The Higher/Advanced Diploma and Applied Bachelor programmes are three- or four-year quarter-based programmes, where all the quarters including the fourth quarter are compulsory. Each quarter is composed of 10 instructional weeks and one exams week. Quarters are separated by one-week breaks. Figure 1 illustrates the typical structure of the three-year programme for the Higher/Advance Diploma and four-year programme for the Applied Bachelor programme.

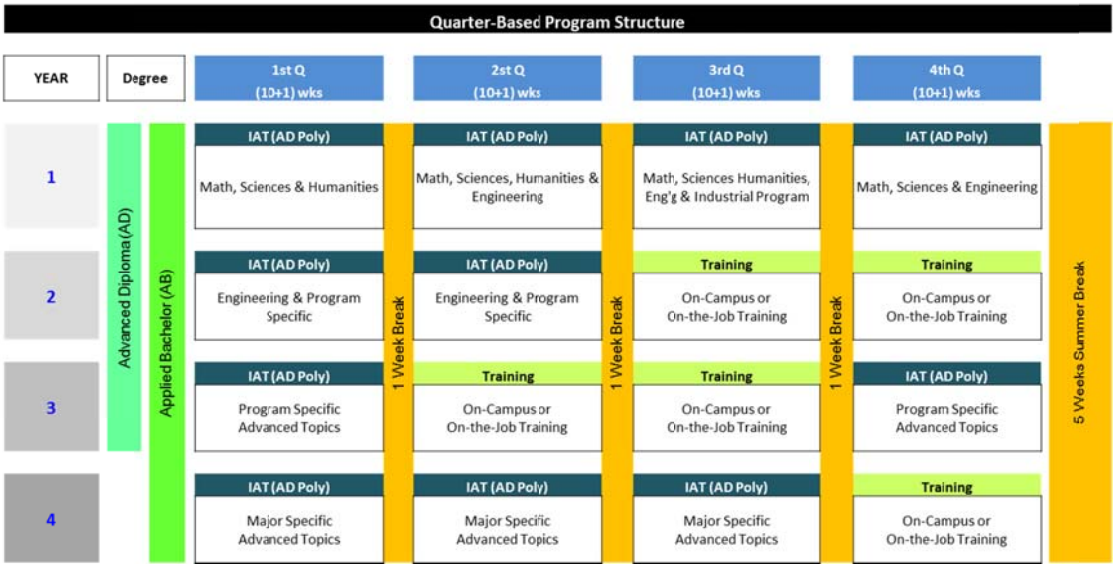


Figure 1: A typical Abu Dhabi Polytechnic Advanced/Higher Diploma and Applied Bachelor programmes structure (Different programmes contain different details which could include different periods of On-the-Job Training provision)

Location and Facilities

There are two campuses at Abu Dhabi Polytechnic: 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. The new Abu Dhabi campus opened September 2012

The Al Ain campus opened in 2009 and is located in the midst of the Al Ain Aviation cluster at the northeast corner of the Al Ain International Airport.

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

Abu Dhabi Polytechnic Vision and Mission

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

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

The Objectives

Abu Dhabi Polytechnic aims to provide the necessary balance of theoretical studies and practical on-the-

job training and performance to prepare students for a career as technologists and engineers. The graduate from the programme is expected to be able to:

- Make independent technical judgments and assume responsible duties in their field of specialization under the general supervision of a professional engineer
- Apply current technologies and general engineering principles to solve technical problems
- Assist professional engineers to transfer and develop new technologies
- Understand the management and function of an industrial organization
- Communicate clearly both orally and in writing in English

To achieve these aims, Abu Dhabi Polytechnic is designed to consist of a balance of lectures, tutorials, laboratory/workshop/hangar work, on-the-job training, and on-the-job performance in centers of industry.

At the Abu Dhabi Campus

The Higher Diploma students will spend most of their study period at the IAT campus for instructional training, mathematics and sciences, humanities, and general engineering education. However, the remaining of the study period will be delivered in industrial institutions, which will be responsible to provide the engineering technology know-how, on-the-job training (OJT), and on-the-job performance (OJP). Although the education style at the OJT and OJP is entirely different than the regular academic style, IAT will evaluate on-the-job training and performance based on the outcomes and deliverables to credit hours that are academically equivalent to regular class credit hours. Figure 2 shows the sequence and results of Abu Dhabi Polytechnic. It is expect to offer these Programmes from both campuses in the near future.

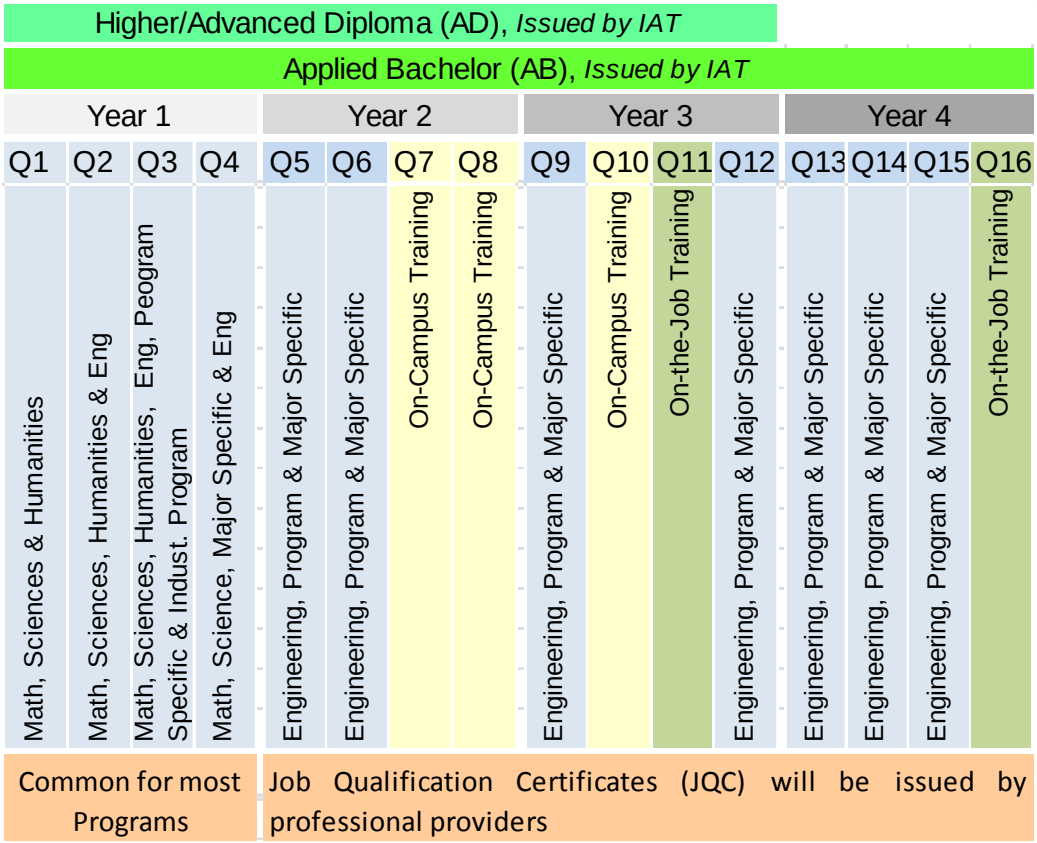


Figure 2: Abu Dhabi Polytechnic programme outcomes: academic degrees and industry qualification certificates.

Licensure and Accreditation for Abu Dhabi campus Programmes

Abu Dhabi Polytechnic was licensed in December 2010. The Higher Diploma in Nuclear Technology and the Higher Diploma in Semiconductor Technology were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2012. The Higher Diploma in Information Security Engineering Technology and the Higher Diploma and the Applied Bachelor in Petroleum Engineering Technology were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2013. The Applied Bachelor programme in Information Security Engineering Technology and the Higher Diploma and the Applied Bachelor Electromechanical Engineering Technology were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2014.

Licensure and Accreditation for the Al Ain campus Programmes

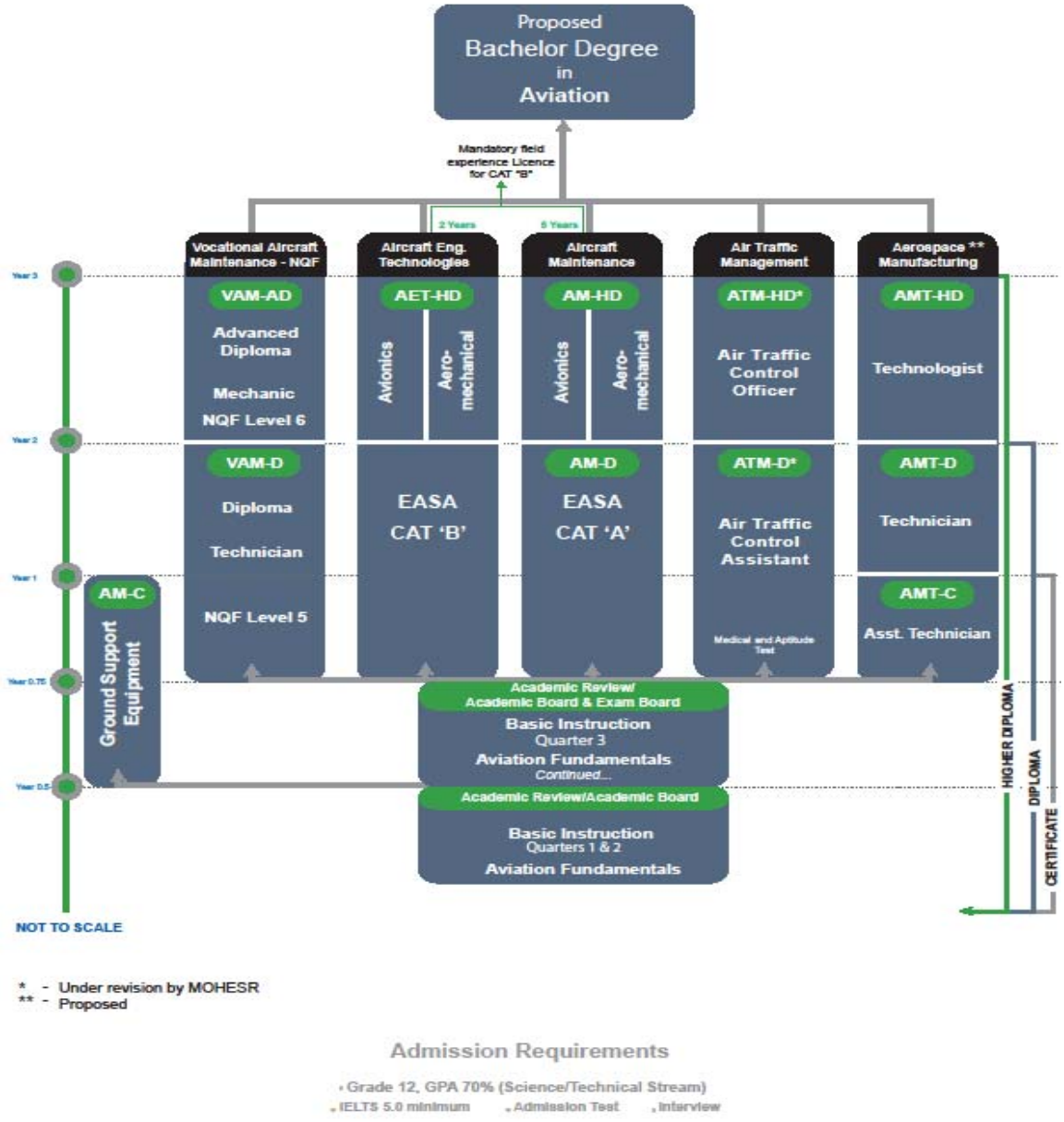
The Certificate, Diploma and Higher Diploma in Aircraft Maintenance were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2010. Both the Diploma and Higher Diploma in Aircraft Engineering Technologies were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2011. The Diploma and Higher Diploma in Air Traffic Management were accredited by the Ministry of Higher Education and Scientific Research (MOHESR) in January 2012.

It is expected that most Programmes will be offered at both campuses in the near future.

Academic Pathway at Al Ain campus

The Al Ain campus offers academic programmes in aviation technologies leading to both academic and licensing qualifications. All students entering Abu Dhabi Polytechnic undergo similar training and educational experiences, at least for the initial phase of their training. Upon fulfilling the entry requirements for the Abu Dhabi Polytechnic, students undergo a mandatory Basic Instructions (BI) period of education. After the end of the BI period, an academic review of performance for each student decides the next stages of his training based on their successes during the BI period. Struggling students are recommended to undergo a certificate in Aircraft Maintenance-Ground Support Equipment where the rest of the students continue a second BI period that will decide a final pathway of training leading to academic diploma, higher diploma, and or license. Student with a Grade point Average (GPA) for the BI periods exceeding 3.00 are given the opportunity to continue on the Higher Diploma in Aircraft Engineering Technology and later qualifying for EASA Cat B1 or B2 licenses. Students with a GPA between 2.00 and 3.00 for the three BI quarters are set on the Diploma/Higher Diploma in Aircraft Maintenance Technology and can qualify for EASA's Cat A license with an opportunity to continue a Cat B option. In addition to earning the above mentioned academic and professional qualifications, intentions for the future are to provide a continuing educational pathway to all students. These programmes will be offered from at the Abu Dhabi campus from September 2013

The chart below depicts the educational pathways available for students at ABU DHABI POLYTECHNIC. The vocational Aircraft Maintenance programmes parallels that of the Diploma and Higher Diploma in Aircraft Maintenance programmes. VAM offers programmes that meet the National Qualification Framework of the UAE at levels 5 and 6 simultaneously



Programmes offered at the Al Ain campus cover the traditional academics and the technical professional simultaneously. The programmes offered are:

- Academic
    - Aircraft Engineering Technology higher diploma;
    - Aircraft Maintenance certificate, diploma, and higher diploma;
    - Air Traffic Management certificate, diploma, and higher diploma.

- Professional
  - EASA Part-66 and GCAA CAR Category 'B' Licenses;
  - EASA Part-66 and GCAA CAR Category 'A' license;
  - ICAO 051, 052, 054 certification/training;
  - Special programmes and training courses in aviation related areas.

International Accreditation

The Al Ain campus is an "EASA Part 147" and "GCAA CAR 147" approved maintenance training organization. The campus has the distinction of being the only 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.

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

National Accreditation

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

Facilities at the Al Ain campus

The Al Ain campus houses a complete set of aircraft maintenance training facilities to include:

- 3,000 square meters hangar housing a variety of aircraft used in maintenance training.
- A collection of training aircrafts to include: a Dornier 228, a Bell Jet Ranger Helicopter, a Falcon 20, and am Aermacchi B326 jet.
- 24 state-of-the-art classrooms, as well as 10 workshops and 14 laboratories equipped with electronics, avionics and mechanical training aids.
- Workshops equipped with fully-operational training devices that demonstrate the functioning of landing-gear, fuel systems, de-icing and anti-skid systems, and flight control systems.
- A Variety of jet engines to illustrate their technology and operation.
- A Learning Resource Center that includes a Library, an Internet Centre, and Computer Based Training classrooms.

Al Ain Partners

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

2. Admissions

Admission Policy

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

All applications for admission have to be submitted through the Ministry of Higher Education and Scientific Research NAPO system. http://ws2.mohesr.ae/napo/Default_AR.aspx

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

Admission Requirements

The regular admissions requirements for Abu Dhabi Polytechnic are the following:

- Science stream students are eligible for admission. (Arts stream students may be accepted for admission under certain circumstances.)
- Science stream applicants should have an overall average above 70%. (Arts stream applicants should have an overall average above 80% for consideration.)
- Applicants must have International English Language Testing System (IELTS) Academic band 5.0 or equivalent and a successful test and interview in English. (Applicants who do not meet this criterion may enroll in the Foundation Programme.)
- Applicants must hold UAE nationality. (Under special circumstances, non-nationals may be allowed to enroll in certain programmes.)
- Applicants for certain programmes will be required to take special entrance examinations based on programme sponsor requirements.
- Applicants must pass an admissions interview.

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

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

Applicants holding a Foreign Secondary School Certificate

Applicants who went to secondary school abroad should obtain a high school certificate awarded based

on 12 years of study and accredited by the Ministry of Education. The applicant is required to provide the original Secondary School Certificate. Applicants who hold a non-UAE Secondary School Certificate must submit a Certificate Equivalency from the Ministry of Education.

Pre-admission/Entry Examination and Interview Policy

The Entry Exam is designed to assess the applicant's aptitude in English reading, writing, speaking and listening. In addition it will assess the applicant's aptitude in Mathematics. An interview panel conducts interviews of all students with applications for admissions for the upcoming academic cycle. The panel makes final recommendations for admissions based on the student's interview, suitability and motivation to pursue academic and vocational aerospace studies.

Re-Admission to Abu Dhabi Polytechnic Programmes

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

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

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

Repeating Students Policy and Guidelines

At the ABU DHABI POLYTECHNIC, we believe in career success and opportunity for all. Our students are drawn from both the traditional system of learning, IAT, and mature entry. Whatever the entry mode, the originating systems significantly contrast the ABU DHABI POLYTECHNIC in terms of the methods of deliver, the professional focus and aims as well as the learning objectives and level of curricular rigor.
It is accepted that student and sponsor expectations as well a time and financial expenditure may require some level of protection against the investment expended on those students.
For the purpose of clarity, "Repeat" will mean one of the following:

- Repeat of a courses as agreed by the Exam Board
- Repeat of a complete programme as agreed by the Exam Board
- Repeat of a previous year or stage of training as agreed by the Exam Board

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

- An Examination Board comprised of Heads of Programmes, Senior, Technical and Academic Faculties, Student Support Services and the Student's Sponsor will review each case and recommend those fit for repeat of the failed modules on the basis of the academic records on each student.

- Only students, who have failed a maximum of 2 subjects and have not been permitted a repeat already, are eligible for a repeat.

- Only one repeat is permitted per programme per student.

- Repeat students are entitled to the same number of assessment attempts as if for the first time.

- Students undergoing repeat modules must attend all lessons. Failure to do so, without acceptable mitigating circumstances, will lead to the student being refused further training.

Withdrawals

Students can request to withdraw from the Programme at any time. The request is however to be initiated by the academic advisor, and routed through the Head of Programme, Student Counsellor and then (if applicable) the students sponsor. Final authority to withdraw will be given by the Director to the student. If a student fails to follow withdrawal procedures, he will be given a failing grade in all coursework attempted in that quarter.

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-enrol in the ABU DHABI POLYTECHNIC later than one week after the start of the course for which they are re-enrolling.

Foundation Programme

The foundation programme for Abu Dhabi Polytechnic is the Edad Programme at IAT's Al Rowdah Abu Dhabi Polytechnic. The Abu Dhabi Polytechnic foundation programme at Al Rowdah Abu Dhabi Polytechnic is a two- or four-quarter programme developed to provide students with foundation level competency in English to prepare them to achieve a minimum IELTS Academic band of 5.0. For more information about the Edad Programme at the Al Rowdah Abu Dhabi Polytechnic visit their link on the IAT website at www.iat.ac.ae.

Admission Requirements for Foundation Programme

The basic admissions requirements for Abu Dhabi Polytechnic Foundation Programme are the following:

- Science stream students should have an overall average above 70%. Students above 60% and Arts stream students may be eligible under certain circumstances.
- IELTS Academic band 4.0 or equivalent and a successful test and interview in English.
- Applicants for certain programmes will be required to take special entrance examinations based on programme sponsor requirements.

All documents presented by applicants to complete a file for admission become the property of the Abu Dhabi Polytechnic. Accepted or rejected applicants may not reclaim any of the documents.

Student Inquiries

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

Campus Hours

In Abu Dhabi all **classes start at 9.00am** and continue throughout the working hours of the day until 5pm. In Al Ain all **classes start at 8:00** am and continue throughout the working hours of the day until 4pm. Class periods are 55 minutes in duration and are separated by breaks. Students should be ready, follow

their scheduled classes, and 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 wear an ID card at all times** while on Abu Dhabi Polytechnic grounds, and should sign in and out and abide by the same rules applicable regular Abu Dhabi Polytechnic days. Students should use specially designated area for students during this time. Students are not permitted to use staff desks, computers or telephones without permission. Food must be consumed in the designated food areas. The campus is closed to students on Fridays, Saturdays and public holidays. Abu Dhabi Polytechnic operating hours are shortened during the holy month of Ramadan.

3. Student Administration

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

The Student Services Department 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 Department 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 programme requirements. The Abu Dhabi Polytechnic maintains guidelines related to the privacy and confidentiality of student records.

Important Abu Dhabi Polytechnic: Abu Dhabi Contact Numbers

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

Important Abu Dhabi Polytechnic: Al Ain Contact Numbers

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

Website

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

Registration

Registration is the process of enrolling in classes. From September 2012, Abu Dhabi Polytechnic will have switched over from a manual registration system to 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 Programme head in person after being submitted online but prior to being finalized. Students entering their first quarter at Abu Dhabi Polytechnic may select from complete first-quarter schedules developed for each programme.

Orientation Programme

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

Academic Measures

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

4. Assessment Policy

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 programme 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 programmes)
- Evaluating the effectiveness of the teaching process and facilitating continuing improvement
- Demonstrating accountability to Abu Dhabi Polytechnic, accrediting bodies, employers, and the wider community

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

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

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

Non-Academic Programmes- 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 programme will be briefed of the EASA Pt 66 / GCAA requirements and should be aware of and familiar of the EASA Syllabus at all times.
Students will be issued with the relevant extracts of the curriculum manual at the beginning of each module. This is intended to allow students insight into the module learning objectives, methodology of assessment and programme structure. Assessment is conducted at the end of each module in the form of a multiple choice exam and an essay portion required of few of the modules as shown in the table below. All modules are assessed by means of Multiple Choice Questions. In addition, three modules require the student to answer short 20 minute Essay questions. In the case of practical evaluation, the assessment process will be conducted throughout the practical training phase through direct observation or practical testing.
Each multiple choice question is given a choice of **up to 3 answers** (EASA / GCAA requirement). However, only one of them shall be the absolutely correct and expected answer. Questions are designed to be answered in 1 minute and 15 seconds (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.
- You will not be allowed to keep any examination papers and you will not be given any mock examination papers for self-study. Neither will you 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 you will not be able to use any materials outside those which you are given, and these must all be returned at the end of the examination.
- **No calculators are permitted**. (Now is a good time to start practising work without them)

At the time of going to print, the number and type of questions for each module and the time permitted for each examination are determined by Pt 66. However, these are a minima and the ABU DHABI POLYTECHNIC has derived its own examination process that is approved by EASA / GCAA and is shown at the end of this section. Students are notified of any changes should they occur, and students should note that changes will be adopted.

EASA / GCAA Course Re-assessment Policy

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

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

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

EASA / GCAA Certification Requirements

EASA / 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 programme 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 programme, and have successfully completed all approved modules with a requisite minimum of 90% attendance in each module.

Table of Required EASA Examination type and time allowed

EASA Module 1- Mathematics: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.

EASA Module 2- Physics: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

EASA Module 3- Electrical Fundamentals: 52 multi-choice and 0 essay questions. Time allowed 65 minutes.

EASA Module 4- Electronic Fundamentals: B1.1 - 20 multi-choice and 0 essay questions. Time allowed 25 minutes. B2 – 40 multi-choice and 0 essay questions. Time allowed 50 minutes
EASA Module 5- Digital Techniques /Electronic Instrument Systems: B1.1 - 40 multi-choice and 0 essay questions. Time allowed 50 minutes. B2 - 72 multi-choice and 0 essay questions. Time allowed 90 minutes

EASA Module 6- Materials and Hardware: 72 multi-choice and 0 essay questions. Time allowed 90 minutes.

EASA Module 7- Maintenance Practices: B1.1 - 80 multi-choice and 2 essay questions. Time allowed 100 minutes plus 40 minutes for essays. B2 - 60 multi-choice and 2 essay questions. Time allowed 75 minutes plus 40 minutes essays.

EASA Module 8- Basic Aerodynamics: 20 multi-choice and 0 essay questions. Time allowed 25 minutes.

EASA Module 9- Human factors: 20 multi-choice and 1 essay questions. Time allowed 25 minutes plus 20 minutes for essay.

EASA Module 10- Aviation Legislation: 40 multi-choice and 1 essay questions. Time allowed 50 minutes plus 20 minutes for essay.

EASA Module 11- Aeroplane Aerodynamics, Structures and Systems: 132 multi-choice and 0 essay questions. Time allowed 165 minutes.

EASA Module 13- Aeroplane Aerodynamics, Structures and Systems: 132 multi-choice and 0 essay questions. Time allowed 165 minutes.

EASA Module 14- Turbine Engines: 28 multi-choice and 0 essay questions. Time allowed 35 minutes.

EASA Module 15- Gas Turbine Engine: 92 multi-choice and 0 essay questions. Time allowed 115 minutes.

EASA Module 17- Propeller: 32 multi-choice and 0 essay questions. Time allowed 40 minutes.
Passing grade in all modules and including essay is 75%.

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.

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

Penalties for Late Submission

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

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

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 quarter 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. 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.

An application for deferred assessment shall be considered by the course instructor who approves or rejects the application. The course instructor notifies the chair of the Academic Affairs Committee of the outcome of the deferred assessment application.

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

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

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

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

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

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

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

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

Appeals against Award of Grade

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 Chair of the Academic Affairs Committee within 14 days of the date on which student grades are posted by Abu Dhabi Polytechnic.

All requests for review of grade shall be dealt with by the course instructor. Students will be notified of the outcome of the requested review of grade by the course instructor who will forward the recommendation back to the Academic Affairs Committee. The Grade Appeal Form for the course instructors can be obtained from their offices.

A student who is dissatisfied with the outcome of the review of grade may lodge a formal appeal to the Abu Dhabi Polytechnic Appeals Committee (refer to Policy on Student Grievances and Appeals).

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 two years from the date of issue of results. At the completion of the two-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.

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.

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

Responsibility of the Academic Affairs Committee

The Academic Affairs Committee is responsible for implementing curricular policies of Abu Dhabi Polytechnic. This includes responsibility for dealing with individual student cases, monitoring results, and providing advice on student achievement.

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

The Academic Affairs Committee is also responsible for:

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

The Academic Affairs Committee and the Assessment Committee are responsible for:

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

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

The functions of the Academic Affairs Committee may be carried out executively by the chair.

The chair of the Academic Affairs Committee is responsible for determining appeals from students against decisions in response to applications for special consideration and deferred assessment.

Supplementary Assessment

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

The Abu Dhabi Polytechnic Academic Affairs Committee may, at its discretion, grant supplementary

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

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

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

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 Division Head and recommendation forwarded to the Abu Dhabi Polytechnic Director. If a deferred exam is announced, students shall be requested to take the make-up exam in the supplementary deferred period as announced in the academic calendar or agreed upon with the course instructor. Students who miss an exam and do not present a legitimate reason can be given a score of “zero” for the exam.

Grading and Results

During the quarter, 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 Table 1. The description that accompanies each grade is given as a guideline to assist comparability across Abu Dhabi Polytechnic, but these descriptions must be interpreted within the context of each course.

Grade	Value
A or A+	4
B+	3.3
B	3
C+	2.3
C	2
D+	1.3
D	1
F	0

FA (fail due to absence)	0
WF (withdraw after deadline)	0
P (pass)	Non-impacting
NP (not pass)	Non-impacting
I (incomplete)	Non-impacting
W (withdraw)	Non-impacting
T (transfer credit)	Non-impacting

Table 1.Letter grades and their value in the calculation of grade point average (GPA).

The cumulative grade point average (cGPA) is calculated by adding the numerical value of each course grade multiplied by its credit hours for accumulated quarters and dividing the total over the total credit hours for all quarters. 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.

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. Students who have failed a course need to take remedial action to pass the course or they will be expelled from Abu Dhabi Polytechnic. 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.

5. Policy on Academic Misconduct

Introduction

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

Specifically it is academic misconduct for a student to:

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

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

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

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

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

Examples of Plagiarism include:

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

Programme administrators and course instructors are to provide students with advice concerning accepted standards of academic conduct in the area of the programme 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.

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
- Exclusion from the programme; readmission to the programme is at the discretion of the Head of the Division based on consideration of the student's case for readmission.

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 exclusion from the programme or expulsion from Abu Dhabi Polytechnic, unless in the opinion of the relevant Academic Review Board there are mitigating circumstances.

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 Chair of the Academic Affairs Committee 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 Chair of the Academic Affairs Committee 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 Chair of the Academic Affairs Committee may seek evidence concerning the matter from other sources. The Chair of the Academic Affairs Committee 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. Additionally, the Chair of the Academic Affairs Committee may delegate the matter to the student's Division Head.

Before determining the action to be taken concerning a complaint of academic misconduct, the Chair of the Academic Affairs Committee must provide the student with the opportunity to respond to the complaint of academic misconduct. The response must 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 Chair of the Academic Affairs Committee may take one of the following actions:

- 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 Chair of the Academic Affairs

Committee may impose a penalty as set out in the Penalties section.
- Where further investigation is needed to establish the facts of the case, the Chair may refer the matter to a meeting of the relevant Academic Review Board for a formal hearing.

In each case, the student shall be informed in writing of the decision of the Chair of the Academic Affairs Committee, 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.

Formal Hearing Concerning Alleged Academic Misconduct

The relevant Academic Review Board (hereafter referred to as the Board) may conduct a formal hearing into an allegation of academic misconduct. The student may attend the hearing or, if the student requests, participate in the hearing through telephone conferencing or similar facility.

If the student declines to attend the hearing (or participate by other means) the hearing shall proceed in the absence of the student.

The student may make a written submission to the hearing.

The student may be accompanied at the hearing by a companion who is a member of Abu Dhabi Polytechnic. The companion is present as a support to the student and is not an advocate or spokesperson for the student. In exceptional cases, for example a student with a disability which affects communication, the Chair may give permission for the companion to speak on behalf of the student.

Neither the student nor any other person participating in the hearing is entitled to be legally represented.

Prior to the hearing, the Board shall provide the student with a copy of (or access to) all written materials and other evidence available to the Board.

The Board may call witnesses to give evidence at a hearing or may receive written statements of evidence. If the Board thinks it appropriate or if the student requests it, the Board may require persons to attend the hearing and answer questions. The student may ask questions of any witnesses in attendance at the hearing.

The student may make submissions to the Board after the evidence of all witnesses has been given. The student's submissions may be oral or in writing.

As an outcome of the hearing, the Board may take one of the following actions:
- Dismiss the complaint of academic misconduct
- Provide the student with a warning together with advice about what is acceptable academic conduct
- Decide that the student is guilty of academic misconduct and impose a penalty as set out in the Penalties section

The student shall be informed in writing of the decision of the Board, including the reasons for the decision.

Recording of Penalty

Where a penalty of exclusion is applied, the Chair of the Academic Affairs Committee shall advise the Registrar for the purpose of recording the decision on the student's academic record. The academic

record will bear the annotation "excluded 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 Executive Committee (or an Appeals Committee convened by the Executive Committee) under the provisions of the "Policy on Student Grievances and Appeals."

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

Respect for Policies Relating to the Use of Information Technology

All computers on the Abu Dhabi Polytechnic campus are the sole property of the IAT- Abu Dhabi Polytechnic and therefore, can be monitored by staff. Use of IT facility 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 IAT's information technology resources to receive or distribute improper or immoral materials is strictly prohibited. Students in violation of such policies will be subject to disciplinary action with penalties ranging from suspension of computer and network privileges, to suspension or dismissal from the Abu Dhabi Polytechnic.

Attendance and Punctuality

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

Students with excessive absence are excluded from formal assessment (final examinations). This exclusion results in failure of the unit assessed. Excessive absence is defined as absence that is greater than 15% of the total number of meetings of the course or module. For EASA 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 Programmes

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 approved courses should note that minimum attendance requirements are strictly monitored and subject to audit by EASA. Students on any approved EASA course must demonstrate 95% attendance over the period of the whole course to receive full EASA recognition. Individual modules require a minimum of 90% attendance. Modules are EASA 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 Programmes

Per cent	Effect
≥ 5% of overall Approved Course	Student will be issued with an EASA 'Examinations Only' Certificate. Pt 66 Maintenance Experience requirements becomes **5 years** instead of 2 years
≥ 10% of Module	Student will be issued with an EASA 'Examinations Only' Certificate. Pt 66 Maintenance Experience requirements becomes **5 years** instead of 2 years

Absences within the above reflected percentages must be covered under mitigating circumstances. Some examples of acceptable mitigating circumstances are shown below. For absence to be excused on medical grounds, the student must produce a certified medical certificate **on return** to instruction/lessons.

Other reasons for absence must be approved immediately on return to the Institute. Examples of reasons would include:

- *Death of an immediate family member (mother, father, brother, sister, son, daughter or grandparents)*
- *Overseas flight cancellation (out of the students control)*
- *Immediate family getting married*
- *Other reasons at Abu Dhabi Polytechnic Director's discretion. Abu Dhabi Polytechnic Director reserves the right to require documentation upon request*

Students should be aware that examples of absence that are not acceptable are:

- *Late night socialising*
- *Headache/ Slight cold / cough*
- *Speeding / stopped by Police / attendance at Court*
- *Examination nerves/stress*
- *Not enough time to study*
- *Loss of training notes*
- *Loss of electronic data (PC or flash drive failure)*
- *Attendance at a non-First Degree family members wedding / party etc.*
- *Visit to Bank / Insurance Broker etc.*

Students should not arrange medical / banking or other similar appointments during training time. Every effort should be made to arrange such appointments at the end of the day so as to avoid disruption to training. Students who cannot arrange appointments outside of the training day should consult with the training manager. Repeated appointments within the training day will have to be justified by the student concerned, may be investigated and may not be accepted in mitigation.

Lateness for Class

Students who arrive late for class cause considerable disruption to the learning of other students. Student that are late more than five minutes will be recorded as absent.

Lateness for an Assessment

Students are expected to be on time for all types of assessments. Student will be refused entry to the examination room and receive a mark of zero when they are reporting late for an examination. Students enrolled on EASA or GCAA approved modules will not be permitted entry to the exam room once the exam has commenced.

6. Policy on the Submission of Coursework

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 their programme of study."

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

Quizzes formally fall within the definition of coursework, but are governed by separate regulations.

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.

Avoidance of Plagiarism

No student shall submit plagiarized work, defined by ABU DHABI POLYTECHNIC as:

• the use, intentional or otherwise, of material whose source is not acknowledged; or

• the direct use of material, referenced or unreferenced, without a clear indication that the material is taken verbatim from its source.

Avoidance of Collusion

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

The Normal Avoidance of Material that has been Previously Submitted

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

Guidance to be Provided by Departments

All Sections 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.

Submission Dates and Extensions

Publication of Submission Dates

All course instructors 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 course.

Granting of Extensions
The granting of extensions is at the discretion of the relevant instructor.

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 course instructor. Where a student does not seek an extension until on or after the published submission date, the request will only be granted by the course instructor, 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 instructors 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 instructors should make it clear to students that if they are in genuine difficulties they should discuss an extension if appropriate.

Conduct of In-Class Tests

Status
In-class tests are formally regarded as coursework assessments, and are administered by teaching staff.

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 course instructor 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.

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.

7. Policy on the Conduct of Exams

General Regulations

Arrivals and Departures

Arrivals

No student shall be permitted to enter the examination room after the lapse of 10 minutes (20 minutes for Final Exams) 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 proctor 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.

Cheating and Other Examples of Academic Misconduct during an Exam

Unless otherwise indicated by the Course Instructor or Invigilators, students are forbidden to:

- Take to their desk in the examination room neither any unauthorized book, manuscript, papers or other articles nor 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 another student
- 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 instructor, 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 Affairs Committee.

(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 instructor. Based on the report, the relevant

academic office shall be responsible for determining the consequences for the student of the regulatory breach. The consequences shall be within the following guidelines:

- For an initial offense, the maximum penalty shall be that the student is awarded a Fail grade, without the right to reassessment, for the module or subject overall, but retains the right to redeem credits by retaking the module subject to the constraint that the overall mark for the retaken module/subject would be capped at Pass.
- For a second or subsequent offence, the maximum penalty shall be that the student's studies are terminated, and the student is required to leave Abu Dhabi Polytechnic.

In the event that an instructor, when marking examination scripts, suspects a student of academic misconduct, they shall consult the invigilators or other instructors. If the course instructor 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 course instructor 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 Affairs Committee.

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 instructor.
- The senior invigilator will inform the student that they may submit a written statement if they so wish, to be forwarded to Academic Affairs Committee.
- At the conclusion of the examination, the invigilator will prepare a joint report of all the circumstances, and forward this report to the course instructor, 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 Academic Affairs Committee.

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

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 instructor, 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.

Open Book Examinations

For all "Open Book" examinations, the relevant Head of Programme 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

Use of Electronic Calculators in Examinations

Students are permitted to use their own "pocket size" electronic calculators, provided that they are silent in operation, and unless expressly disallowed from using them for specific examinations. Abu Dhabi Polytechnic shall not be responsible for the provision of (i) calculators in the event of a breakdown, (ii) power for their operation, or (iii) spare batteries. Approved calculators for use in Aviation Programmes are: Casio models **FX83, FX85** Series (with any suffix), **FX115 MS**, **FX570 ES** and the **FX 991 ES**. Programmable calculators or smart devices are strictly forbidden from all exam rooms.

The Role of Academic Staff in the Running of Examinations

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

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

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

Examinations

Final Examinations

(a) The last or final examination in a course must be given during scheduled final exams week;

exceptions must be approved by the HoP of the course. Designated faculty will administer the final examinations according to the schedule for final examinations as printed in the Schedule of Classes publication.

(b) Students with two final examinations scheduled for the same day may request the instructor of the course to postpone one scheduled examination. Evidence for their request must be verified by the instructor prior to consideration. Faculty will give every consideration to the student's request.

(c) If a student is absent from a scheduled final examination, the notation "X" is assigned. An advance authorization for deferring the taking of a final examination may be given, but only rarely and for serious reasons (e.g., medical or religious). The student must request the deferral in writing in advance of the final exam date and receive permission from the Head of Department. The Director's office must also be notified.

EASA Courses, Final Examinations will take place within one week of completing the particular module and will encompass all the subjects in the syllabi of the module.

Mid-quarter (Intermediate) Examinations

Mid quarter examinations or intermediate tests are conducted in most courses taken at the Al Ain campus. Absence from mid-quarter or other intermediate examinations may, at the discretion of the instructor, require special resit examinations.

Credits and the Quarter Hour

One credit or quarter hour of credit is defined as one lecture, recitation or class exercise fifty minutes per week for one full quarter. Two weekly hours of laboratory, demonstration, etc., are equivalent to one lecture hour. Each course offered is designated tutorial hours and these hours scheduled during the quarter 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 quarter hours of credit of the course.

Class Ranking

Classified students are ranked on the basis of completed quarter hours accepted for credit. Year one students have 1 to 60 quarter credit hours, Year two 61 to 120 quarter credit hours, and year three 121 to 180 quarter credit hours.

Grade Reports

Midterm Grades

All instructors of courses must submit midterm grades for all students at the prescribed time and based on the work done at that point. Students may also access their midterm grades via Abu Dhabi Polytechnic SELF-SERVE Banner. Exceptions are short week's courses that do not issue midterm grades.

Final Grades

Final grades are available for students to access via Abu Dhabi Polytechnic-SELF-SERVE Banner. Students may also request an official copy of their final grades from the office of Student Services. 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 (GPA) 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.

8. Academic Standing, Progression, and Exclusion

Introduction

This policy applies to all students undertaking diploma studies. The policy comes into effect once a student has undertaken at least two quarters of study.

In order to be deemed to be in good academic standing, a student undertaking diploma studies must achieve a grade of at least a D (60%) in all classes taken and an overall average of a C (cGPA of 2.0) across all study in all quarters. There are four progressive levels of academic status:

Good Standing

Students are in Good Standing at Abu Dhabi Polytechnic unless placed on Academic Warning, Academic Probation or Academic Suspension.

Academic Standing of Probation

A student whose cumulative grade point average (cGPA) falls below 2.0 is placed on academic probation for the following quarter.

A student who is placed on probation is advised to seek assistance in order to improve their academic performance. Sources of assistance include Abu Dhabi Polytechnic's Learning Resource Center staff, the Counseling Service, Student Support Services, the Tutoring Center, and the academic staff responsible for the programme and courses that the student is undertaking.

Academic Standing of Excluded

A student is eligible for exclusion if the student has been on academic probation for more than two consecutive quarters with a GPA< 2.00. If a student maintains a GPA > 2.00 then the student can have an extension for a further quarter. Also, if the GPA is improving and the student is of good standing then the student can have an extension for a further quarter.

Notwithstanding the above provisions, if the student has passed all courses in the most recent quarter, the student will not be excluded but will be placed on a further period of probation.

A student may be eligible for exclusion on the basis of failure in one or more designated courses. The designated courses are required to be specified in the programme requirements and advised to students.

At the end of each quarter, the Student Services Office will review all students who are eligible for exclusion. A student's Division Head may recommend to the Manager Students and Support Services that a student eligible for exclusion should not be excluded where the head is of the view that exceptional or compassionate circumstances have been the cause of the student's poor academic performance.

The Manager Students and Support Services shall determine all students who are to be excluded from further study on the aforementioned basis and taking into account the recommendations of an Academic Review Board established by the Academic Affairs Committee. Where a student is eligible for exclusion,

but is permitted to continue study, the student has an academic status of probation for the following quarter and may be required to undertake a specified programme of study.

A student who is excluded is not permitted to attend classes or undertake study in the programme from which they were excluded or in any other programme or to take study on a non-award basis within the Abu Dhabi Polytechnic.

Appeal against Exclusion

A student who is excluded may lodge an appeal against exclusion. Under the Policy on Student Grievances and Appeals, the appeal must be in writing and be lodged with the Academic Affairs Committee 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 exclusion in order for the student to continue to study in the next quarter in the event of a successful appeal.

The student will be given the opportunity to present their case with the Manager Students and Support Services and the course instructor; if the student is still dissatisfied the student can lodge an appeal with the Abu Dhabi Polytechnic Appeals Committee. The appeal may be lodged after the specified date up to six months from the date of the exclusion notification, in which case, if the appeal is successful, the student will have necessarily been prevented from studying for at least one quarter.

Readmission following Exclusion

A student who is excluded may apply for re-admission to the programme from which they were excluded or for admission into a new programme. An application for readmission following exclusion or for admission to a new programme is not automatically approved.

An application for readmission, following exclusion, or for admission into a new programme will be assessed by the course instructor. The course instructor will consider factors such as changed circumstances, academic and/or vocational performance since exclusion, maturity and motivation in order to be satisfied that the person concerned has a reasonable chance of success in the programme. All recommendations are to be approved by the Chief Academic Officer.

A student who has been excluded may not recommence study until at least two standard quarters have elapsed since exclusion was imposed.

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

Where an application for readmission following exclusion is not approved, the student may lodge an appeal. Under the Policy on Student Grievances and Appeals, such an appeal is treated as an appeal against an admission decision.

Warning to Students at Risk

Abu Dhabi Polytechnic may provide a warning to students whose performance in a quarter 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.

9. Counselling Policy

Introduction

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

Purpose of Policy

The purpose of this policy is:

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

The Counseling Process

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

The counselor approaches the student in a non-threatening way and explains to them the benefit 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) e.g. of such situations are:

- The student gives the counselor good grounds for believing that they will cause serious

physical harm to others or themselves.

- The counselor has reason to believe that a student is in possession of or supplying illegal drugs on Abu Dhabi Polytechnic premises.
- A student has a severe alcohol/drug problem which is interfering with their Abu Dhabi Polytechnic work.

Monitoring

A report of the Counseling Service will be presented to the Abu Dhabi Polytechnic Director annually through the Chief Academic Officer.

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.

10. Academic Programmes at Abu Dhabi Polytechnic

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. Al Ain 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 programmes, 3rd year students, have the choice to select from different specializations, avionics, aeromechanical, air traffic management, etc.

Basic Instructions
All Abu Dhabi Polytechnic students in all programmes share a common educational experience. This common educational experience is of duration of three complete quarters. During this common experience students with different backgrounds undergo the same initial education, training and assessment. This period of instruction is used to select students' pathways based on their performance. Upon fulfilling the entry requirements, students are enrolled in Basic Instructions (BI) that amounts for two academic quarters (each consists of 11 weeks). At the end of the second BI quarter, an academic review is conducted to assess and direct each of the students onto the next stage of training.
The academic review assessment is based on the student's successes and achievements during the BI period. Academically struggling students are recommended for the certificate in Aircraft Maintenance-Ground Support Equipment programme; all others continue a third BI quarter that will decide a final pathway of training leading to an academic diploma, higher diploma, and/or a professional license. Student with a GPA for the three BI quarters exceeding 3.00 are given the opportunity to continue on the Higher Diploma Programme in Aircraft Engineering Technology and qualifying for GCAA/ EASA Cat B1 or B2 licenses. Students with a GPA between 2.00 and 3.00 for the three BI quarters are set on the Diploma in Aircraft Maintenance Technology programme and can qualify for GCAA/EASA's Cat A license with an opportunity to continue a Higher Diploma with GCAA/EASA Cat B option.

	GPA at end of 3rd Quarter	Progress towards Academic Qualification	Progress towards Professional Qualification
1	Less than 2.00 at end of 2nd quarter	Certificate-GSE - MoHESR	None
2	Between 2.00 and 3.00 at end of 3rd quarter	Diploma/Higher Diploma in AM	GCAA-CAR/EASA part 66 Cat A
3	Above 3.00 with recommendations	Higher Diploma AET	GCAA-CAR/EASA part 66 Cat B

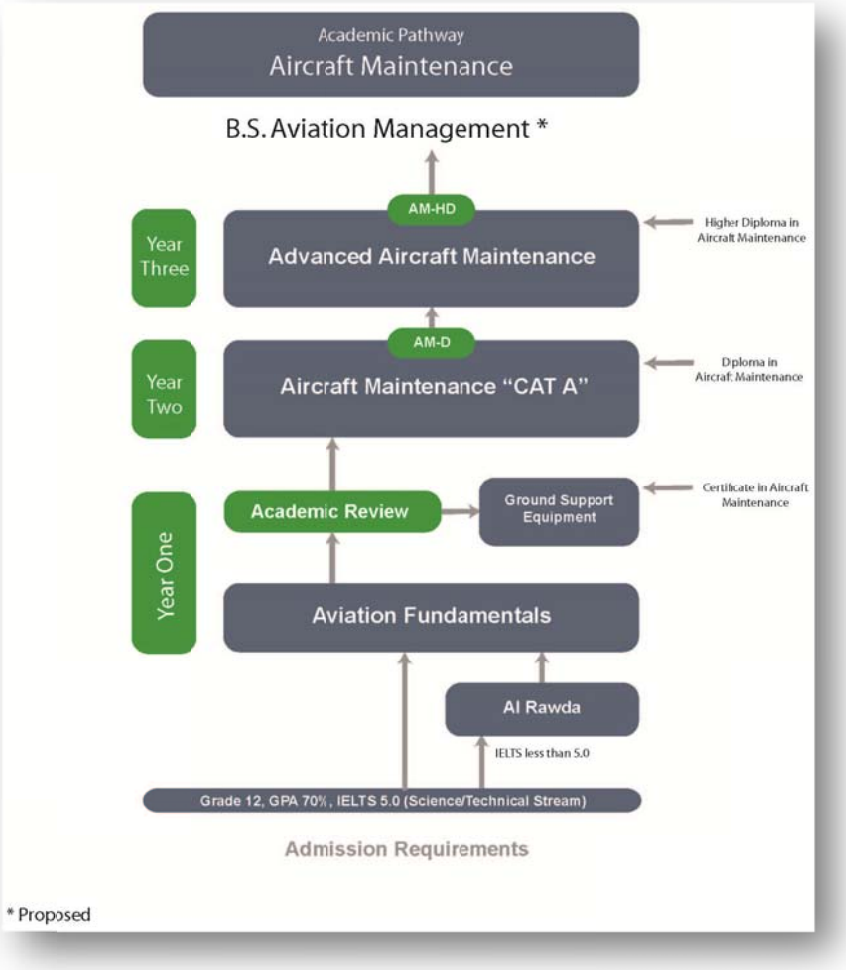
The Aviation Programmes

Aircraft Maintenance-Diploma and Higher Diploma Programmes

Students enrolled in Aircraft Maintenance (AM) have the option of pursing a two years Diploma or a three years Higher Diploma programme. The Diploma programme also leads to an EASA Certificate awarded to those completing successfully the CAT 'A' programme. Following the completion of EASA's CAT 'A' programme, a one year maintenance experience is required by the student to become eligible for an EASA

CAT 'A' or a "Maintenance Certifying Mechanic" license. This license is mandatory for all aircraft mechanics working on civil aviation aircraft in approved maintenance facilities worldwide.

After finishing the Diploma programme, students have the option to continue their training/education for one more year to earn a Higher Diploma in aircraft maintenance. The Higher Diploma programme encompasses advanced topics in maintenance technologies taught at the EASA CAT 'B' level in one of two concentration/specialization areas, Aeromechanical and Avionics. Successful completion of this one year stage leads to the award of a Higher Diploma in Aircraft Maintenance. In addition, a student has the opportunity to pursue an EASA CAT 'B' License.



AVIATION DIPLOMA PROGRAMME GOALS

The goals of the Diploma programme are to:

- Provide quality technical education based on national and international standards.
- Prepare students to engage Aviation related Technologies.
- Prepare students for employment as Aircraft Maintenance Technician.
- Provide a route to earn further education in Aircraft Maintenance Technologies and other related fields.
- Provide a combination of academic study and work based learning which will equip students with the knowledge and practical skills necessary for them to become proficient Aircraft Maintenance Technicians.
- Prepare students for continuous personal and professional development.

Programme Structure

The programme is delivered on full-time basis over two (Diploma) and three (Higher Diploma) years. Each academic year consists of four quarters (Autumn, Winter, Spring and Summer.) Students are engaged in the class room and in the workshops/laboratories for 7 periods per day for a total of 35 hours a week. This lengthy day of training is necessary in order to satisfy EASA and GCAA training time requirements that are embedded in the academic programme.

Generally courses are delivered by a combination of instructional lectures, practical workshops/laboratories, and tutorials; workshop and work-based activities, such as internships, integrate different disciplines and provide an opportunity to apply the knowledge gained in lectures on realistic work related activities or in the workplace. In addition, maintenance experience elements of courses are conducted in conjunction with an EASA / GCAA Part 145 organization or a licensed repair and overhaul facility. The duration of this portion of the training falls within the 800 hours required by EASA/GCAA part 147 approved embedded programme.

Career Opportunities

There has been exponential growth in the air transport industry and the need for aircraft maintenance technicians and engineers. As a result, the employment opportunities for Aircraft Maintenance graduates are excellent, especially those who complete the Diploma or Higher Diploma in Aircraft Maintenance Technologies and at an EASA / GCAA 147 approved maintenance training organization.

Programme Layout

The Diploma and Higher Diploma programmes are developed to fit the newly adopted quarter calendar system. The duration of the Diploma programme is two years and the Higher Diploma can be earned one year after the Diploma programme is completed. The following is a programme layout of the three years constituting both degree programmes.

DIPLOMA/HIGHER DIPLOMA PROGRAM - AIRCRAFT MAINTENANCE

First Year-common year for D and HD

Qtr-1	Qtr-2	Qtr-3	Qtr-4
MATH1011 6 Mathematics - 1	MATH 1012 6 Mathematics -2	ENGL 1003 5 Intro. To Aviation	ENGL 1004 3 Technical Writing
ENGL 1001 5 English Composition -I	ENGL 1002 5 English Composition -II	AVSC 1093 7 Human Factors	AME 1064 11 MAT. Hardware -I
PHY 1021 7 Physics -I	PHY 1022 7 Physics -II	AVSC 1103 8 Aviation Legislation	AME 1074 11 MAT. Hardware -II
AME 1001 9 Workshop/Orientation	AVN 1232 15 Electrical Engg. - I	AVN 1233 9 Electrical Engg. - II	AVN 1404 5 Electronics
AVSC 1001 8 IT Applications	ISL 1000 2 Islamic Studies	PHY 1033 6 Engineering Mechanics	

Second Year- common year for D and HD

Qtr-1	Qtr-2	Qtr-3	Qtr-4
AME 2081 5 Basic Aerodynamics (8A)	AME 2072 12 Maintenance Practice - II	AME 2003 40 OJT/Internship	AME 2114 13 Air. Struc. & Sys. -II
AVN 2051 13 Fund. Digital Techniques	AME 2112 5 Air. Struc. & Sys. -I		AME 2173 8 Maintenance Practice - III
AME 2071 12 Maintenance Practice - I	AME 2152 8 Turbine Engines		AME 2374 8 Maintenance Practice - IV
AVSC 3411 5 Quality Assurance	AME 2172 5 Propellers		AME 3011 6 Thermodynamics
	ENGL 2004 5 Technical Presentation		

Third Year-HIGHER DIPLOMA Aeromechancial only

Qtr-1	Qtr-2	Qtr-3	Qtr-4
AVN 3043 9 Electronic Comm.	AVN 3252 10 Digital Techniques -I	AME 3252 12 Digital Techniques -II	AME 3274 13 Maintenance Practice - II
AME 3261 12 Materials & Hardware -I	AME 3262 12 Materials & Hardware -II	AME 3273 11 Maintenance Practice - I	AME 3474 12 Propellers
AME 1284 14 Aerodynamics	AME 3213 13 AC Struct. Sys - I	AME 3214 * 12 Air. Struc. & Systems - I	AVSC 3004 * 12 Technology Project Management
		AVNSC 3402* 8 Eng. Business Management	5 Elective

Third Year-HIGHER DIPLOMA Avionics only

Qtr-1	Qtr-2	Qtr-3	Qtr-4
AVN 3043 9 Electronic Comm	AVN 3252 10 Digital Techniques -I	AVM 3253 7 Digital Techniques -II	AME 3274 13 Maintenance Practice - II
AME 3261 12 Materials & Hardware -I	AME 3262 12 Materials & Hardware -II	AME 3273 11 Maintenance Practice - I	AME 3474 10 Propellers (17B)
AME 1284 14 Aerodynamics	AVN 3142 13 PROPS AND FADEC	AME 3402 8 Eng. Business Management	AVSL 3004 5 Technology Project Management
		AVN 3223 * 14 Avionics - I	5 Elective

Assessment of Diploma and Higher Diploma in Aircraft Maintenance

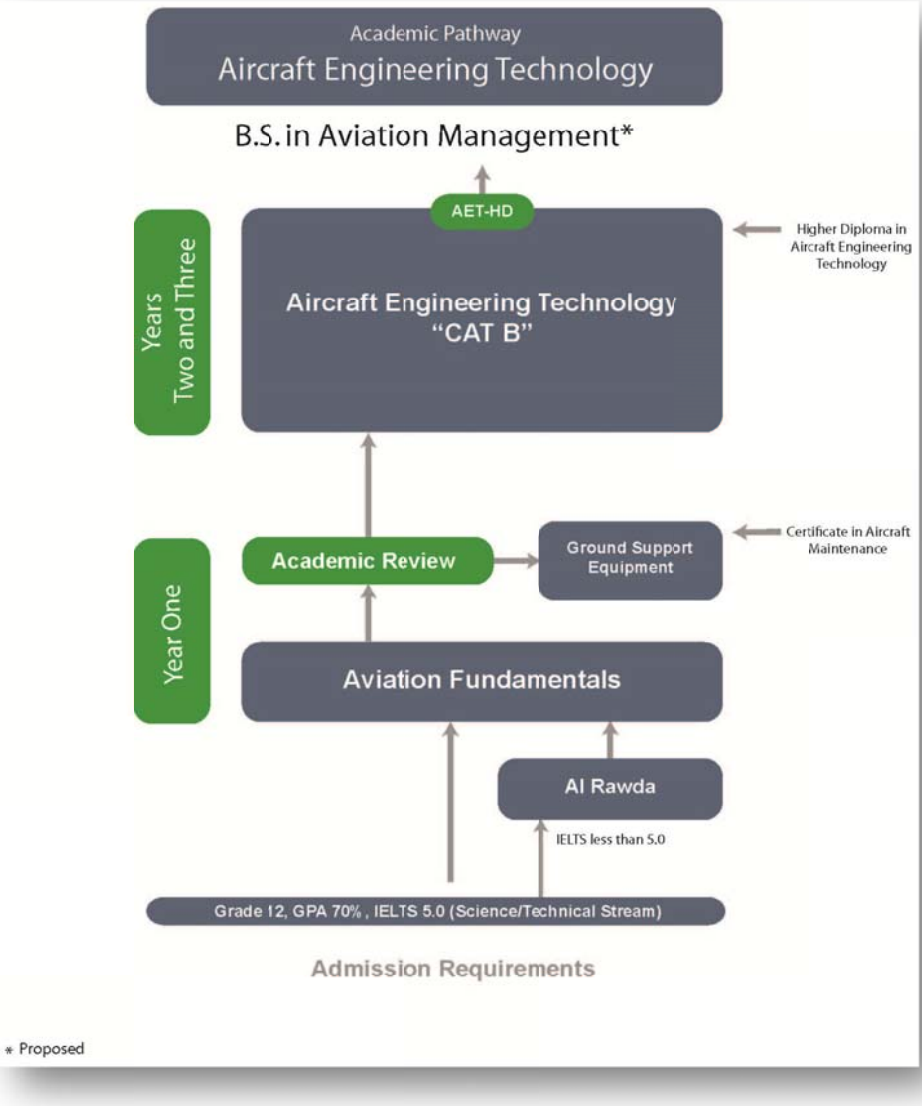
ABU DHABI POLYTECHNIC programmes assessment addresses the theoretical and practical aspects of the programme and work-based learning that are acquired by the students during their study.
The assessment strategy for the purpose of the EASA award is largely limited to achieving 75% (basic pass mark as dictated by EASA) in the theoretical final examination. This is applicable to each individual EASA module and is not aggregated between theory and practice. However, some of the modules do require practical assessment as well, and have a passing mark of 75%.
Assessment for each degree course or module is contained in the Complete Assessment Schedule published and distributed to instructors at the start of each academic year and supplied to students in the Student Handbook.
The programme is intended to satisfy the requirements of an EASA/GCAA approved Category A license, therefore students enrolled of a course being delivered under an EASA/GCAA Part 147 approval must attempt the EASA/GCAA assessment associated with each EASA/GCAA module. The EASA/GCAA assessment comprises a multi-choice question (MCQ) examination paper for each module, four 20 minute essay questions related to EASA/GCAA modules 7, 9 and 10 and practical exercises related to the overall course. The format of each EASA/GCAA assessment is in accordance with EASA/ GCAA Part 66 so as to ensure compliance with EASA/GCAA Part 147 requirements. These are illustrated in the Curriculum Manual.
Student maintained Logbooks form part of the overall assessment plan for the Diploma in Aircraft Engineering Technologies course. Satisfactory completion of logbooks forms part of the EASA / GCAA practical assessment.

EASA / GCAA Part 147 approved maintenance training organizations are approved to set, mark and grade EASA / GCAA Part 66 multi-choice examinations, essay examinations and practical assessments.

There will however, be progressive assessments which are a requirement to be fulfilled by the MoHESR for the award of the Higher Diploma in AET. These are based upon assessments performed in quizzes (20%), intermediate tests (30%), and final examination (50%).

Aircraft Engineering Technology-Higher Diploma Programme

This three years programme leads to the completion of training requirements of an EASA CAT B1.1-Aeromechanical technologies or the EASA CAT B2-Avionics License programme in addition to the completion of the academic requirements of a Higher Diploma in Aircraft Engineering Technology. Having the training requirements for the EASA CAT B programme, two years of industrial experience thereafter will make graduates eligible to apply for an EASA CAT 'B' Maintenance Certifying Technician License. This license is the key for work in civil aviation on commercial aircraft at any recognized or approved maintenance facility worldwide.



The Higher Diploma programme is approved by the Ministry of Higher Education and Scientific Research (MoHESR), U.A.E. since 2011.

EDUCATIONAL AIMS OF THE PROGRAMME

The Aims of the programme are:

- Provide intermediate level courses that fulfill the requirements of higher education, whilst at the same time satisfying the knowledge requirements of the EASA / GCAA Part 66 Category B license syllabi.
- To provide an opportunity for students to obtain an academic award and a vocational qualification from a single course of study (when the Higher Diploma in Aircraft Engineering Technology is delivered by an EASA / GCAA 147 approved organisation), or to complete an academic course that also provides the knowledge base for the vocational qualifications in aircraft maintenance.
- Provide a combination of academic study and work based learning which will equip students with the knowledge and practical skills necessary for them to obtain an EASA / GCAA category B license and become proficient aircraft maintenance engineers.

- To provide students with the opportunity to develop their written and oral communications skills, and prepare them for further study at honors degree level
- To prepare students for employment as licensed aircraft maintenance engineers.
- To prepare students for continuous professional development by encouraging the use of personal development plans and introducing them to professional institutions

PROGRAMME STRUCTURE

The programme is made up of courses that are delivered by a quarter calendar system. The programme is tailored to qualify students for a higher diploma in the aircraft engineering field. The programme requires practical work, on the job training (OJT) and Internship with relevant industries to enhance the learning of students.

The programme provides two distinct pathways, one in mechanical and the other in electronics fields. The mechanical pathway leads to an aeromechanical CAT B 1.1 license and the electronic pathway leads to CAT B 2- Avionics license. Each license is part of the Higher Diploma programme that is accredited by the MOHESR. The programmes are delivered on a full-time basis over three academic years.

To satisfy EASA and GCAA requirements, the programme must provide a minimum of 2400 hours of direct contact. Full details of module sequence, course duration and start and finish dates are issued at the commencement of each course.

CAREER OPPORTUNITIES

There has been exponential growth in the air transport industry and the need for aircraft maintenance engineers. The outcome is an unsatisfied demand of unprecedented proportions for graduate calibre aircraft maintenance engineers.

Over the last 10 years there have been a several reports, including ICAO and governmental papers highlighting the shortage of aircraft maintenance engineers. One, in January 2006 states "The recruitment of Licensed Engineers (Part 66, Category B and above) will become increasingly difficult over the next 3 years. It is clear from other studies that the situation remains the same today.

As a result, the employment opportunities for Aircraft Engineering graduates are excellent, especially those who complete the Diploma in Aircraft Engineering Technologies style course and at an EASA / GCAA 147 approved maintenance training organization.

AIRCRAFT ENGINEERING TECHNOLOGIES
HIGHER DIPLOMA PROGRAM - AEROMECHANICAL

First Year

Qtr-1	Qtr-2	Qtr-3	Qtr-4
MATH1011 6 Mathematics -I	MATH 1012 6 Mathematics -II	ENGL 1003 5 Intro. To Aviation	ENGL 1004 5 Technical Writing
ENGL 1001 5 English Composition -II	ENGL 1002 5 English Composition -II	AVSC 1093 7 Human Factors	AME 1264 8 Adv. Materials & Hardware - I
PHY 1021 7 Physics I	PHY 1022 7 Physics -II	AVSC 1103 8 Aviation Legislation	AVN 1234 8 Electrical Engg. - III
AME 1001 9 Workshop/Orientation	AVN 1232 15 Electrical Engg. - I	AVN 1233 9 Electrical Engg. - II	AME 1284 14 Aerodynamics
AVSC 1001 8 IT Applications	ISL 1000 2 Islamic Studies	PHY 1033 6 Engineering Mechanics	

Second Year

Qtr-1	Qtr-2	Qtr-3	Qtr-4
AME 2261 (7) Adv. MAT & Hardware - II	AME 2272 (10) Adv. Maintenance Practice III	AVN 2053 (6) Digital Techniques I	AME 2254 (17) Turbine Engines I
AME 2271 (14) Adv. Maintenance Practice I	AME 2472 (10) Adv. Maintenance Practice IV	AVN 2253 (10) Digital Techniques II	AME 2214 (13) Air. Struc. & Systems I
AME 2471 (14) Adv. Maintenance Practice II	AME 2672 (10) Adv. Maintenance Practice V	AVN 2043 (14) Electronics I	ENGL 2004 (5) Technical Presentation
	AME 2872 (10) Adv. Maintenance Practice VI	(5) Elective	

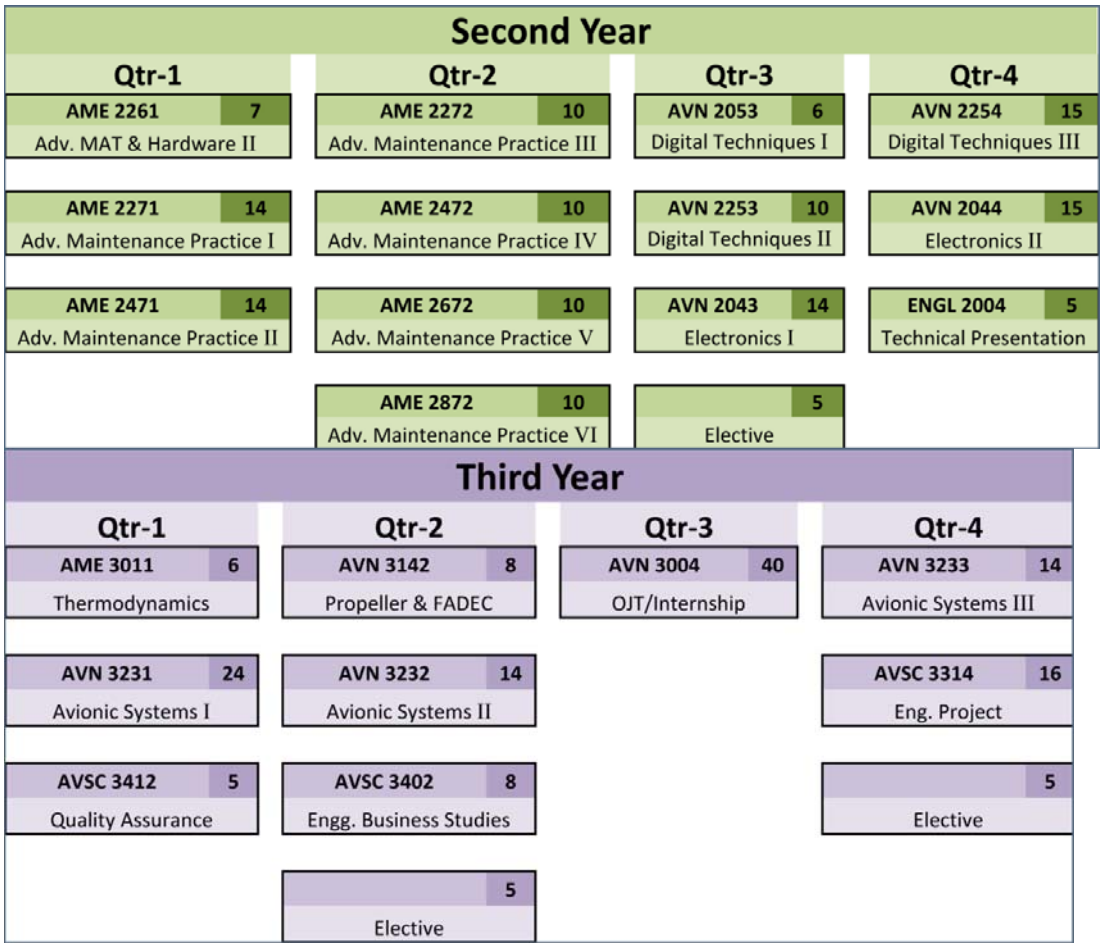
Third Year

Qtr-1	Qtr-2	Qtr-3	Qtr-4
AME 3011 (6) Thermodynamics	AME 3212 (12) A/C Structure & Systems III	AME 3004 (40) OJT/Internship	AME 3214 (14) A/C Structure & Systems IV
AME 3251 (11) Turbine Engines II	AME 3272 (10) Propellers		AVSC 3313 (16) Eng. Project
AVSC 3412 (5) Quality Assurance	AVSC 3402 (8) Engg. Business Studies		(5) Elective
AME 3211 (13) Air. Struc. & Systems II	(5) Elective		

AIRCRAFT ENGINEERING TECHNOLOGIES
HIGHER DIPLOMA PROGRAM - AVIONICS

First Year

Qtr-1	Qtr-2	Qtr-3	Qtr-4
MATH1011 (6) Mathematics – I	MATH 1012 (6) Mathematics -I	ENGL 1003 (5) Intro. To Aviation	ENGL 1004 (5) Technical Writing
ENGL 1001 (5) English Composition -I	ENGL 1002 (5) English Composition -II	AVSC 1093 (7) Human Factors (9B)	AME 1264 (8) Adv. Materials & Hardware - I
PHY 1021 (7) Physics I	PHY 1022 (7) Physics -II	AVSC 1103 (8) Aviation Legislation	AVN 1234 (8) Electrical Engg. - III
AME 1001 (9) Workshop/Orientation	AVN 1232 (15) Electrical Engg. - I	AVN 1233 (9) Electrical Engg. - II	AME 1284 (14) Adv. Aerodynamics
AVSC 1001 (8) IT Applications	ISL 1000 (2) Islamic Studies	PHY 1033 (6) Engineering Mechanics	



Assessment of Higher Diploma in Aircraft Engineering Technologies

The assessment strategy is designed to assess the theoretical aspects of the course and the workshop and work-based learning that are acquired by the students during the course of study. The method of assessment is related to the learning outcome being assessed, and therefore in any one module a range of assessment methods may be used.

The assessment strategy for the purpose of the GCAA/EASA award is largely limited to achieving 75% (basic pass mark as dictated by the GCAA/EASA) in the theoretical final examination. This is applicable to each individual module and cannot be aggregated between theory and practice. However, some of the modules do require practical assessment mandatorily.

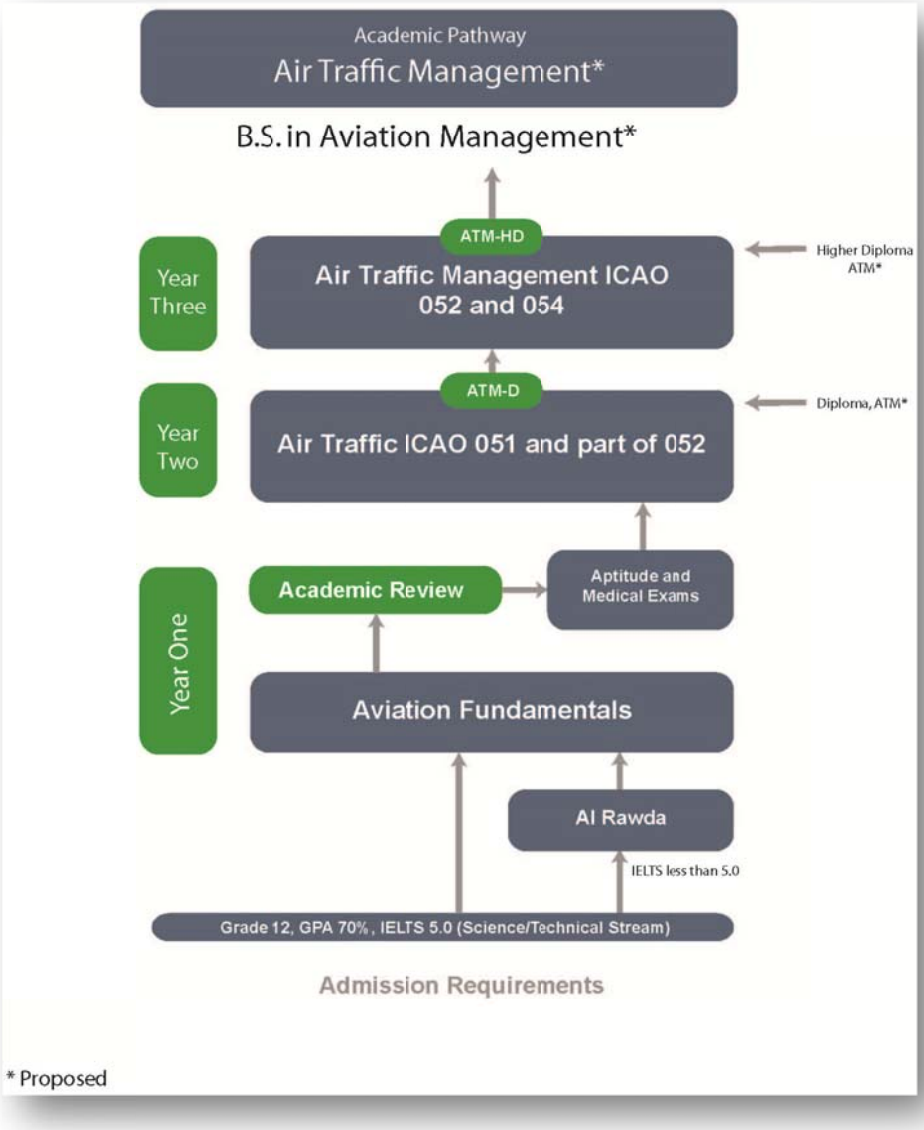
There will however, be progressive assessments which are a requirement to be fulfilled by the MoHESR for the award of the Higher Diploma in AET. These are based upon assessments performed in quizzes (20%), intermediate tests (30%), and final examination (50%). An element of record keeping is also induced into the course assessment strategy. Thus, the upkeep of a portfolio of records of research, assignments and other tasks given, helps the students inculcate the good practice of record keeping which is very common and vital in the aviation industry.

Full details of the assessment for each GCAA/EASA module are contained in the Complete Assessment Schedule published and distributed to staff at the start of each academic year and supplied to students in the Student Handbook.

Students must pass all elements of assessment associated with each module in order to obtain a pass grade for that module. The weighting of individual elements of assessment within a module are detailed in the module descriptions and module guides. For a module to be compensated by an examination board, all major elements of assessment within the module must satisfy any compensation regulations.
Student maintained Logbooks form part of the overall assessment plan for the course. In addition to the Aircraft Engineering Higher Diploma assessments, all students on EASA / GCAA Part 147 approved courses, who wish to obtain an EASA / GCAA Training Certificate, will be subject to EASA / GCAA Part 66 examinations and practical assessments in accordance with the requirements of EASA / GCAA and the approved organizations MTOE.

Certificate in Aircraft Maintenance (GSE)

The one year programme leads to a Certificate in Aircraft Maintenance (Ground Support Equipment) issued by the Ministry of Higher Education and Scientific Research (MoHESR) U.A.E. This will enable the graduate to undertake aviation related maintenance job pertaining to the ground support equipment.



FEATURES OF THE PROGRAMME

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

EDUCATIONAL AIMS OF THE PROGRAMME

The aims of the Programme are to:

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

PROGRAMME STRUCTURE

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

CERTIFICATE PROGRAM - AIRCRAFT MAINTENANCE
Ground Support Equipment

First Year

Qtr-1	Qtr-2	Qtr-3	Qtr-4
MATH1011 6 Mathematics - I	MATH 1012 6 Mathematics -II	ENGL 1004 4 Technical Writing	ENGL 2004 4 Technical Presentation
ENGL 1001 5 English Composition -I	ENGL 1002 5 English Composition -II	FLM 1013 10 Gen Safety, HF, Fire Protect.	FLM 1044 10 Fund. of Turbine & Piston Eng.
PHY 1021 7 Physics I	PHY 1022 7 Physics -II	FLM 1023 11 W/shop prac., QA, GSE Maint.	FLM 1054 11 A/C Fuel & Lub., Grd. Pow. Sup.
AME 1001 9 Workshop/Orientation	AVN 1232 15 Electrical Engg. - I	FLM 1033 10 Elect., Hyd & Pneum., P/Gen.	FLM 1064 10 Flt. Line Ops., A/C Doc.
AVSC 1001 8 IT Applications	ISL 1000 2 Islamic Studies		

Certificate /Ground Support Equipment Course

The assessment strategy is designed to assess the theoretical and practical aspects of the course and the workshop and work-based learning that are acquired by the students during the course of study. The method of assessment is related to the learning outcome being assessed.

There will be progressive assessments which are a requirement to be fulfilled as dictated by the MoHESR. These are based upon assessments done in assignments, intermediate tests, final examination and class performance. An element of record keeping is also induced into the course assessment strategy. Thus, the upkeep of a portfolio of records of research, assignments and other tasks given, helps the students inculcate the good practice of record keeping which is very common and vital in the aviation industry.

The assessment grading scheme is outlined below. Compulsory completion of logbooks will form part of the EASA / GCAA practical assessment plan.

Air Traffic Management (ATM)

The Air Traffic Management programme is a three-year programme comprising of a Basic Instruction and an ICAO standard training leading to academic qualifications and Air Traffic Controller certification.

Students must successfully complete the Basic Instruction and aptitude as well as medical testing before commencing training as Air Traffic Control Assistant (ATCA), first step in certification. After successfully completion of Basic Induction course, the students will be sent to an operational unit for On Job Training as ATCA.

Students' successful completion of a two year programme will be awarded a Diploma in ATM.

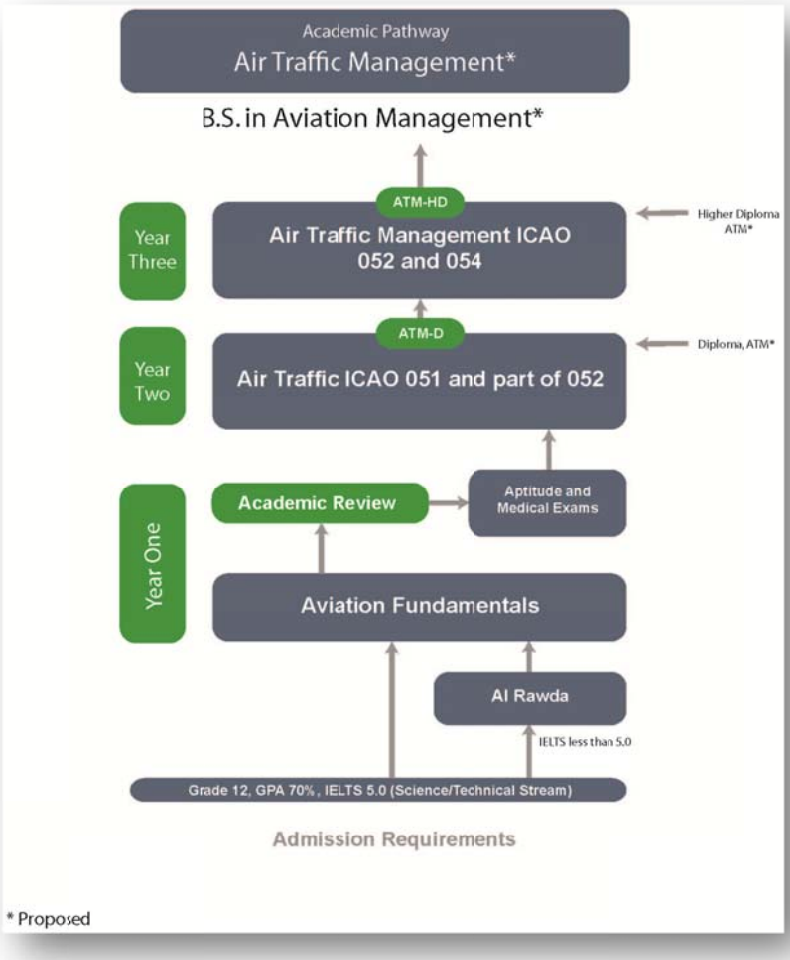
In the third year, students will be trained to become Air Traffic Controllers (ATCO). This training is a combination of classroom and simulator training at ABU DHABI POLYTECHNIC, after which students will be sent to an operational unit for On Job Training as ATCO. Student's successful completion of the third year will be awarded a Higher Diploma in ATM. Students may obtain Certificate as Air Traffic Controllers after successfully competing on the job training.

PROGRAMME STRUCTURE

The programme is delivered on full-time basis over two (Diploma) and Three (Higher Diploma) years. Students must successfully complete Basic Instruction and aptitude as well as medical testing, before commencing training to become Air Traffic Control Assistant (ATCA). After successfully completion of Basic Induction course, the students will be sent to an operational unit for On Job Training as ATCA.

Students will after successful completion of year 2 be awarded a Diploma in ATM. Third year, students will be trained to become Air Traffic Controllers (ATCO). This training is a combination of classroom and simulator training at ABU DHABI POLYTECHNIC, after which students will be sent to an operational unit for On Job Training as ATCO.
Students will after successful completion of year 3 be awarded a Higher Diploma in ATM.

Students may after successful On Job Training obtain Certificate as Air Traffic Controllers.
Successful students of the programme will have the opportunity to proceed to a Bachelor Degree in ATM.



CAREER OPPORTUNITIES

The Middle East has seen phenomenal growth of air traffic over the past years and all predictions are talking about further increase in the Middle East area over the years to come.

This is causing significant pressure on the region's air traffic control operations and is especially putting pressure on regional authorities to increase the capacity and efficiency of air traffic operations. To cope with the growth, air traffic control operators and authorities have to train and employ more and more Air Traffic Controllers for the civil airports as well as for the military airports in UAE. Graduates will leave ABU DHABI POLYTECHNIC with a Higher Diploma in ATM and a GCAA approved rating as Air Traffic Controllers.

Diploma, Higher Diploma, Bachelor of Science and Applied Bachelor Programme Descriptions

The academic programmes at Abu Dhabi Polytechnic: Abu Dhabi Campus consist of the Higher Diploma in Nuclear Technology (HDNT) programme, the Higher Diploma of Information Security Engineering Technology (HDISET), the Higher Diploma in Electromechanical Engineering Technology (HDET), the Higher Diploma and Applied Bachelor in Petroleum Engineering Technology (HDABPET) and the Diploma, Higher Diploma and Bachelor of Science Degrees in the Meteorology Science (MET) programme. These programmes aim to provide the necessary balance of knowledge and practical skills to prepare students for a career in high tech industries. Graduates from the programme will be able to:

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

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

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

- Nuclear power plant operation
- Mechanical systems
- Electrical systems
- Instrumentation and control
- Chemistry
- Radiation protection

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

- Mechatronics
- Mechanical
- Electrical
- Instrumentation and control

The Higher Diploma of Information Security Engineering Technology (HDISET) includes the following three specializations:

- Secure software/applications development
- Network and cyber security
- Systems/servers security administration

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

- Oil and gas process engineering technology
- Petroleum engineering technology

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

Higher Diploma in Nuclear Technology Degree Requirements

A total of 178 credit hours is required for the HDNT. These 178 credit hours are fully prescribed under the following academic areas:

	Credit Hours		
Humanities	16	Mathematics and Sciences	27
		Engineering Fundamentals	34

Nuclear Technology 55
On-the-Job Training 16
On-the-Job Performance 30
Total 178

The academic areas are further described by the following course titles and credit hours:

Humanities (HUM)

First Year	**Credit Hours**
Study Skills	2
English	3
Technical Communications	3
National Culture and Society	2

Second Year

Korean Language and Culture	3
Islamic Civilization	3
Total	**16**

Mathematics and Sciences

First Year	**Credit Hours**
Mathematics I and II	6
Applied Technical Sciences	3
Physics I and II	6
Nuclear Science	3
Chemistry I and II	6
Introduction to Programming and Logic	3
Total	**27**

Engineering Fundamentals (ENG)

First Year	**Credit Hours**
Industrial Safety and Professional Ethics	2
Schematics and Mechanical Diagrams	3
Introduction to Electrical Technology	3
Mechanical Workshop	2

Second Year

Electrical Technology I and II	6
Instrumentation and Controls I and II	6
Mechanical Technology I and II	6
Thermodynamics	3
Heat Transfer and Fluid Flow	3
Total	**34**

Advanced Energy Systems (AES)

First Year	**Credit Hours**
Nuclear Technology	2
Nuclear Industry	2

Second Year

Introduction to Nuclear Reactor Theory	3
Nuclear Reactor Operation	3
Reactor and Auxiliary Systems	4
Steam Generator and Auxiliary Systems	4
Turbine, Generator, and Auxiliary Systems	2
Electrical and Monitoring Systems	4
Miscellaneous Systems	2
Safety Systems	3
Protection and Control Systems	2

Third Year

Nuclear Safety	3
Radiation Protection	3
Nuclear Regulations	3
Nuclear Materials	3
Radiation Measurement	3
Graduation Project I and II	6
Work-based Learning	3
Total	**55**

HDNT On-the-Job Training

Second Year	**Credit Hours**
Nuclear Power Plant Orientation	1
NPP Maintenance Fundamentals	3
NPP Operation Support	3
NPP Engineering Fundamentals	3
Primary Local Operation	3
Secondary Local Operation	3
Total	**16**

HDNT On-the-Job Performance

Students must select one of six specializations (Operator, Mechanical, Electrical, Instrumentation and Control, Chemistry, or Radiation Protection) by the time they are to start on-the-job performance in the third year of their programme.

Operator Specialization

Third Year	**Credit Hours**
General Operation	3
Primary System Abnormal Operation	3
Secondary System Abnormal Operation	3
Emergency Operation	3
Administration Procedures	3
Prerequisites Review	1
System Monitoring	3
Equipment Operation I and II	7
System Operation	4
Total	**30**

Mechanical Specialization

Third Year	**Credit Hours**
Measurement	4
Hand Tools	4
NPP Mechanical Drawing	4

Basic Mechanical Maintenance	3
Valve Maintenance	4
Centrifugal Pump Maintenance	4
Fan Maintenance	3
Mechanical Preventive Maintenance	4
Total	**30**

Electrical Specialization

Third Year	**Credit Hours**
General Electrical Work	3
Preventive Maintenance for Electrical System	4
MOV Maintenance	4
Air Circuit Breaker	4
Motor Control Center	4
Battery	3
Low Voltage Motor	4
Vacuum Circuit Breaker	4
Total	**30**

Instrumentation and Control Specialization

Third Year	**Credit Hours**
I&C Work Preparation	4
Operating Test Equipment	3
I&C Preventive Maintenance	4
Tubing and Fitting	4
Inspection I&C Components	4
I&C Adjustment and Calibration	3
I&C Replacement	4
I&C Repair	4
Total	**30**

Chemistry Specialization

Third Year	**Credit Hours**
Analytical Chemistry	4
Analytical Instrumentation	4
Corrosion and Control	4
Water Treatment	3
Radiochemistry	4
Radiation Measurement	3
Primary System Water Treatment	4
Secondary System Water Chemistry	4
Total	**30**

Radiation Protection Specialization

Third Year	**Credit Hours**
General Radiation Protection	3
Radioactive Contamination Control	3
Radioactive Waste Management	3
Radioactive Waste Disposal	3
Exposure Control	3
Radiation Control Area Access Control	3
Radioactive Material Control	3
Radiological Survey	3
Radiological Analysis Instruments	3
Radiological Instruments	3
Total	**30**

Policy for Assignment of Student Specializations

The Abu Dhabi Polytechnic will use the following process to assign specializations to each student:

1. Students will be informed before their On-the-Job training commences of the policy for assignment of specializations and the constraints on size and schedule for each specialization.
2. By the end of a student's On-the-Job Training (end of Year 2 Quarter 4), they are required to rank from 1 (highest) to 6 (lowest) their preference for their HDNT specialization and On-the-Job Performance and provide this to the HDNT Specialization Assignment Committee (an Ad Hoc Committee under the Academic Affairs Committee).
3. If the Committee determines that there is an even distribution of specializations fitting the workforce plan and the training schedule, then students will be assigned to their highest preference. If the distribution does not meet these criteria, then a student's second choice is used to even out the distribution. If an even distribution is still not produced, then third choices or further are considered until an even distribution is established.
4. In the case where the Committee determines that there is not an even distribution of specializations using students' highest preference, then the Committee has the right to contact instructors (both academic and training) and solicit their insights to influence a student's assignment to their higher priorities.

HDNT Programme Completion Requirements

After all 178 credit hours in the prescribed courses have been completed with a satisfactory grade, the student will have completed the programme requirements and be eligible for conferral of the Higher Diploma in Nuclear Technology. The Job Qualification Certificate is not a requirement for graduation.

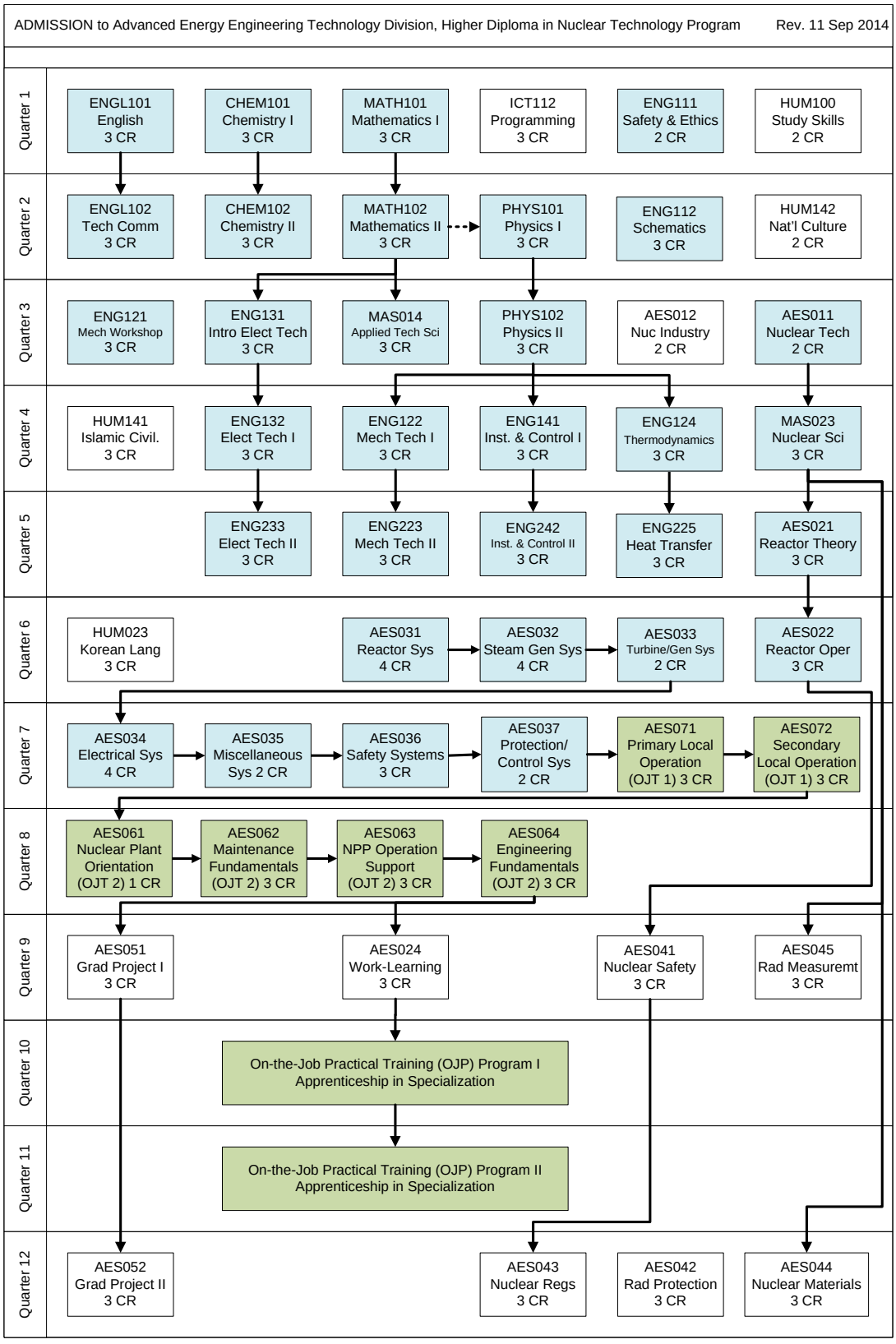


Figure 3: Flow sheet of Higher Diploma in Nuclear Technology degree requirements

Higher Diploma and Applied Bachelor in Electromechanical Engineering Technology (EMET) Degree Requirements

Electromechanical Engineering Technology Programme (EMET) offers four specializations at the level of Bachelor of Applied Engineering (AB) over four years with an exit option of Higher Diploma (HD) at the third year which have the following credit hours details:

1. Mechatronics Engineering Technology: AB: 255 Cr. Hr.; HD: 195 Cr. Hr.
2. Mechanical Engineering Technology: AB: 255 Cr. Hr. ; HD: 195 Cr. Hr.
3. Instrumentation and Control Eng. Tech.: AB: 255 Cr. Hr. ; HD: 195 Cr. Hr.
4. Electrical Engineering Technology: AB: 255 Cr. Hr. ; HD: 195 Cr. Hr.

These credit hours are fully prescribed under the following academic areas:

	HD Credit Hours
Humanities	10
Mathematics and Sciences	23
Engineering Fundamentals	30
Electromechanical Technology	60
On Campus Training	36
On-the-Job Performance	30
Graduation Projects	06
	***Total 195**

* 195 Credits for Mechanical Eng. Tech.

	AB Credit Hours
Higher Diploma Technology	195
Electromechanical Technology	39
On-the-Job Performance	15
Graduation Projects	06
	****Total 255**

** 254 Credits for Mechanical and Mechatronics Eng. Tech. Specializations

The academic areas are further described by the following course titles and credit hours:

Humanities

First Year	**Credit Hours**
English Comm.s Skills	3
Technical Communications	3
National and Foreign Culture I	2
Islamic Civilization	2
	Total 10

Mathematics and Sciences

First Year	**Credit Hours**
Mathematics I, II and III	9
Physics I and II	6
Chemistry I and II	6
Intro to Prog. & Problem Solv	2
	Total 23

Engineering Fundamentals

First Year	**Credit Hours**
Industrial Safety and Professional Ethics	2
Schematics and Mechanical Diagrams	3
Engineering Graphics	2
Intr. to Electrical Tech.	3
Mechanical Workshop	2
Electrical Technology I	3
Mechanical Technology I	3
Instrumentation and Controls I	3
Second Year	
Mechanical Technology II	3
Thermodynamics	3
Heat Trans. and Fluid Flow	3
	Total 30

Mechatronics Engineering Technology (HD)

First Year	**Credit Hours**
Intr. to Programming with C++	3
Electronic Devices and Circuits	3
Statics	3
Second Year	
Dynamics	3
Control Systems	3
Electrical Machines and Applications	3
Mechatronics: Electrical Components	3
Mechatronics: Electromechanical Drives	3
CAD/CAM Technologies	3
Pneumatics and Hydraulics Systems	3
Programmable Logic Controllers	3
Process Control Technologies	3
Second Year: *OnCampus Training*	
PLC OCT	3
PCB OCT	3
Pneumatics and Hydraulics OCT	3
Process Control OCT	3
Robotics OCT	3
DCS and SCADA OCT	3
Pumps OC	3
Compressors OCT	3
Heat Exchangers OCT	3
Fluid Mechanics OCT	3

DC Machines OCT 3
AC Machines OCT..... 3
Third Year
Totally Integrated Automation..... 3
Introduction to Microcontrollers 3
Modeling of Systems and Simulation..... 3
Quality Management..... 3
Graduation Project I..... 3
Motor Drives Control..... 3
Manufacturing Processes 3
Applied Safety..... 3
Materials Science 3
Graduation Project II 3
Third Year: *On-the-Job Performance*
10 Modules of OJP 30
Total 132

Mechatronics Engineering Technology (AB)

Credit Hours
First, Second, Third Years: Higher Diploma . 195
Fourth Year
Adv. Eng. Math..... 3
Mechatronics System Design 3
Customized Automation Solutions..... 3
Feedback Control Systems 3
Strength of Materials 3
Kinematics of Machinery 3
Machine Elements..... 3
Integration of Mechatronics Systems..... 3
Robotics..... 3
EME Design Project I..... 3
Personal Development Planning……..3
Engineering Economics 3
Material Handling Equipment (Elective I) 3
Process Equipment Design (Elective II)..... 3
EME Design Project II 3
Fourth Year: *On-the-Job Performance*
5 Modules of OJP..... 15
Total 255

Mechanical Engineering Technology (HD)

First Year **Credit Hours**
Intr. to Programming with C++ 3
Electronic Devices and Circuits 3
Statics 3
Second Year
Dynamics..... 3
Control Systems 3
Electrical Machines and Applications 3
Thermodynamics 3
Materials Science 3
Strength of Materials 3
Heat Trans. & Fluid Flow 3
Pneumatics and Hydraulics Systems..... 3
Programmable Logic Controllers..... 3
Process Control Technologies..... 3
CAD/CAM Technologies..... 3
Second Year: *On Campus Training*
PLC OCT..... 3
PCB OCT 3
Pneumatics and Hydraulics OCT..... 3
Process Control OCT..... 3
Robotics OCT..... 3
DCS and SCADA OCT..... 3
Pumps OCT 3
Compressors OCT 3
Heat Exchangers OCT..... 3
Fluid Mechanics OCT..... 3
DC Machines OCT..... 3
AC Machines OCT..... 3
Third Year
HVAC 3
Applied Industrial Maintenance..... 3
Kinematics of Machinery..... 3
Quality Management 3
Graduation Project I..... 3
Personal Development Planning..... 3
Manufacturing Processes 3
Safety Engineering and Environment 3
Advanced Strength of Materials..... 3
Graduation Project II..... 3
Third Year: *On-the-Job Performance*
10 Modules of OJP..... 30
Total 132

Mechanical Engineering Technology (AB)

Credit Hours
First, Second, Third Years: Higher Diploma. 195
Fourth Year
Adv. Eng. Math..... 3
Mechatronics System Design..... 3
Machine Elements 3
Feedback Control Systems..... 3
HUM Elective..... 3
Motor Drives Control 3
Machine Design..... 3
Vibration and Noise Control 3
Robotics..... 3
EME Design Project I 3
Engineering Economics..... 3
Plant Systems I..... 3
Plant Systems II 3
Vehicle Dynamics (Elective) 3
EME Design Project II..... 3
Fourth Year: *On-the-Job Performance*
5 Modules of OJP 15
Total 255

Inst. & Control Engineering Technology (HD)

First Year **Credit Hours**

Intr. to Programming with C++ 3
Electronic Devices and Circuits 3
Statics 3

Second Year

Dynamics 3
Control Systems 3
Electrical Machines and Applications 3
Thermodynamics 3
Distributed Control Systems I (DCS I) 3
Heat Trans. & Fluid Flow 3
Distributed Control Systems II (DCS II) 3
Pneumatics and Hydraulics Systems 3
Programmable Logic Controllers 3
Process Control Technologies 3
CAD/CAM Technologies 3

Second Year: *On Campus Training*

PLC OCT 3
PCB OCT 3
Pneumatics and Hydraulics OCT 3
Process Control OCT 3
Robotics OCT 3
DCS and SCADA OCT 3
Pumps OCT 3
Compressors OCT 3
Heat Exchangers OCT 3
Fluid Mechanics OCT 3
DC Machines OCT 3
AC Machines OCT 3

Third Year

Digital Comm. in Control Engineering 3
Introduction to Microcontrollers 3
Transmission of Measurement Signals 3
Quality Management 3
Graduation Project I 3
Safe Instrumentated Systems 3
Applications of PLCs 3
Supervisory Control and Data Acquisition Systems SCADA 3
Complex Control Systems 3
Graduation Project II 3

Third Year: *On-the-Job Performance*

10 Modules of OJP 30

Total 132

Inst. & Control Engineering Technology (AB)

Credit Hours

First, Second, Third Years: Higher Diploma . 195

Fourth Year

Adv. Eng. Math 3
On-line Process Analyzer 3
Fire and Gas Detection 3
Hazard and Plant Safety Engineering 3
HUM Elective 3
Motor Drives Control 3
Intelligent Inst and Asset Management Systems 3
Oil and Gas Meter System and Control 3
Robotics 3
EME Design Project I 3
Engineering Economics 3
Personal Development Planning 3
Engineering Economics 3
Instrumentation in Hazardous Areas 3
Process Equipment Design (Elective II) 3
EME Design Project II 3

Fourth Year: *On-the-Job Performance*

5 Modules of OJP 15

Total 255

Electrical Engineering Technology (HD)

First Year **Credit Hours**

Intr. to Programming with C++ 3
Electronic Devices and Circuits 3
Statics 3

Second Year

Electrical Safety 3
Digital Electronics 3
App. of Electrical and Electronics Instruments 3
Power Electronics 3
Electrical Machines and Applications 3
Control Systems 3
Three Phase Systems 3
Electricity Power Systems 3
Transformers 3
Pneumatics and Hydraulics Systems 3
Programmable Logic Controllers 3
Process Control Technologies 3

Second Year: *On Campus Training*

PLC OCT 3
PCB OCT 3
Pneumatics and Hydraulics OCT 3
Process Control OCT 3
Robotics OCT 3
Transformers OCT 3
3 Phase Machines OCT 3
Generators OCT 3
Green Energy OCT 3
Smart Grid OCT 3
DC Machines OCT 3
AC Machines OCT 3

Third Year

Introduction to Microcontrollers 3
Electrical Motor Drive Systems 3
Control Systems Behavior 3
Quality Management 3
Graduation Project I 3
Electrical Networks and Resonance 2
Transmission Lines and Complex Waves 3
Electrical Installation Design: CAD 3
Inspection and Testing of Low Voltage Installations 3
Graduation Project II 3

Third Year: *On-the-Job Performance*

10 Modules of OJP 30

Total 132

Electrical Engineering Technology (AD)

	Credit Hours
First, Second, Third Years: Higher Diploma	195
Fourth Year	
Adv. Eng. Math	3
Switchgear and Protection of High Voltage Systems	3
Combinational Logic	3
Utilization of Electrical Energy in Buildings	3
App. Of Power Electronics in Electrical Motor Drives Systems	3
Motor Drives Control	3
High Level Engineering Software	3
Personal Development Planning	3
Intelligent Inst and Asset Management Systems	3
EME Design Project I	3
Engineering Economics	3
Plant Systems I	3
Promoting Green Energy & Efficiency in Workplace	3
Material Handling Equipment (Elective I)	3
EME Design Project II	3
Fourth Year: *On-the-Job Performance*	
5 Modules of OJP	15
	Total 255

	Total 30

HD EMET On-the-Job Performance

Students must select one of four electromechanical engineering technology specializations (mechatronics, mechanical, electrical, instrumentation and control) at the end of their first year of their programme and complete 30 credit hours of On campus training as well as 30 credit hours of On-the-Job Performance in an industrial setting.

HD EMET Programme Completion Requirements

After all 195 credit hours in the prescribed courses have been completed with a satisfactory grade, the student will have completed the programme requirements and be eligible for conferral of the Higher Diploma in Electromechanical Engineering Technology.

AB EMET On-the-Job Performance

Students must complete 15 credit hours of On-the-Job Performance in an industrial setting.

AB EMET Programme Completion Requirements

After all 255 credit hours in the prescribed courses have been completed with a satisfactory grade, the student will have completed the programme requirements and be eligible for conferral of the Applied Bachelor in Electromechanical Engineering Technology.

Industrial Certification Requirements

Abu Dhabi Polytechnic has been communicating with several potential strategic industrial partners in order to secure agreements and training arrangements such that the HDET students to receive industrial certification. Abu Dhabi Polytechnic is seeking certifications with the following tentative partners:

- SiemensAbu Dhabi Polytechnic in Berlin (Siemens Technik Akademie), Germany. Towards securing Siemens Certificate in Mechatronics
- FESTO Didactic, Germany. Towards securing FESTO Certificate in Pneumatics, Hydraulics and Automation
- ASET International Oil and Gas Training Abu Dhabi Polytechnic, Aberdeen, Scotland. Towards securing SQA Qualifications.

Higher Diploma and Applied Bachelor in Information Security Engineering Technology Degree Requirements

In the first year of the programme, 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-the-Job Training (OJT) and On-the-Job Performance (OJP). The Higher Diploma programme,

starting the second year, is designed to develop the basic principles of three information security specializations, namely, software security, network and cyber security, and systems/servers security administration. The third and fourth quarters of the second year are handled by the On-the-Job Training (In-House Training) to engage the students in theoretical and on-campus training on secure software development, network security, and servers security administration. At the first quarter of the third year, graduation project selection and preparation will take place. All students are required to complete a third year graduation project based on their selection on one of the offered topics of specializations. The second and third quarters of the third year is devoted to the On-the-Job Performance (Field training) based on their selected specialization. Abu Dhabi Polytechnic will host specialized training labs. By the last quarter of this year, students will use the experience gained at the OJT and OJP to finish their third year graduation project. Students who finish all requirements will receive their higher diploma certificate along with their professional licenses. Students can perform degree articulation to obtain the bachelor of engineering technology for students with high achievements in the higher diploma. A total of 180 credit hours is required for the Higher Diploma in Information Security Engineering Technology (HDISET). These 180 credit hours are fully prescribed under the following academic areas:

	Credit Hours
Humanities	12
Mathematics and Sciences	15
Info Technology & Security Fundamentals	41
Specialization Track Courses	94
On-the-Job Performance	18
	Total 180

The academic areas are further described by the following course titles and credit hours:

Humanities (Foundation Year)

First Year	**Credit Hours**
English for IT specialists I & II	4
Technical Communications I and II	3
Middle East Studies	2
Second or Third Year	
Islamic Civilization	3
	Total 12

Mathematics and Sciences

First Year	**Credit Hours**
Mathematics I and II	6
Discrete Mathematics	3
Introduction to Computer Electronics	3
Digital Logic and Design	3
	Total 15

Information Technology and Security Fundamentals

First Year	**Credit Hours**
Computer Hardware and Software Essentials	3
Intro to Programming & Problem Solving	3
Programming in Java I & II	6
Web Programming I & II	6
Computing Ethics	2
Logic Design and Computer Organization	3
Database Management Systems	3
Data Structure and Algorithm Design	3
Introduction to Software Security	3
Introduction to Computer Networks Security	3
Introduction to Operating Systems Security	3
Security in Computing	3
	Total 41

Secure Software Development

Second Year	**Credit Hours**
Secure Database Development I & II	8
Database Security (in-House)	3
Secure Database Development I (in-House)	3
Practical Requirements Engineering	3
Secure Web Development	3
Advanced Secure Java Programming	3
Information Systems Security	3
Fundamentals of C++ Programming	3
E-Commerce Security	3
Secure Mobile Application Development	3
Systems Analysis and Design	3
Cloud Computing Security	3
Desktop Software App. Development (in-House)	3
Secure Web Applications Develop. (In-House)	3
Software Project Management (in-House)	3
Human—Computer Interaction (in-House)	3
Secure Software Design and Implementation (in-House)	3
Web Applications Security (in-House)	3
Ethical Hacking (in-House)	3
Mobile Applications Security (in-House)	3
Third Year	
Web Infrastructure Security and Architecture	3
Object Oriented Analysis and Design	3
Advanced Mobile App. Development	3
Software Verification & Validation	3
Secure Embedded Systems Development I & II	5
Graduation Project I & II	3
Software Quality Assurance and Management	3
Selected Topics in Software Security	3
Penetration and Vulnerabilities Testing	3
On-the-Job Performance I & II	18

Fourth Year

Information Security Risk Management 3
Security Planning and Incident Handling 3
Information Assurance & Security Management 3
Enterprise Software Architecture & Design 3
Information Security Economics 3
Advanced Web Application Security 2
Information Warfare 3
Advanced Cryptology 3
Security Policy Design & Implementation 3
Info Security Governance & Compliance 3
Ethics, Law and Policy in Cyberspace 3
Critical Software Security Controls & Standards 2
Malware Analysis: Tools and Techniques 3
Organ. & Human Aspects of Info Security 3
Socio-technical Sec. Risk Modeling & Analysis 2
Elective Course 3
Software Security Trends 2
Field Training III 9

Network and Cyber Security

Second Year	**Credit Hours**
Routing and Switching I & II	6
Routing and Switching I & II (in-House)	6
Secure Network Design I & II	6
Secure Network Design I & II (in-House)	6
Network Security I & II	6
Wireless Networks	3
Wireless Networks Security	3
Wireless Networks Design (in-House)	3
Wireless Network Security (in-House)	3
Storage Networking I & II	4
Internet & Cyber Security	3
Ethical Hacking and Digital Forensics	2
Storage Networking I & II (in-House)	4
Applied Cryptography (in-House)	3
Ethical Hacking (in-House)	3

Third Year

Advanced Routing and Switching 3
Threats, Vulnerabilities, and Risk Analysis 3
Cloud Computing Security 3
Advanced Network Security 2
Advanced Wireless Networks Security 2
Graduation Project I & II 3
Security Architectures and Models 3
Information Systems Security 3
Advanced Network Design and Integration 3
Mobile Networks Security 2
Firewall and Intrusion Analysis 3
Selected Topics in Network Security 3
On-the-Job Performance I & II 18

Fourth Year

Privacy in a Networked World 3
Wireless Ethical Hacking and Defense 3
Advanced Mobile Device Security 3
Perimeter Protection 3
Advanced Cryptology 3
Information Assurance & Security Management 3
Virtualization and Private Cloud Security 3
Advanced Web Security 3
Information Warfare 3
Systems Embedded Security 3
Security Governance and Compliance 3
Malware Analysis: Tools and Techniques 3
Security Policy Design & Implementation 3
Advanced Pen Testing & Ethical Hacking 3
Ethics, Law and Policy in Cyberspace 3
Security Planning and Incident Handling 2
Elective course 2
Network Security Trends 2
Field Training III 9

Systems and Servers Security Administration

Second Year	**Credit Hours**
MS Windows Server Security I & II	6
MS Exchange Server Security I & II	6
Linux/Unix Operating System Security I & II	6
Database Systems Security	3
Microsoft SharePoint Server Security I & II	6
Critical Infrastructure Security	3
Client/Server Security Administration	3
MS Windows Server Security I & II (in-House)	6
MS Exchange Server Security I & II (in-House)	6
Linux/Unix Operating Systems Security I & II (in-House)	6
MS SharePoint Server Security I & II (in-House)	3
Database Application Server Admin (in-House)	3
Physical Security and Biometrics (in-House)	1
System Security Assessment	2

Third Year

MS Windows Server Security Administration I & II 6
MS Exchange Server Security Administration I & II 5
Linux/Unix Server Security Administration I & II 3
Advanced SharePoint Security II 2
Database Server Security Administration 3
Selected Topics in Systems Security 3
Graduation Project I & II 3
Penetration and Vulnerability Analysis 2
On-the-Job-Performance 18

Fourth Year

Malware Analysis: Tools & Techniques 3
Security Tools and Technologies: Windows 3
Information Assurance & Security Manag. 3
Virtualization and Private Cloud Security 3
Business Contingency Planning and Auditing 3
Information Warfare 2
Identity Management 3
Security Tools and Technologies: Linux/UNIX 3

Security Governance and Compliance 3
Systems Embedded Security 3
Ethics, Law and Policy in Cyberspace 3
Advanced Web Security 2
Adv. Sec. Essentials – Enterprise Defender 3
Perimeter Protection In-Depth 3
System Security Intelligence 3
Security Policy Design & Implementation 3
Elective course 3
Systems/Servers Security Trends 2
Field Training III 9

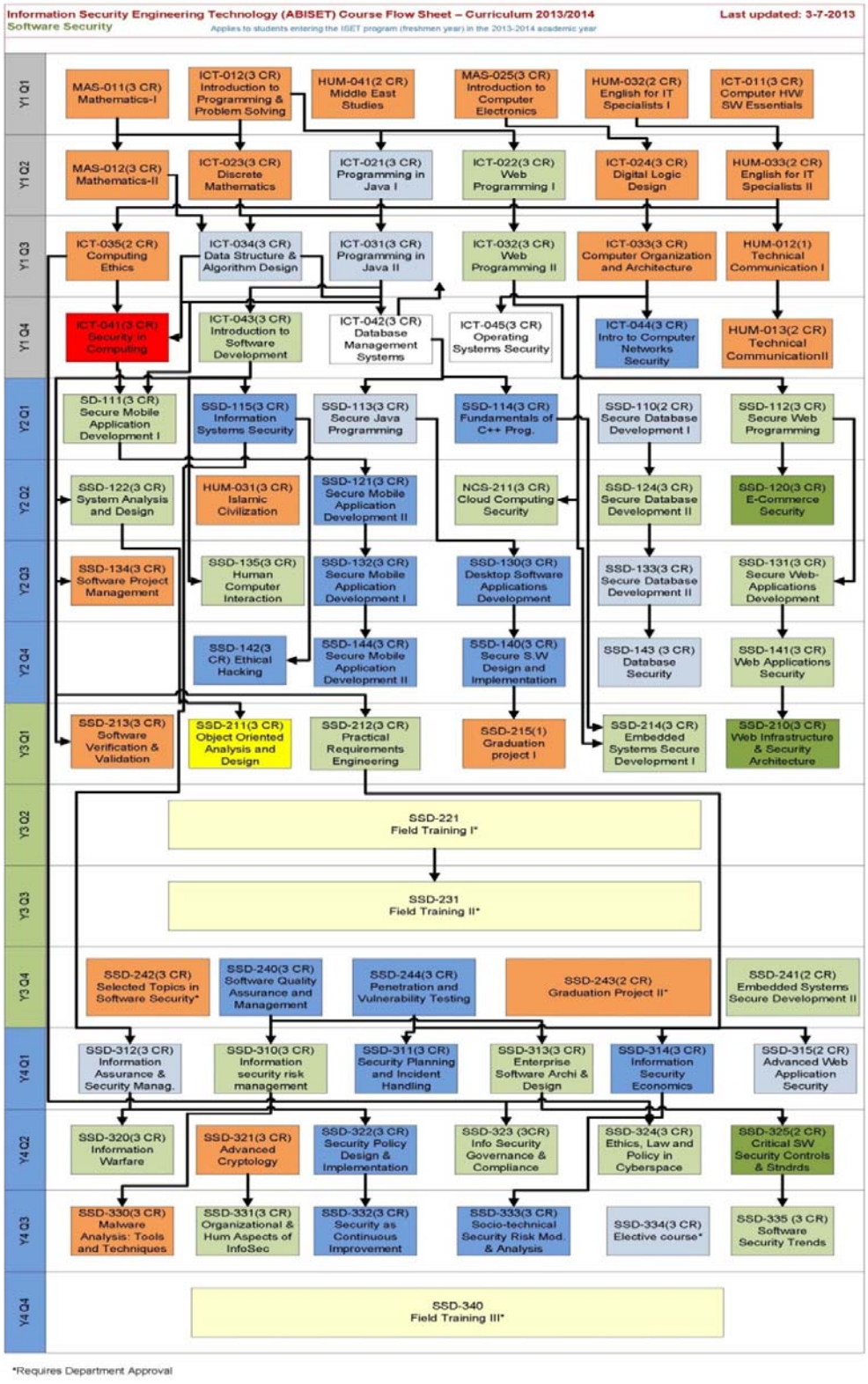


Figure 4: Flow sheet of ABISET Software Security specialization requirements.

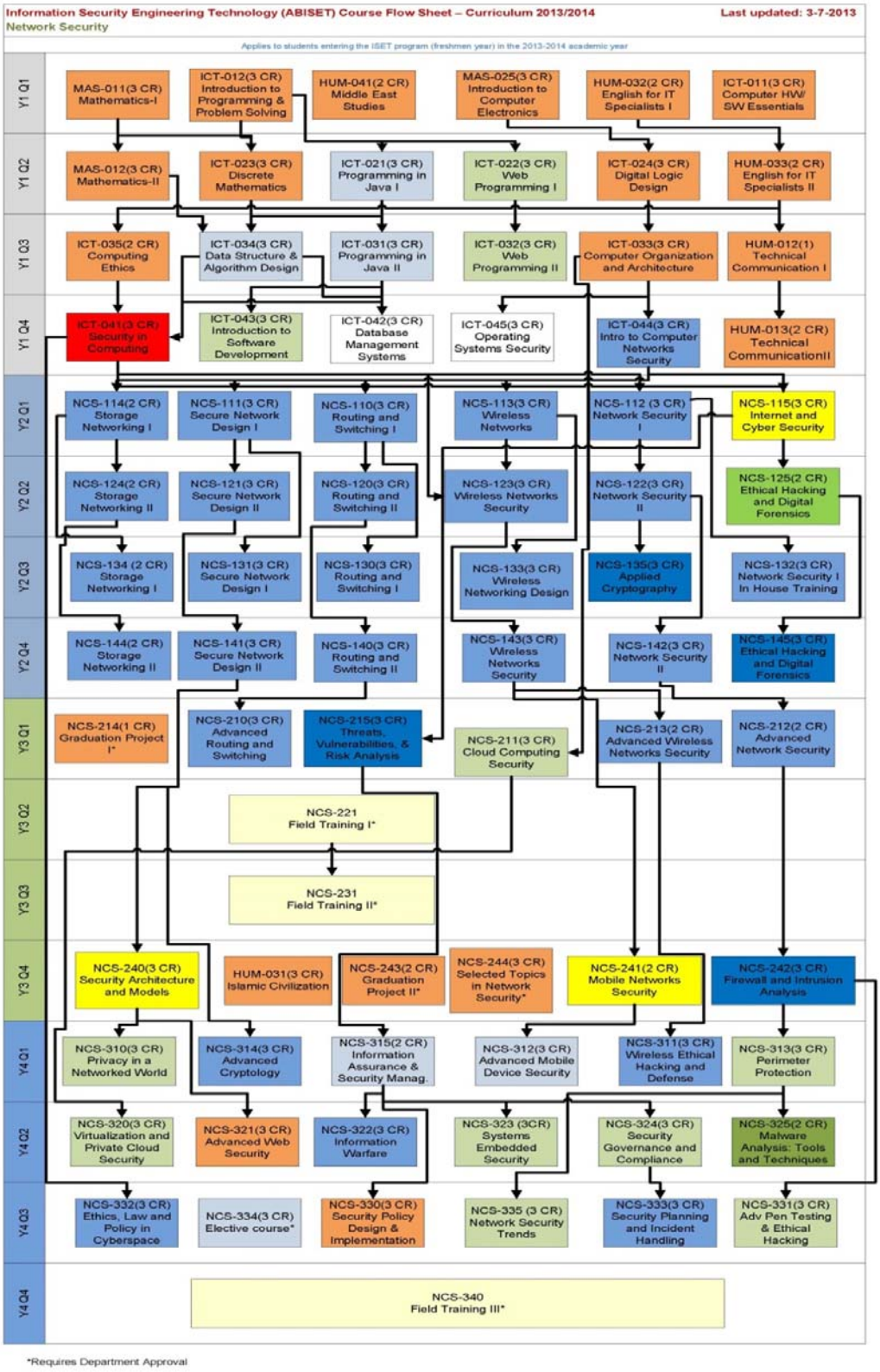


Figure 5: Flow sheet of ABISET Network Security specialization requirements.

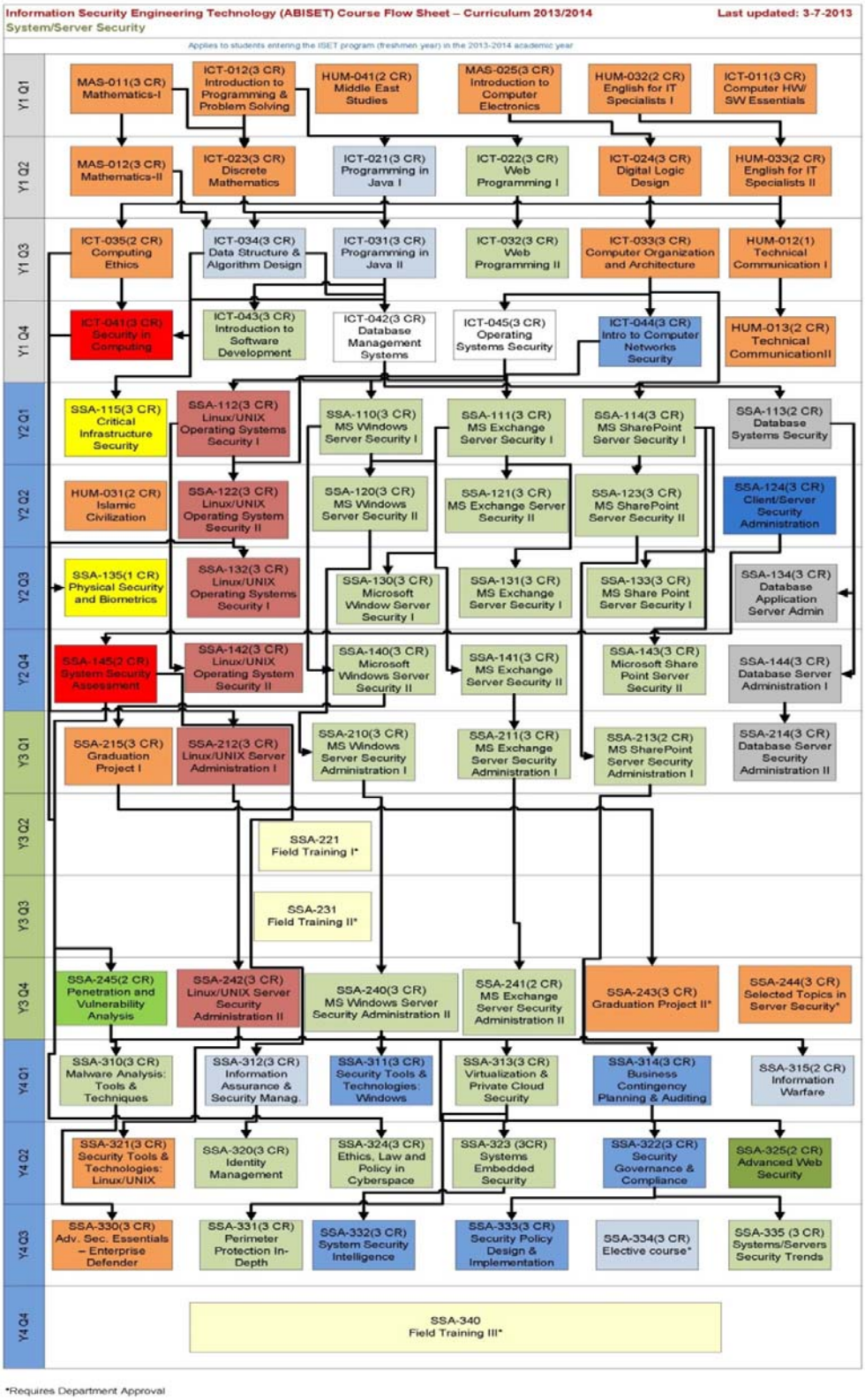


Figure 6: Flow sheet of HDISET System/Server Security specialization requirements.

Higher Diploma and Applied Bachelor in Petroleum Engineering Technology Degree Requirements

In order to reach petroleum engineering technology objectives, the students must receive the best possible preparation to enter petroleum industry. PET programme curriculum gives every student a solid foundation in petroleum and oil and gas process engineering fundamentals, and also insists on experience in the industry. As a result, PET graduates will enter the industry ready to be productive contributors, but they also will understand the need to continue to learn and improve their skills throughout their careers.

Petroleum Engineering Technology at Abu Dhabi Polytechnic offers the following specializations:

- Petroleum Engineering Technology with a minor in Oil and Gas Process Engineering
- Oil and Gas Process Engineering Technology

A total of 188 credit hours are required for the Higher Diploma in Petroleum Engineering Technology (HDPET) specialization and 248 credit hours for the Applied Bachelor in Petroleum Engineering Technology (ABPET) with a minor in Oil and Gas Process Engineering specialization. For Oil and Gas Process Engineering specialization, a total of 187 credit hours are required for the Higher Diploma and 245 credit hours for the Applied Bachelor. These credit hours are fully prescribed under the following academic areas:

Subject	**Credit Hours**			
	Petroleum Engineering Technology with a minor in "Oil and Gas Process Engineering"		**Oil and Gas Process Engineering technology**	
MAS, HUM, ENG, PET, OGP	**Higher Diploma (HD)**	**Applied Bachelor (AB)**	**Higher Diploma (HD)**	**Applied Bachelor (AB)**
Humanities	14	14	14	16
Math & Science	21	21	21	23
Engineering Fundamentals	33	33	30	30
ICT	3	3	3	3
Petroleum Engineering and Specialization Depth	117	176	119	173
Total	**188**	**247**	**191**	**245**

The academic areas are further described by the following course titles and credit hours:

Humanities (HUM)

Year	**Subject**	**Credit Hours**	
		Higher Diploma (HD)	**Applied Bachelor (AB)**
First Year	Study Skills	2	2
	English	2	2
	National Culture & Society	2	2
	Technical Communications	3	3
	English for Oil and Gas	3	3
Second Year	Islamic Civilization	3	3
Fourth Year	HUM Elective	-	2*
	Total	**15**	**17**

*For Oil and Gas Process Engineering students only.

Mathematics and Sciences (MAS)

Year	**Subject**	**Credit Hours**	
		Higher Diploma (HD)	**Applied Bachelor (AB)**

First Year	Mathematics I, II, & III Physics I & II Chemistry I & II	9 6 6	9 6 6
Fourth Year	MAS Elective	-	2*
	Total	**21**	**23**

*For Oil and Gas Process Engineering students only.

Information and Communication Technology (ICT)

Year	Subject	Credit Hours	
		Higher Diploma (HD)	Applied Bachelor (AB)
First Year	Introduction to Programming & Problem Solving	3	3
	Total	**3**	**3**

In the first four quarters of the first year, general mathematics, science, English language, national culture, engineering fundamentals, an introduction to petroleum industry and one specialization course are offered to prepare solid ground for the students for their subsequent years of study (second, third and fourth) that involves both On-Campus Training (OCT) and On-the-Job Training (OJT). The fourth quarter offers supplementary courses of basic engineering and non-fundamental engineering materials along with basic principles of statics and dynamics to provide materials in the main fields of electrical, mechanical and thermal engineering.

Engineering Fundamentals (ENG)

Year	Subject	Credit Hours			
		Petroleum Engineering		Oil and Gas Process Eng	
		HD	AB	HD	AB
First Year	Industrial Safety and Pro. Ethics	2	2	2	2
	Engineering Graphics	2	2	2	2
	Schematics and Mech. Diagrams	3	3	3	3
	Mechanical Workshop	3	3	3	3
	Introduction to Electrical Technology	3	3	3	3
	Applied Instrumentation and Control	3	3	3	3
	Thermodynamics	3	3	3	3
	Mechanical Technology I	3	3	3	3
	Applied Electrical Technology	3	3	3	3
Second Year	Engineering Mechanics	2	2	2	2
	Mechanical Technology II	3	3	3	3
	Heat Transfer & Fluid Flow	3	3	-	-
	Total	**33**	**33**	**30**	**30**

Petroleum Engineering Depth (PET)

Year	Subject	Credit Hours	
		Higher Diploma (HD)	Applied Bachelor (AB)
First Year	Intro. to Petroleum Industry	3	3
Second Year	Applied Safety	2	2
	On-the-Campus Training	30	30
Third Year	Graduation Project	2	2
	Project Management	2	2
	Applied Health	2	2
	On-the-Campus Training	15	15
	Pet. Eng. Numerical Methods	3	3
Fourth Year	Advanced Eng. Mathematics Petroleum Economics Graduation Project	- - -	3 2 2

	Special Topics in PET	-	3
	Applied Environment	-	2
	PET Technical Elective	-	2
	Total	**59**	**73**

The Higher Diploma and Applied Bachelor programme, at the first and second quarters of the second year of PET programme are designed to develop the basic principles of specializations knowledge namely "petroleum engineering technology with a minor in Oil and Gas Process Engineering" and "oil and gas process engineering technology" as well as integrating the related topics of fundamental subjects. All courses offered up to this point are designed to provide students with solid ground for the On-Campus Training that will be conducted during the third and fourth quarters of the second year.

The thirds and fourth quarters of the second year are handled by the on-campus Petroleum Engineering Training programme to engage the students in theoretical and on-campus training on Petroleum Engineering operation units. The second year subjects are designed to support the following parts of the programme in the third year and to establish foundations from which Higher Diploma graduates can build a range of evolving knowledge and skills. The subjects in year three are designed to provide both further consolidation and specialized knowledge suitable to higher technician and applied engineers levels. At this year, first quarter will offer advanced topics of Petroleum Engineering and specializations. All students are required to complete a third year graduation project based on their selection on one of the offered topics of specializations. The second quarter of the third year is devoted to the On-the-Campus training while the third quarter is allocated for either petroleum engineering technology minor courses or oil and gas process engineering technology on-the-job training. Based on their selected specialization, students will spend quarters 3 (third year) and 4 (fourth year) in specialized Abu Dhabi National Oil Company (ADNOC) training that is called on-the-job training (OJT). During the OCT and OJT, students' performance will be assessed and accordingly will receive their professional technical license to work. In the last quarter of third year, students will use the experience gained at the OJT to finish their third year project. Students who finish all requirements will receive their higher diploma certificate along with their professional licenses if they were admitted to higher diploma program and decide to do so or if required by their sponsorship.

Specializations Depth

Petroleum Engineering Technology (PET)

Year	Subject	Credit Hours	
		Higher Diploma (HD)	**Applied Bachelor (AB)**
First Year	Petroleum Geology	3	3
Second Year	Reservoir Rock Properties	3	3
	Drilling Technology I	2	2
	Logging and Formation Evaluation	4	4
	Reservoir Fluid Properties	3	3
	Reservoir Engineering I	3	3
Third Year	Drilling Technology II	3	3
	Geomechanics	3	3
	Well Testing	2	2
	On-Campus-Training	15	15
	On-the-Job Training	15	-
	Minor courses	-	18
	Well completion	4	4
	Production Logging	4	4
	Petr. Production Fundamentals	3	3
	Unconv. Res. Completion & Stim.	3	3
Fourth Year	Equipment Design and Selection	-	3
	Reservoir Engineering II	-	3
	Gas Production Engineering	-	3

	Artificial Lift Methods	-	4
	Advanced Drilling Engineering	-	3
	Enhanced Oil Recovery	-	3
	Reservoir Simulation	-	4
	Applied Water Technology & Corrosion	-	2
	Production Enhancement	-	3
	On-the-Job Training	-	14
	Total	**70**	**115**

Students admitted for the Applied Bachelor and those who obtained a Higher Diploma with high achievements who are interested (or required by their sponsors) to pursue their studies will continue studying for one more year (fourth year) to obtain an Applied Bachelor in Petroleum Engineering Technology. Senior level (fourth year) subjects include advanced classes in engineering disciplines and specializations along with three approved elective courses (one per each quarter). Approved elective courses may be chosen from a variety of subjects to suit each student disciplinary background, oil and gas industry interests, and professional project area. A graduation design project has to be completed by the end of the third quarter of fourth year. The last quarter in the programme (16^{th}) is allocated for the second quarter of on-the-job training. Figures 7 and 8 below show the sequence and results of the Higher Diploma and Applied Bachelor for "petroleum engineering technology" and "oil and gas process engineering technology" PET programme specializations, respectively.

Oil and Gas Process Engineering Technology (OGP)

Year	Subject	Credit Hours	
		Higher Diploma (HD)	Applied Bachelor (AB)
First Year	Organic Chemistry	3	3
Second Year	Equilibrium Thermodynamics	2	2
	Fluid Mechanics	3	3
	Mass Transfer Operations I	3	3
	Elementary Petro. Process Eng.	2	2
	Physical Chemistry	3	3
	Chemical Reactors and Mixing	4	4
	Process Heat Transfer	3	3
Third Year	Analytical Chemistry	3	3
	Mass Transfer Operations II	4	4
	Surface Prod. Operation Facilities	2	2
	Gas Processing and Treatment	3	3
	On-the-Job Training	14	14
	Petroleum Storage and Loading	2	2
	Water Treatment and Injection	4	4
	Intro. to Refinery Processes	4	4
	Process Equipment Drawing	1	1
Fourth Year	Chemical Reactor Design	-	4
	Utility Systems and Operations	-	2
	Petroleum Refinery	-	3
	Process Modeling, Sim. & Opt.	-	3
	Petrochemicals	-	3
	Plant and Equipment Design	-	4
	Process Dynamics & Control	-	3
	On-the-Job Training	-	14
	Total	**60**	**96**

Policy for Assignment of Student Specializations

The PET programme at Abu Dhabi Polytechnic uses the following process to assign specializations to each student:

1. Students will be informed in quarter 3 of year 1 of the policy for assignment of specializations and the constraints on size and schedule for each specialization.
2. Students have to fill out Specialization Selection Form by the end of quarter 3 of year 1 and submit it to the head of department.
3. Division Head or the programme Specialization Assignment Committee (an Ad Hoc Committee under the Academic Affairs Committee) determines whether the distribution of specializations fits the students sponsorships, workforce plan and the training schedule, then students will be informed about their specialization preference approval.

PET Programme Completion Requirements

The technical content of the HD and AB in PET programme focuses on the applied aspects of science and engineering in that portion of the technological spectrum closest to technician and engineering operational functions. The technical content develops the skills, knowledge, methods, procedures, and techniques associated with the technical specializations and are appropriate to the goals of the programme.
Using credit hours to evaluate technical content, the breakdown of the credit hours required for the HD and AB in PET is given in the following table:

Subject	**Credit Hours**							
	Petroleum Engineering				**Oil and Gas Process Engineering**			
MAS, HUM, ICT, ENG, PET, OGP	**Higher Diploma (HD)**	**Percent**	**Applied Bachelor (AB)**	**Percent**	**Higher Diploma (HD)**	**Percent**	**Applied Bachelor (AB)**	**Percent**
Humanities	15	8	17	7	15	8	17	7
Math & Science	21	11	23	9	21	11	23	10
Engineering Fundamentals	36	19	36	15	33	18	33	14
ICT	3	2	3	1	3	2	3	1
Petroleum Engineering Depth+	59	30	73	29	59	30	73	29
Specialization Depth	54	29	96	39	60	32	96	40
Total	**188**	**100**	**247**	**100**	**191**	**100**	**245**	**100**

+ includes on-the-job training (14 credit hours for HD and 28 credit hours for AB)

Higher Diploma:

Just under 2/3 (≈ 62%) of the credit hours are devoted to the student's technical programme and specialization. Just over 1/3 (≈ 38%) of the credit hours are general to both specializations (humanities, mathematics and sciences, and engineering fundamentals).

Applied Bachelor:

Just above 2/3 (71%) of the credit hours are devoted to the student's technical programme and specialization. Just below 1/3 (29%) of the credit hours are general to both specializations (humanities, mathematics and sciences, and engineering fundamentals).

The technical content of the curriculum consists of a technical core and the increasingly complex technical specialties found later in the curriculum culminating in a one and a two-quarter apprenticeship at a petroleum facility for HD and AB degree students, respectively. Using ADNOC competency assurance management system (CAMS) as a guide, the technical content was developed to provide the prerequisite foundation of knowledge necessary for the technical specialties according to the petroleum industry standards.

Laboratory activities are an integral part of the sciences, engineering fundamentals, and specialization courses and are used to develop student competence in the use of analytical and measurement equipment common to the discipline and appropriate to the goals of the programme.

Technical courses are meant to develop student knowledge and competence in the use of standard design practices, tools, techniques, and computer software appropriate to the oil and gas upstream and downstream processes maintenance and operation.

After all credit hours in the prescribed courses have been completed for HD or AB degrees, respectively, with a satisfactory grade, the student will have completed the programme requirements and be eligible for conferral of the Higher Diploma and/or Applied Bachelor in Petroleum Engineering Technology. The Job Qualification Certificate is not a requirement for graduation.

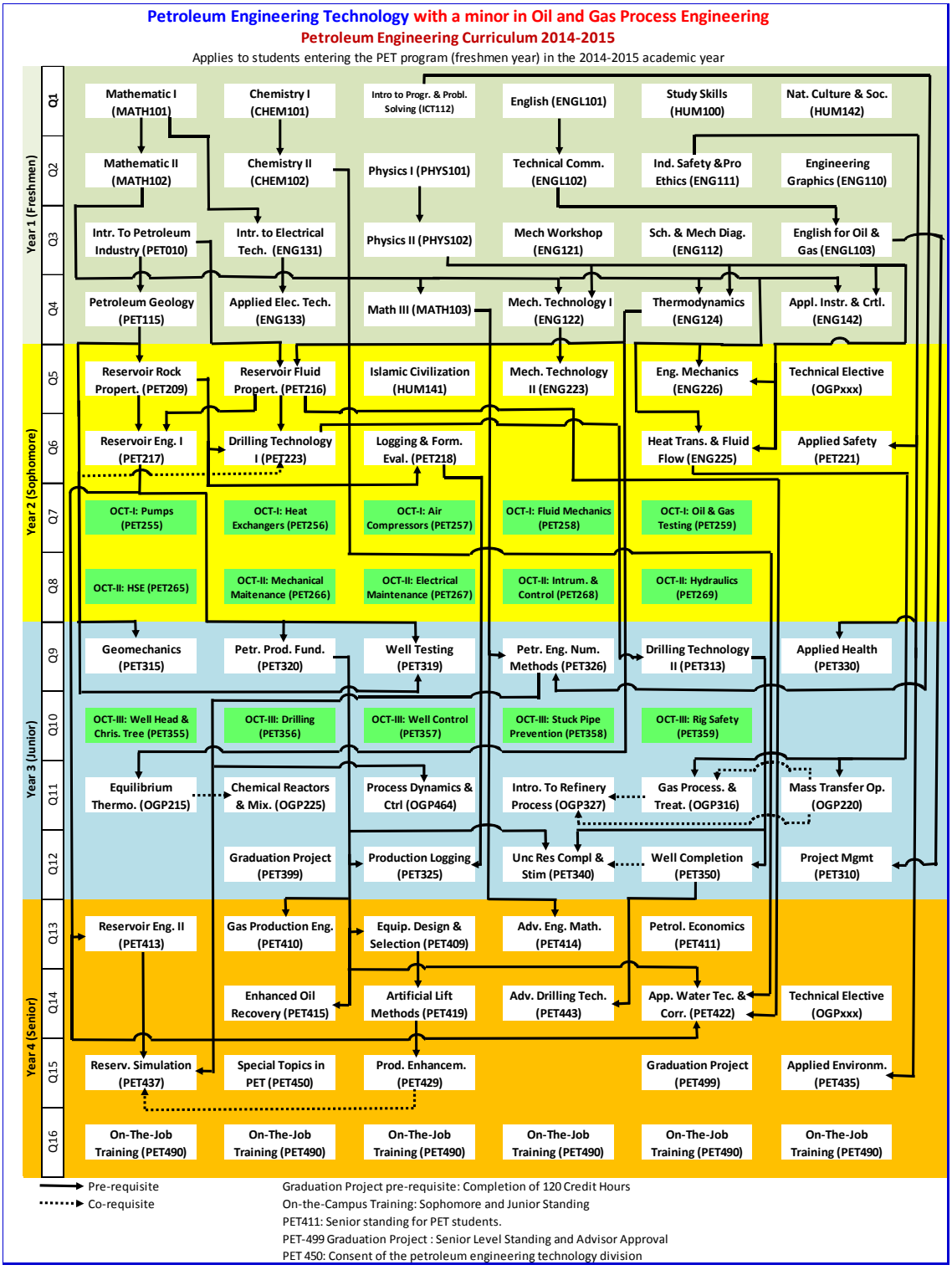


Figure 7: Flow sheet of Petroleum Engineering Technology with a minor in Oil and Gas Process Engineering specialization requirements.

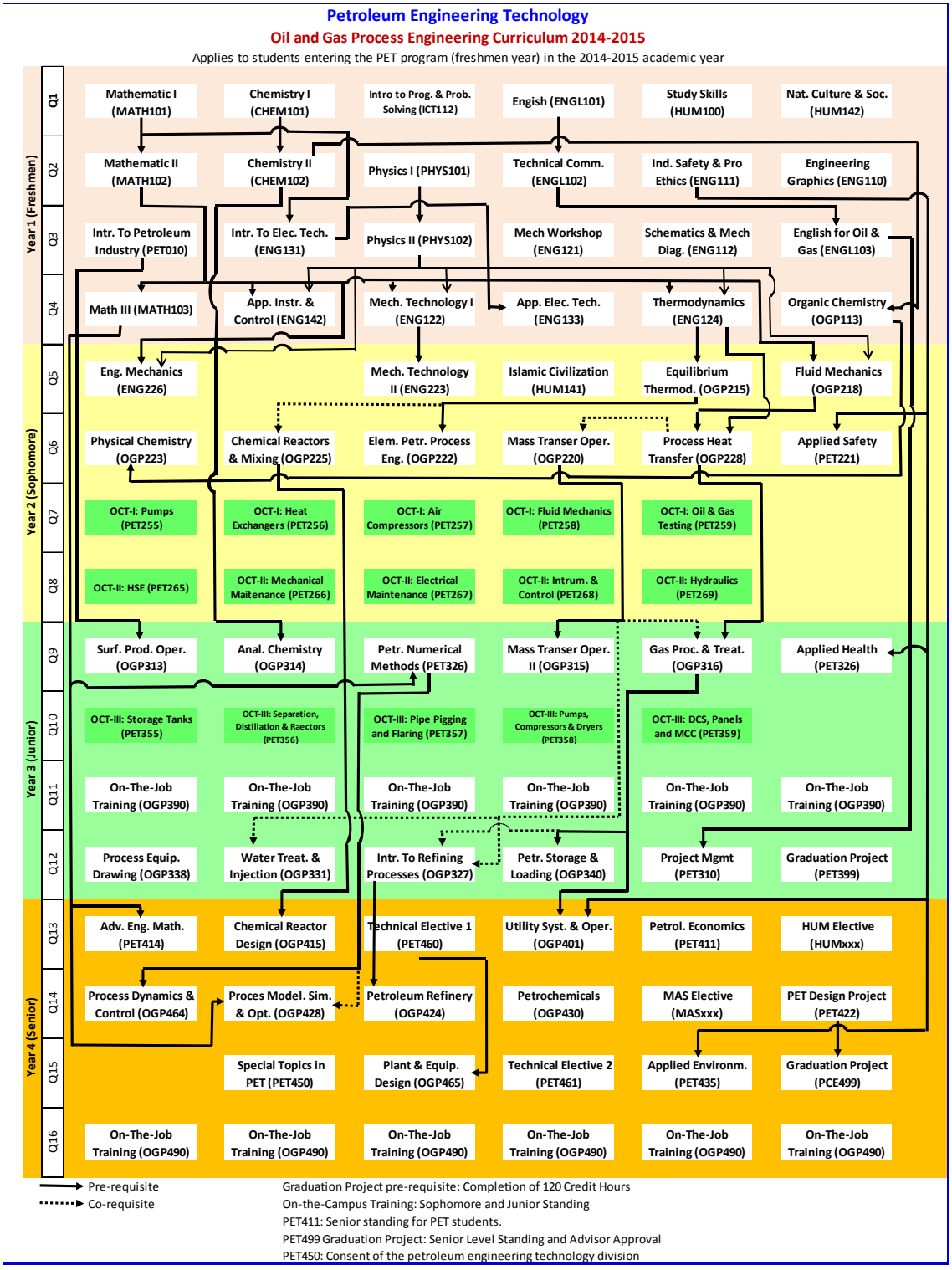


Figure 8: Flow sheet of Oil and Gas Process Engineering specialization requirements.

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

In order to achieve Meteorology Science (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.

MET at Abu Dhabi Polytechnic offers the specialization of Meteorology Science for Diploma, Higher Diploma and Bachelor Degrees.
A total of 120 are required for Diploma, 181 credit hours are required for the Higher Diploma and 243 credit hours for the Bachelor of Science in Meteorology Science. These credit hours are fully prescribed under the following academic areas:

Subject	Meteorology Science		
	Diploma (D)	Higher Diploma (HD)	Bachelor of Science (B.Sc.)
Humanities	15	15	15
Math & Science	27	30	30
Engineering Fundamentals	2	2	2
ICT	5	7	7
Meteorology Depth	56	94	123
Elective	0	3	6
OCT and OJT	15	30	60
Total	**120**	**181**	**243**

The academic areas are further described by the following course titles and credit hours:

Humanities (HUM)

Mathematics and Sciences (MAS)

Year	Subject	Credit Hours		
		Diploma (D)	Higher Diploma (HD)	Applied Bachelor (AB)
First Year	Mathematics I, II, III & IV Physics I & II Chemistry I & II Statistics	12 6 6 3	12 6 6 3	12 6 6 3
Second Year		-	-	-
Third Year	Advance Mathematics	-	3	3
Total		**27**	**30**	**30**

Information and Communication Technology (ICT)

Year	Subject	Credit Hours		
		Diploma (D)	Higher Diploma (HD)	Bachelor of Science (B.Sc.)
First Year	Introduction to Programming & Problem Solving	3	3	3
Second Year	Modeling and Simulations I	2	2	2
Third Year	Modeling and Simulations II	-	2	2
Total		**5**	**7**	**7**

In addition to humanities, mathematics and science and computing courses, in the first two years of their study students will study principles of meteorology, physics of the atmosphere, and the basics courses of weather observations. In the first four quarters of the first year, general mathematics, science, English language, national culture, engineering fundamentals, fundamentals and physics of meteorology and two specialization courses for weather observations are offered to prepare solid ground for the students for their subsequent years of study (second, third and fourth) that involves both On-Campus Training (OCT) and On-the-Job Training (OJT). In the second year, the students will continue studying weather observation courses for preparing meteorological technicians, who will finish his/her study at the end of the second year. The third quarter will be on-the-job training, which is focusing on sharpening their skills as a meteorological technician. On the third year, the focus will be on further development of their knowledge and skills on weather forecasting. In the third quarter of this year, the students will have on-campus-training which will give them practical skills by reviewing the weather observer topics and introduce them with knowledge and skills of weather forecasting assistants. At the end of the third year, the student will have the opportunity to finish his/her study and get a higher diploma and works as a weather forecaster assistant.

Advanced courses in meteorology, one on-campus training and one on-job-training are offered for students proceeding their education for achieving the bachelor degree in meteorology science. For successfully finishing their undergraduate education, students shall complete a directed research project in their senior year. The following table shows the detailed specialization depth for the Diploma, Higher Diploma and Bachelor Degrees of Meteorology Science.

Meteorology Science Depth

Year	Subject	Credit Hours		
		Diploma (D)	**Higher Diploma (HD)**	**Bachelor of Science (B.Sc.)**
First Year	Introduction to Meteorology	3	3	3
	Meteorological Instruments	3	3	3
	Physical Meteorology I	3	3	3
	Weather Observation Methods	3	3	3
Second Year	Maps & GIS	3	3	3
	Thermodynamical Meteorology	4	4	4
	Intern'l Meteorological Code	3	3	3
	Physical Meteorology II	3	3	3
	Meteorology and Computing	3	3	3
	Climatology	3	3	3
	Aviation Meteorology	3	3	3
	Agrometeorology	3	3	3
	Dynamical Meteorology I	4	4	4
	Weather Charts Plotting	2	2	2
	Introduction to Weather Analysis	2	2	2
	Hydrology	3	3	3
	Basic Electronics for Meteorology	3	3	3
	Oceanography	3	3	3
	Synoptic Meteorology I	3	3	3
	On-the-Job Training	15	15	15
Third Year	Atmospheric Remote Sensing	-	3	3
	Dynamical Meteorology II	-	4	4
	Weather Charts Analysis I	-	3	3
	Synoptic Meteorology II	-	3	3
	Numerical Weather Prediction	-	4	4
	Environmental Issues	-	3	3
	Marine Meteorology	-	3	3

	Weather Charts Analysis II	-	3	3
	Air Pollution	-	3	3
	Numerical Weather Analysis	-	3	3
	Satellite Meteorology	-	3	3
	Radar Meteorology	-	3	3
	On-the-Campus Training	-	15	15
Fourth Year	Regional Synoptic Meteorology	-	-	3
	Tropical Meteorology	-	-	3
	Mesometeorology	-	-	3
	Global Climate Changes	-	-	3
	Water Resources Management	-	-	3
	Climate Data Management	-	-	3
	Long range Weather Forecasts	-	-	2
	Severe Weather	-	-	3
	Boundary layer Meteorology	-	-	3
	Project	-	-	3
	On-the-Campus Training	-	-	15
	On-the-Job Training	-	-	15
Total		**72**	**125**	**184**

MET Programme Completion Requirements

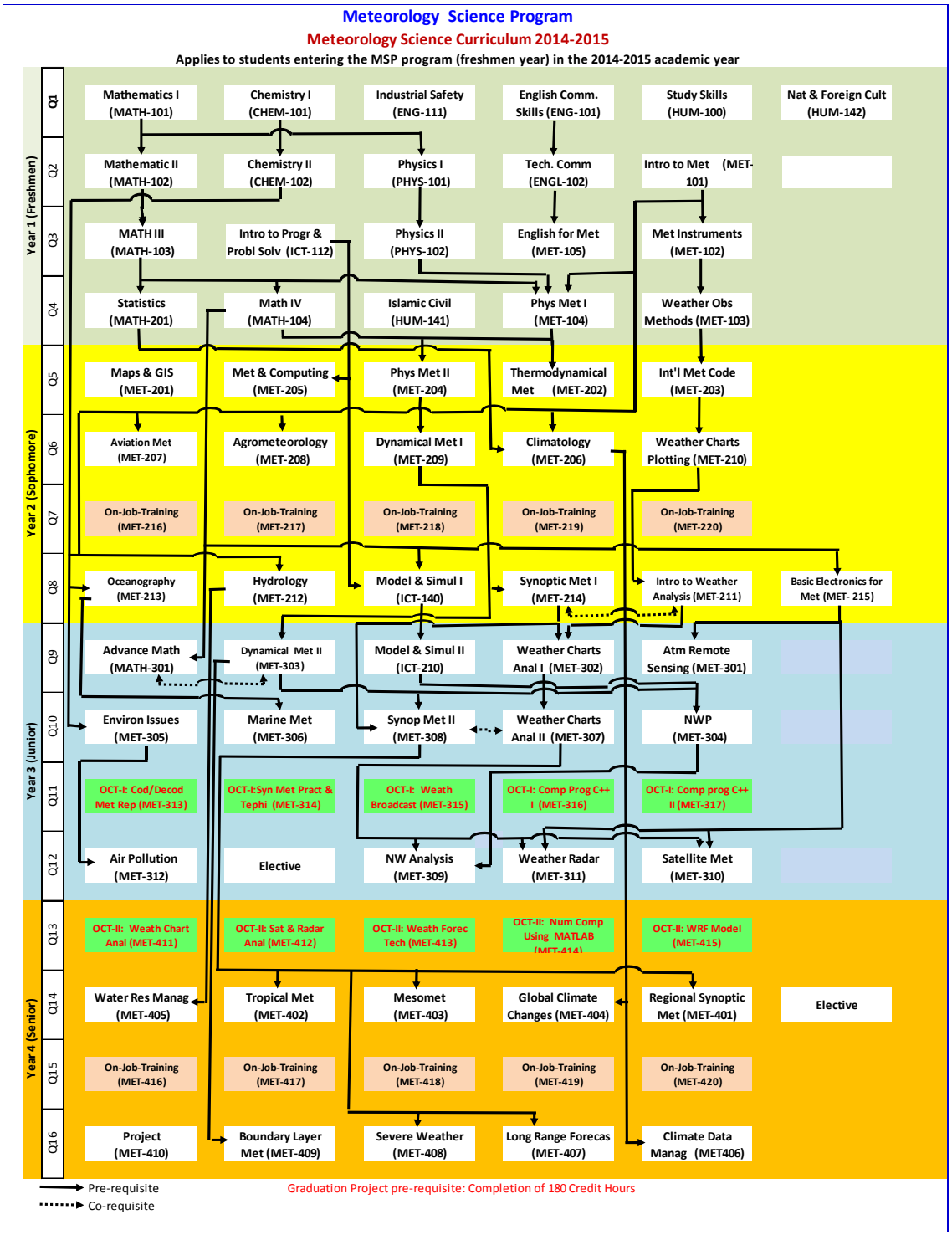
The technical content of the D, HD and B.Sc. in MET programme focuses on the applied aspects of meteorology science in that portion of the technological spectrum closest to practical functions. The practical content develops the skills, knowledge, methods, procedures, and techniques associated with the meteorology specialization and are appropriate to the goals of the programme.
Using credit hours to evaluate practical content, the breakdown of the credit hours required for the D, HD and B.Sc. in MET is given in the following table:

Subject	**Credit Hours**					
	Meteorology Science					
	Diploma (D)		**Higher Diploma (HD)**		**Bachelor of Science (B.Sc.)**	
	Credit Hours	**Percent** (%)	**Credit Hours**	**Percent** (%)	**Credit Hours**	**Percent** (%)
Humanities	15	12.5	15	8.3	15	6.2
Math & Science	27	22.5	30	16.6	30	12.3
Engineering Fundamentals	2	1.7	2	1.1	2	0.8
ICT	5	4.1	7	3.9	7	2.9
Meteorology Depth	56	46.7	94	51.9	123	50.6
OJT & OCT	15	12.5	30	16.6	60	24.7
Elective	-	-	3	1.6	6	2.5
Total	**120**	**100**	**181**	**100**	**243**	**100**

Laboratory and practical activities are an integral part of the sciences, engineering fundamentals, and specialization courses and are used to develop student competence in the use of analytical methods and measurement equipment common to the discipline and appropriate to the goals of the programme.
Courses with laboratory and practical activities are meant to develop student knowledge and competence in the use of standard design practices, tools, techniques, and computer software appropriate to the

development of their hand-on skills and understanding of the various topics of meteorology career.
After all credit hours in the prescribed courses have been completed for HD or AB degrees, respectively, with a satisfactory grade, the student will have completed the programme requirements and be eligible for conferral of the Diploma, Higher Diploma and/or Bachelor Degree in Meteorology Science.
The Flow sheet of Meteorology Science Specialization is shown in the following figure. The figure shows the Prerequisite and Co-requisite courses of the Meteorology Science Program.

Flow sheet of Meteorology Science Specialization



11.Academic Calendar for 2014-2015

Directive (03)/2014

AD Polytechnic Academic Calendar 2014/2015

Quarter-1 (2014)

Sun	24 Aug 2014	New faculty report to work
Sun – Thurs	24 Aug – 28 Aug '14	Skills for Life (S4L)
Sun	31 Aug 2014	All Faculty Return
Sun	**31 Aug 2014**	**Quarter-1 classes begin**
Mon	01 Sep 2014	New student orientation by Heads
Mon	01 Sep 2014	Registration of NEW Students
Tue	02 Sep 2014	Registration; add and drop last day
Sun – Tues	05 - 07 Oct 2014	**Observing Arafat and Eid Al Adha (TBC)**
Sun-Thurs	12 – 16 Oct 2014	Mid QTR Exams
Sun-Thurs	19 – 23 Oct 2014	Early registration for Quarter 2 starts
Sat	25 Oct 2014	**Hijri New Year (TBC)**
Sun – Thu	09 – 13 Nov 2014	Quarter 1 Final Exams
Sun-Thu	**16 Nov-20 Nov '14**	**Quarter 1 Break**

Quarter-2 (2014-2015)

Sun	**23 Nov 2014**	**Quarter-2 Classes Begin**
Sun-Mon	23 - 24 Nov 2014	Registration; Add and drop last day
Tues-Wed	02-03 Dec 2014	UAE National Day
Sun-Wed	28 – 31 Dec 2014	Mid QTR exams
Thurs	01 Jan 2015	New Year
Sat	03 Jan 2015	**Prophet's Birthday (TBC)**
Sun - Thurs	18-22 Jan 2015	Early registration for Quarter 3 starts
Sun - Thurs	01 – 05 Feb 2015	Quarter 2 Final Exams
Sun - Thurs	**08 - 12 Feb 2015**	**Quarter 2 Break**

Quarter-3 (2015)

Sun	**15 Feb 2015**	**Quarter-3 Classes Begin**
Tues	17 Feb 2015	Registration; Add and drop last day
Sun - Thurs	22 – 26 March 2015	Mid QTR exams
Sun -Thurs	19 - 23 April 2015	Early registration for Quarter 4 starts
Sun - Thurs	26 – 30 Apr 2015	Final Exams Quarter 3
Sun - Thurs	**03 - 07 May 2015**	**Quarter 3 Break**

Quarter 4 (2015)

Sun	**10 May 2015**	**Quarter-4 Classes Begin**
Tues	12 May 2015	Registration; Add and drop last day
Sat	16 May	**Israa & Miaraj (TBC)**
Sun - Thurs	14 – 18 June 2015	Mid QTR exams
Sun - Thurs	05 – 09 July 2015	Early registration for 2015–2016 First QTR
Sun – Thurs	12 – 16 Jul 2015	Final Exams Quarter 4
Sun - Thurs	**19 Jul – 20 Aug 2015**	**Summer Break - 4 weeks (plus 1 week of Eid holidays)**
Sun	**23 Aug 2015**	**All Faculty return**
Mon - Thurs	17 – 27 Aug 2015	Skills for Life (S4L)

TBC: To be confirmed

– End –

Directive (03)/2014 AD Polytechnic Academic Calendar 2014/2015 2/2

12.Course Descriptions

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

Advanced Energy Systems (AES)

AES-011 Nuclear Technology (2 CR)
This course introduces comprehensive knowledge of current world leading nuclear technology, history of nuclear science, and other technologies including nuclear safety, license, regulations, and NPP radioactive waste management.
Lecture 2 hrs/wk, Tutorial 3 hrs/wk.

AES-012 Nuclear Industry (2 CR)
This course introduces comprehensive knowledge of current world nuclear industry fields including design, manufacturing, construction, operation, Public Acceptance (PA), and Quality Assurance (QA) programme related to NPP.
Lecture 2 hr/wk, Tutorial 4 hrs/wk.

AES-021 Introduction to Nuclear Reactor Theory (3CR)
This course provides basic concepts and theories associated with the theory of the fission process (delayed and prompt neutrons, thermal and fast neutrons); control of fission process; neutron flux effects on reactor power; neutron leakage; fission products; neutron sources; radiation from fission and from fission products; and, residual heat/decay heat.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

AES-022 Nuclear Reactor Operation (3CR)
This course covers basic reactor operation including reactor core characteristics, reactor core parameters, reactivity coefficients and control, reactor startup and shutdown, reactivity variations, and reactivity control methods.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

AES-031 Reactor and Auxiliary Systems (4 CR)
This course provides comprehensive knowledge of Reactor and Auxiliary Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 4 hrs/wk, Prac Training 2 hrs/wk, Tut 2 hrs/wk.

AES-032 Steam Generator and Auxiliary Systems (4 CR)
This course provides comprehensive knowledge of Steam generator and Auxiliary Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 4 hrs/wk, Prac Training 2 hrs/wk, Tut 2 hrs/wk.

AES-033 Turbine, Generator, and Auxiliary Systems (4 CR)
This course provides comprehensive knowledge of Turbine, Generator, and Auxiliary Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 4 hrs/wk, Prac Training 2 hrs/wk, Tut 2 hrs/wk.

AES-034Electrical & Monitoring Systems (2 CR)
This course provides comprehensive knowledge for Electrical and Monitoring Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation

experiences of NPPs.
Lec 2 hrs/wk, Prac Training 2 hrs/wk, Tut 2 hrs/wk.

AES-035 Miscellaneous Systems (1 CR)
This course provides comprehensive knowledge of Miscellaneous Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 1hr/wk, Prac Training 2 hrs/wk, Tut 3hrs/wk.

AES-036 Safety Systems (4 CR)
This course provides comprehensive knowledge of Safety Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 4 hrs/wk, Prac Training 2 hrs/wk, Tut 3hrs/wk.

AES-037 Protection & Control Systems (4 CR)
This course provides comprehensive knowledge of Protection and Control Systems of NPPs and specific knowledge including system function, design basis, components, operation, and operation experiences of NPPs.
Lec 4 hrs/wk, Prac Training 2 hrs/wk, Tut 3hrs/wk.

AES-041 Nuclear Safety (3CR)
This course deals with basic concepts of Design Basis Accident (DBA) of NPPs, severe accidents, accident analysis, principles and methods for assessing risk and reliability. The course also covers several safety parameters and safety analysis of NPPs and safety improvement, international cooperation and trend.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

AES-042 Radiation Protection (3CR)
This course provides detailed radiological protection theory and techniques, radiation detection and measurement principles, radiological survey and analysis instruments, radioactive material control, environmental considerations and emergency planning.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

AES-043 Nuclear Regulations (3 CR)
This course introduces international codes and standards of nuclear industry fields and regulations including nuclear acts and subordinate codes, and technical specifications of APR1400 NPP. Through this course students can acquire practical knowledge of the regulations of NPP operation and administration.
Lecture 3 hrs/wk, Tutorial 6 hrs/wk.

AES-044 Nuclear Materials (3 CR)
This course introduces basic concepts and applications of nuclear materials, and provides the essential knowledge of materials science including modified structure of material, mechanical properties, as well as the effects of radiation and environment on material properties.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

AES-045 Radiation Measurement (3 CR)
This course introduces comprehensive knowledge of radiation basics including radiation sources, radiation interactions and provides essential knowledge of general properties of radiation detectors, radiation measurement and technologies.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

AES-051 Graduation Project I (3CR)
This course provides topic subject classes to students, helps them prepare a graduation project, and garners interest in critical issues in NPP operation and maintenance. Topics include Safety Culture, Probabilistic Safety Assessment, Risk Informed Regulation, Severe Accident Management, Emergency Operation, Root Cause Analysis, Steam Generator Management Plan, Life Cycle Management, Maintenance Rule, and Preventive Maintenance.
Lecture 3 hrs/wk, Tutorial 6 hrs/wk.

AES-052 Graduation Project II (3 CR)
This course provides guidelines for the students to write, present, and defend their findings in their graduation project work in AES-051.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

AES-053 Work-Based Learning (3 CR)
This course provides practical experience at the workplace in a nuclear power plant.
Laboratory 9 hrs/wk.

On-the-Job Training

The following courses (AES-061 through AES-625) are implemented by training providers associated with the Korea Hydro and Nuclear Power Company at the Shin-Kori Nuclear Power Plant in Busan, South Korea and are taught as in-series modules.

AES-061 NPP Orientation (1 CR)
This course provides general knowledge and skills for working at NPP including industrial safety, security programme, firefighting, and administration procedures for access control of NPP radioactive areas.

AES-062 NPP Maintenance Fundamentals(3 CR)
This course provides knowledge and skills of general tasks carried out in NPPs for mechanical maintenance and machinery management in the Mechanical Department, electrical maintenance and equipment management in the Electrical Department, and instrumentation and control (I&C) maintenance and equipment management in the I&C Department.

AES-063 NPP Operation Support(2 CR)
This course provides knowledge and skills of general tasks carried out in NPPs in Operation Support Department, Radiation Safety Department, and Chemistry Department.

AES-064 NPP Engineering Fundamentals(3 CR)
This course provides knowledge and skills of general tasks in NPPs in Safety and Engineering Support Department, System Engineering Department, and Programme Engineering Department.

AES-071 Primary Local Operation(3 CR)
This course provides knowledge and skills of each primary system for local operators. The course covers local operators' common role and responsibility, general activities under primary normal condition, and measures mainly under primary abnormal condition.

AES-072 Secondary Local Operation(3 CR)
This course provides knowledge and skills of each secondary system for local operators. The course covers local operators' common role and responsibility, general activities under secondary normal condition, and measures mainly under secondary abnormal condition.

OJP Specialization Numbers

Higher Diploma Nuclear Technology

Operator	1XX
Mechanical	2XX
Electrical	3XX
Instrument & Control	4XX
Chemistry	5XX
Radiation Protection	6XX

Operator Specialization

AES-111 General Operation (5 CR)
This course provides skills and knowledge of NPP systems, operations including start up/shut down of equipments, heat up operation of the Reactor Coolant System (RCS), Reactor critical operation, Generator synchronizing operation with grid, and power up/down operations safely by using plant procedures.

AES-112 Primary System Abnormal Operation (3 CR)
This course provides skills and knowledge of a Nuclear Power Plant to conduct plant operations from a unit control room in a safe, reliable, and professional manner so as to perform recovery operation of NPP safely from abnormal conditions to the normal operation condition, especially when primary system related abnormal situation occurs.

AES-113 Secondary System Abnormal Operation (3 CR)
This course provides skills and knowledge of a Nuclear Power Plant to conduct plant operations from a unit control room in a safe, reliable, and professional manner so as to perform recovery operation of NPP safely from abnormal conditions to the normal operation condition, especially, when secondary system related abnormal situation occurs.

AES-114 Emergency Operation (3 CR)
This course provides skills and knowledge of a Nuclear Power Plant to conduct plant operations from a unit control room in a safe, reliable, and professional manner so as to maintain NPP safety and to recover from emergency operation conditions to normal operation condition, especially when Reactor trip occurred by various Design Basis Accidents (DBA).

AES-115 Administration Procedures (1 CR)
This course provides knowledge of emergency response organization, radiation emergency plan and related administration procedures to perform proper actions, and duties in accordance with radiation emergency plan and associated procedures.

AES-121 Prerequisites Review(1 CR)
This course provides general knowledge and skills for working at a NPP including Industrial safety, Security programme, Firefighting, and administration procedures for Access control of radioactive areas.

AES-122 System Monitoring (3 CR)
This course provides knowledge and skills of monitoring various equipments of NPP including reading instruments, recording checking results, and identifying leakage source, radiation abnormal, and alarm of the local control panel.

AES-123 Equipment Operation I (4 CR)
This course provides knowledge and skills of equipments operation which is used for NPP like as several kinds of valves, small pumps, and Heating, Ventilation and Air Conditioning (HVAC) equipments including fans and heaters controlled by local control switch.

AES-124 Equipment Operation II (3 CR)
This course provides knowledge and skills of equipments operation which is used for NPP including various electrical breakers, uninterruptable power supplies (UPS) and also provides skills of diversified indication lamp change of local control panel or electrical switch.

AES-125 System Operation (4 CR)
This course provides knowledge and skills of basic operation of NPP likes as filling and air vents of systems or tanks, drain of the various fluid systems, line-up of the systems, warm up/cool down of the systems, and other basic operation activities according to the associated NPP operation procedures.

Mechanical Specialization

AES-211 Measurement (4CR)
This course provides basic concepts, theory and practical knowledge associated with measurements using a variety of measuring devices required for mechanical technician basic job qualification at NPP.

AES-212 Hand Tools (4CR)
This course provides basic concepts, theory and practical knowledge associated with hand tools usage required for mechanical technician basic job qualification at NPP.

AES-213 NPP Mechanical Drawing (4CR)
This course provides basic concepts, theory and practical knowledge associated with a variety of mechanical drawing reading and usage required for mechanical technician basic job qualification at NPP.

AES-214 Basic Mechanical Maintenance (3CR)
This course provides basic concepts, theory and practical knowledge associated with basic mechanical maintenance using a variety of devices required for mechanical technician basic job qualification at NPP.

AES-221 Valve Maintenance (4CR)
This course provides practical knowledge associated with valve maintenance required for valve maintenance job qualification.

AES-222 Centrifugal Pump Maintenance (4CR)
This course provides practical knowledge associated with single-stage centrifugal pump maintenance required for pump maintenance job qualification.

AES-223 Fan Maintenance (3CR)
This course provides practical knowledge associated with fan maintenance required for fan maintenance job qualification.

AES-224 Mechanical Preventive Maintenance (4CR)
This course provides basic concepts, theory and practical knowledge associated with preventive maintenance for mechanical using a variety of devices required for mechanical technician basic job qualification at NPP.

Electrical Specialization

AES-311 General Electrical Work (3 CR)
This course develops skills and knowledge in the basic concepts of measuring devices, hand-tools, and electrical print reading.

AES-312 Preventive Maintenance for Electrical System (4 CR)
This course provides comprehensive Preventive Maintenance (PM) task list for electrical systems of NPP, the execution of PM activities, and analysis skills of the PM data.

AES-313 MOV Maintenance (4 CR)
This course develops understanding of major functions and electrical parts of Motor Operated Valves. The course covers operation, adjustment, and preventive maintenance of Motor Operated Valves.

AES-314 Air Circuit Breaker (4 CR)
This course covers the structure for the Load Center of a NPP, the definition and function for Air Circuit Breakers (ACBs), the structures and components of ACBs, and operation and maintenance procedures.

AES-321 Motor Control Center (4 CR)
This course covers motor control fundamentals, control of motor starting, circuit troubleshooting, and maintenance of the Motor Control Center.

AES-322 Battery (3 CR)
This course provides basic knowledge of battery, battery charger, regulating transformer (TR), and the Uninterruptible Power Supply (UPS) system, operation and repair procedures, the execution of maintenance, and analysis of PM data for battery, battery charger, and regulating TR.

AES-323 Low Voltage Motor (4 CR)
This course provides basic knowledge and operation mechanism of cranes and hoists of NPP, operation and repair procedures for small cranes and hoists, the execution of maintenance for small cranes and hoists of NPP, and execution and analysis of surveillance/periodic tests for cranes and hoists of NPP.

AES-324 Vacuum Circuit Breaker (4 CR)
This course covers the structure of the switch gear of an NPP, definition and function for the Vacuum Circuit Breaker, structures and components of the Vacuum Circuit Breaker, and operation and maintenance of the Vacuum Circuit Breaker.

Instrumentation and Control Specialization

AES-411 I&C Work Preparation (4CR)
This course provides basic concepts, theory and practical knowledge associated with NPP Instrumentation and Control (I&C) work preparation tasks required for I&C technician basic job qualification.

AES-412 Operating Test Equipment (3CR)
This course provides basic concepts, theory and practical knowledge associated with a variety of NPP test equipment required for I&C technician basic job qualification.

AES-413 I&C Preventive Maintenance (4CR)
This course provides basic concepts, theory and practical knowledge associated with NPP post-maintenance test for a variety of I&C components required for I&C technician basic job qualification.

AES-414 Tubing and Fitting (4CR)
This course provides basic concepts, theory and practical knowledge associated with NPP tubing and fittings tasks required for I&C technician basic job qualification.

AES-421 Inspection I&C Components (4CR)
This course provides practical knowledge associated with NPP I&C components inspection tasks including transmitter and converter, loop, indicator, sensor, recorder, and controller required for I&C technician general job qualification.

AES-422 I&C Adjustment and Calibration (3CR)
This course provides practical knowledge associated with NPP I&C component adjustment and calibration tasks including transmitter and converter, loop, indicator, sensor, recorder, and controller required for I&C technician general job qualification.

AES-423 I&C Replacement (4CR)
This course provides practical knowledge associated with NPP I&C component replacement tasks including transmitter and converter, loop, indicator, sensor, recorder, and controller required for I&C technician general job qualification.

AES-424 I&C Repair (4CR)
This course provides practical knowledge associated with I&C component repair task including transmitter, converter, loop, indicator, sensor, recording and controller required for I&C technician general job qualification.

Chemistry Specialization

AES-511 Analytical Chemistry(4 CR)
This course provides knowledge and skills of laboratory safety, laboratory management, reagent management, dispensing scale, and chemical analysis method.

AES-512 Analytical Instrumentation(4 CR)
This course provides knowledge and skills of electromagnetic radiant ray equipment, ultraviolet (UV) spectrophotometer, atomic absorbing light analysis and light emitting analysis, chromatography, mass analysis, and electric conductivity method.

AES-513 Corrosion and Control (4 CR)
This course provides knowledge and skills of corrosion theory, prevention method, and comprehensive strategies of NPP's water chemistry.

AES-514 Water Treatment (3 CR)
This course covers NPP water treatment basic theory, equipment, systems, operation experience, and recent developments in NPP water treatment.

AES-521 Radiochemistry (4 CR)
This course covers the up-to-date knowledge of nuclear and radiochemistry background needed for radiation measurement and primary water chemistry.

AES-522 Radiation Measurement (3 CR)
This course deals with various radiation detectors used in a primary water chemistry laboratory. The top goal of this course is gamma ray spectrum analysis and assessment of radioactive materials in reactor coolant.

AES-523 Primary System Water Treatment (4 CR)
This course covers the technical basis for the coolant chemistry and chemistry strategy with various primary water chemistry control methods.

AES-524 Secondary System Water Treatment(4 CR)
This course covers basic theory of NPP secondary system water treatment, water management for the steam generator, secondary systems water treatment and operation experience, and new developments in NPP secondary system water treatment.

Radiation Protection Specialization

AES-611 General Radiation Protection (3CR)
This course provides knowledge of overall radiation protection theory for conducting radiation protection technician field training.

AES-612 Radioactive Contamination Control (3CR)
This course provides understanding of r**adioactive contamination control** procedures and techniques for controlling the spread of contamination to personnel and equipment.

AES-613 Radioactive Waste Management (3CR)
This course provides understanding of radioactive waste control and skills of transportation and storage of radioactive waste, management and control of radioactive waste building.

AES-614 Radioactive Waste Disposal (3CR)
This course provides understanding and skills of liquid radioactive waste disposal and gaseous radioactive waste disposal and solid radioactive waste disposal, spent resin dry system.

AES-615 Exposure Control (3CR)

This course provides understanding of exposure control procedures and As Low As Reasonably Achievable (ALARA) concept and how it is applied to the performance of radiological work at the plant (time, distance, shielding, engineering controls, and source reduction).

AES-621 Radiation Control Area Access Control (3CR)
This course provides understanding of plant access control procedures and techniques for controlled or restricted area (radiologically restricted area, radiation area, high radiation area, very high radiation area, and contaminated area).

AES-622 Radioactive Material Control (3CR)
This course provides understanding of radioactive material control procedures and techniques related to radioactive material and radioactive source control stored on site as well as understanding the role of radiological protection technicians in responding to radiological incidents and recognition of appropriate responses to radiological events.

AES-623 Radiological Survey (3CR)
This course provides understanding of radiological survey, analysis instruments procedures, usage of radiation detectors, and differentiation between the operating characteristics of a radiation field survey instrument and a radioactive contamination survey instrument.

AES-624 Radiological Analysis Instruments (3CR)
This course provides understanding and skills of radiation instrument maintenance, radiation instrument calibration, annual calibration planning, calibration certification issuance, and access control for radiation instrument calibration.

AES-625 Radiological Instruments (3CR)
This course provides understanding and skills of radiation monitoring system, alpha, beta, gamma nuclide analysis, radiation source control, measurement equipment, and access control for tool maintenance room.

AEROMECHANICAL TECHNOLOGY-Course Description

AME 1001 – Workshop Practice/Orientation (1,6,2-3)
The course provides students with knowledge and skills to perform 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.
Pre-requisite: Admission to ABU DHABI POLYTECHNIC
Co-requisite: None

AME 1064 - Materials and Hardware I (6A) (2,6,3-4)
This course introduces to the characteristics of ferrous, non-ferrous, non-metallic and composite material, describes the chemical structure, properties and application of sealant and bonding agents. States the difference between thermoplastics and thermosetting plastics; introduces to the procedures to manufacture wood and composite structure; describe properties and application of PrePregs.
Pre-requisite: None
Co-requisite: AME 1074

AME 1074 - Materials and Hardware II (6A) (2,6,3-4)
The course covers the fundamentals of corrosion, corrosion detection and corrosion treatment, defines types of aircraft fasteners like: bolts, studs and screws, locking devices and their application in aircraft technology; describe and apply the process of assembling aircraft parts.
Pre-requisite: None
Co-requisite: AME 1064

AME 1264 – Advanced Materials and Hardware I (6B1) (3,3,2-4)

This course is on Materials and Hardware used in aviation and covers an advanced level with emphasis placed on the characteristics and properties of ferrous, non-ferrous materials, composite material, sealants, bonding agents, thermoplastics and thermosetting plastics, types of corrosion and its repair procedures.
Pre-requisite: None
Co-requisite: None

AME 1284 – Advanced Aerodynamics (8B1) (4,3,3-5)

This course covers an advanced level with emphasis put on the International Standard Atmosphere (ISA), airflow around a body, boundary layer, laminar and turbulent airflow, generation of lift and drag, relationship between lift, drag, thrust and weight, glide ratio, influence of load factor, flight stability and dynamics.
Pre-requisite: PHY 1022
Co-requisite: None

AME 2003 – OJT in Maintenance Environment (A) (0,40,0 – 13)

The module provides the knowledge gained in previous modules within a hangar / operational aircraft environment. The aim is to familiarize the students with the procedures and facilities within a maintenance environment with emphasis on safety. It raises awareness on issues related to quality assurance, planning, record keeping, tool control, etc. It also exposes students to real time work experience, highlighting the demands of work patterns and human factor issues.
Pre-requisite: Second year student status
Co-requisite: None

AME 2071 - Maintenance Practices I – Safety Precautions and Testing (7A) (2,6,4-4)

This course covers safety precautions for aircraft and workshops, workshop practices, care and control of tools, dimensions, allowances and tolerances, standards of workmanship, calibration of tools and equipment.
Pre-requisite: AME 1074, AVSC 1093
Co-requisite: None

AME 2072 - Maintenance Practices II – Engineering Drawings (7A) (2,6,4-4)

This course provides an introduction to engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances, electrical cables and connectors, standard methods for checking shafts, bearings and other parts.
Pre-requisite: AME 2071
Co-requisite: None

AME 2174 - Maintenance Practices III – Electrical Cables and Connectors (7A) (1,6,1- 3)

This course provides fundamental knowledge of electrical cables and connectors, wiring protection techniques, bonding practices and testing.
Pre-requisite: AME 2072
Co-requisite: AME 2374

AME 2374 - Maintenance Practices IV – Aircraft Parts Joining and Inspection (7A) (1,6,1-3)

This course covers riveting techniques, pipes bending and hoses, springs, bearings and transmissions testing, and control cables adjustment. It also covers aircraft handling and storage, jacking, inspection, effects of environmental conditions on aircraft handling, aircraft repair and assembly techniques, trouble shooting, abnormal events, maintenance procedures.
Pre-requisite: AME 2072
Co-requisite: AME 2174

AME 2081 - Basic Aerodynamics (7A) (2,3,0-3)

The course provides basic aerodynamic knowledge, physics of the atmosphere, airflow around a body, forces acting on aircraft, and theory of flight, flight stability and dynamics.
Pre-requisite: None
Co-requisite: None

AME 2112 – Aircraft Structure and Systems I (11A) (1,3,1-2)

The course provides fundamentals of aero plane aerodynamics and flight controls, high speed flight, airframe structures, general Air Transportation Association (ATA) concepts of aircraft structures, fuselage, wings, stabilizers, flight control surfaces and air-conditioning.
Pre-requisite: AME 2081, AVN 1404
Co-requisite: None

AME 2114 – Aircraft Structure and Systems II (11A) (3,3,7-4)

The course provides fundamentals of aircraft systems related to instruments/avionics systems, electrical power, and other electronic and instrument systems.
Pre-requisite: AME 2112
Co-requisite: None

AME 2152 - Turbine Engines (15A) (2,3,3-3)

The course provides an introduction to the fundamentals of gas turbine engines, including turbo-prop, and turbo-shaft engines, explains the various components of a Gas Turbine engine and their working principles, inlet, compressors, combustion section, turbine section, exhaust, lubricants and fuels and related systems. Auxiliary components are also covered in this course.
Pre-requisite: None
Co-requisite: None

AME 2172 - Propellers (17A) (1,3,1-2)

The module provides fundamentals about propeller fundamentals, propeller construction, propeller pitch control, ice protection, maintenance, and propeller storage and preservation.
Pre-requisite: None
Co-requisite: None

AME 2214 – Advanced Aircraft Structures and Systems I (11B) (3,3,7-4)

The course provides fundamentals of aero plane aerodynamics, flight controls, and high speed flight.
Pre-requisite: AME 2872, AVN 2043
Co-requisite: None

AME 2261 -Advanced Materials and Hardware II (6B1) (3,3,1-4)

This course covers the various types of fasteners, and other aircraft parts such as pipes, unions, springs, bearings, transmissions. The course describes procedures related to manufacturing composite materials, interpret and understand drawings and describe the process of aircraft parts assembly.
Pre-requisite: AME 1264
Co-requisite: None

AME 2271 – Advanced Maintenance Practices I – Safety Precautions and Testing (7B1) (3,6,5-5)

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.
Pre-requisite: AME 1264, AVSC 1093
Co-requisite: AME 2261, AME 2471

AME 2471 - Advanced Maintenance Practices II – Engineering Drawings (7B1) (3,6,5-5)

This course covers an advanced level with emphasis put on engineering drawings, diagrams and standards, ATA 100 specifications, common systems of fits and clearances, standard methods for checking shafts, bearings and other parts.
Pre-requisite: AME 1264, AVSC 1093
Co-requisite: AME 2271, AME 2261

AME 2272 – Advanced Maintenance Practices III – Bonding Techniques and Testing (7B1) (2,6,2-4)

This course covers an advanced level with emphasis put on electrical cables and connectors, wiring protection techniques, bonding practices and testing, riveting, pipes and hoses, springs, bearings, transmissions and control

cables.
Pre-requisite: AME 2271, AME 2471
Co-requisite: AME 2472, AME 2672, AME 2872

AME 2472 – Advanced Maintenance Practices IV – Welding, Brazing and Soldering (7B1) (2,6,2-4)

This course covers an advanced level with emphasis put on welding, soldering, brazing, calculations of aircraft weight and balance, and centre of gravity/balance limits.
Pre-requisite: AME 2271, AME 2471
Co-requisite: AME 2272, AME 2672, AME 2872

AME 2672 – Advanced Maintenance Practices V – Aircraft Handling and Storage (7B1) (2,6,2-4)

This course covers an advanced level with emphasis put on Aircraft handling and storage, jacking, inspection, effects of environmental conditions on aircraft handling, aircraft repair and assembly techniques, trouble shooting.
Pre-requisite: AME 2271, AME 2471
Co-requisite: AME 2272, AME 2472, AME 2872

AME 2872 – Advanced Maintenance Practices VI – Maintenance Procedures (7B1) (2,6,2- 4)

This course covers an advanced level with emphasis put on abnormal events such as lightning strikes, heavy landings and flight through turbulences, and maintenance planning, modification procedures, inspections, quality assurance and quality control.
Pre-requisite: AME 2271, AME 2471
Co-requisite: AME 2272, AME 2472, AME 2672

AME 2254 - Turbine Engine I (15B1) (3,6,8-5)

This course covers principles and operation of Gas Turbine Engines with an emphasis put on the relationship between force, work, power, energy and acceleration, engine performance. Also covered are the various components of a Gas Turbine engine and their working principles.
Pre-requisite: None
Co-requisite: None

AME 3003 – OJT / Internship in a Maintenance Environment (B) (0,40,0-13)

The module is designed to bring together all knowledge learnt in previous modules within a hangar/ operational aircraft environment. The aim is to familiarize the students with the procedures and facilities within a maintenance environment with particular emphasis on safety. It is intended to help raise awareness on issues related to quality assurance, planning, record keeping, tool control, etc. It also exposes students to real time work experience, highlighting the demands of work patterns and human factor issues.
Pre-requisite: Third year student status
Co-requisite: None

AME 3011 - Thermodynamics (3,1,2-3)

The course presents concepts to understand the fundamentals of thermodynamics and heat transfer amongst fluids. It enables the understanding the basics of heat transfer related to various aspects of conduction, convection and radiation.
Pre-requisite: PHY 1022
Co-requisite: None

AME 3211 Advanced Aircraft Structures and Systems II (11B) (3,3,6-4)

This course covers airframe construction, General Air Transportation Association (ATA) concepts of aircraft fuselage, wings, stabilizers, flight control surfaces and air-conditioning.
Pre-requisite: AME 2214
Co-requisite: None

AME 3212 Advanced Aircraft Structures and Systems III (11B) (3,3,6-4)

This course covers General Air Transportation Association (ATA) concepts of aircraft instruments/avionics systems, electrical power, and other electronic and instrument systems.
Pre-requisite: AME 3211
Co-requisite: None

AME 3214 Advanced Aircraft Structures and Systems IV (11B) (3,3,8-4)

This course covers General Air Transportation Association (ATA) concepts of aircraft fire protection systems, flight controls, fuel systems, hydraulic power, landing gear and On Board Maintenance Systems.
Pre-requisite: AME 3212
Co-requisite: None

AME 3251 - Turbine Engine II (15B1) (3,3,5-4)

This course emphasizes construction and working principles of inlet, compressors, combustion section, turbine section, exhaust, lubricants and fuels and related systems, engine indication, and power augmentation. Auxiliary components and accessories are also covered in this course.
Pre-requisite: AME 2254
Co-requisite: none

AME 3213 – Aircraft Structures and Systems I (11B1) (2,6,6 – 4)

The course provides fundamentals of aero plane aerodynamics, flight controls, and high speed flight, airframe construction, General Air Transportation Association (ATA) concepts of aircraft fuselage, wings, stabilizers, flight control surfaces and air-conditioning systems.
Pre-requisite: None
Co-requisite: None

AME 3272 - Propellers (17B1) (3,3,4-4)

This course emphasizes blade element theory, propeller slip, torque, vibration and resonance, propeller pitch control, ice protection, maintenance, and propeller storage and preservation.
Pre-requisite: None
Co-requisite: None

AME 3474 - Propellers (3,3,6 – 4)

This course emphasizes blade element theory, propeller slip, torque, vibration and resonance, propeller pitch control, ice protection, maintenance, and propeller storage and preservation.
Pre-requisite: None
Co-requisite: None

AME 3313 -Aircraft Structures and Systems II (11B) (3,6,3-5)

This course covers General Air Transportation Association (ATA) concepts of aircraft instruments/avionics systems, electrical power, and other electronic and instrumentation/indication systems. Also covered are aircraft fire protection systems, flight controls, fuel systems, hydraulic power, landing gear and On Board Maintenance Systems (OBMS).
Pre-requisite: AME 3012
Co-requisite: None

AME 3252 - Turbine Engines (15B1) (2,6,4-4)

This course covers principles and operation of Gas Turbine Engines with an emphasis put on the relationship between force, work, power, energy and acceleration, engine performance and the various components of a Gas Turbine engine and their working principles. This course also emphasizes construction and working principles of inlet, compressors, combustion section, turbine section, exhaust, lubricants and fuels and related systems, engine indication, and power augmentation. Auxiliary components and accessories are also covered in this course.
Pre-requisite: None
Co-requisite: None

AME 3261 - Materials and Hardware I (3,3,3-4)

This course introduces Materials and Hardware used in aviation and covers an advanced level with emphasis put on the characteristics and properties of ferrous, non-ferrous materials, composite material, sealants, bonding agents, thermoplastics and thermosetting plastics, types of corrosion and its repair procedures.

Pre-requisite: None
Co-requisite: None

AME 3262 - Materials and Hardware II (3,3,6-4)

This course covers the various types of fasteners, and other aircraft parts such as pipes, unions, springs, bearings, transmissions. The course describes procedures related to manufacturing composite materials, interpret and understand drawings and describe the process of aircraft parts assembly.

Pre-requisite: AME 3261
Co-requisite: None

AME 3273 – Maintenance Practices I (2,9,0-5)

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.

Pre-requisite: AVSC 1093
Co-requisite: None

AME 3274 - Maintenance Practices II (2.9.2-5)

This course covers an has emphasis put on welding, soldering, brazing, calculations of aircraft weight and balance, and centre of gravity/balance limits, aircraft handling and storage, jacking, inspection, effects of environmental conditions on aircraft handling, aircraft repair and assembly techniques, trouble shooting. This course puts emphasis on abnormal events such as lightning strikes, heavy landings and flight through turbulences, and maintenance planning, modification procedures, inspections, quality assurance and quality control.

Pre-requisite: AME 3273
Co-requisite: None

AIR TRAFFIC MANAGEMENT-Course Description

ATM 1114 - Aviation Law (4,0,6-4)

An introduction to aviation law. The module gives an introduction to national and international organizations, ATC licensing/certification and safety management /regulation. Rules and regulations are also examined in detail.

Prerequisites: None
Co-requisites: None

ATM 1124 Aircraft (3,0,6-3)

An introduction to the theory of flight and aircraft characteristics. The module presents the principles of flight, together with the operating principles of aircraft engines, systems and instruments; factors affecting aircraft performance are also explained.

Prerequisites: PHY 1022
Co-requisites: None

ATM 2014 ATM Project I (2,9,2-5)

This module provides students with the opportunity to show an appreciation of the information gained during the Basic (ICAO 051) course through the completion of an ATM-related project. Under the supervision of an instructor, students shall select and research a topic from a pre-determined list and produce a reasoned analysis

of their work.
Prerequisites: Basic (ICAO 051) Course
Co-requisites: None

ATM 2131 Air Traffic Management (4,0,6-4)
Introduction to Air Traffic Management and its component parts, including the provision of Air Traffic Control, Flight Information and Advisory services. Students shall be introduced to the basic principles of radiotelephony, coordination, altimetry and level allocation.
Prerequisites: ATM 1114
Co-requisites: None

ATM 2141 Meteorology (3,0,5-3)
An introduction to meteorology. Students shall be introduced to the organization of the meteorological service, the atmosphere and atmospheric circulation, meteorological phenomena and the types of meteorological information available for aviation.
Prerequisites: None
Co-requisites: None

ATM 2151 Navigation (3,0,5-3)
An introduction to the purpose of navigation, as well as to the properties of the Earth. Students shall be introduced to the basic principles of navigation and the use of this knowledge in ATS operations.
Prerequisites: None
Co-requisites: None

ATM 2161 Equipment & Systems (4,0,5-4)
An introduction to equipment and systems. Radio theory and an introduction to RADAR comprise most of this course. Further topics discussed are automatic dependent surveillance, automation, and electronic communications. A brief lesson on working positions of an aerodrome, approach, and area controller are included.
Prerequisites: None
Co-requisites: None

ATM 2172 Human Factors (3,0,6-3)
An introduction to the human factors that affect performance, communication, teamwork, error, and the work environment of air traffic services personnel.
Prerequisites: None
Co-requisites: None

ATM 2182 Professional Environment (2,0,6-2)
Introduction to airports (civil or military), the surrounding environment and the essential areas that should be familiar to a student air traffic controller. Students shall recognise the need for close cooperation with other parties concerning ATM operations and aspects of environmental protection. Emphasis will be placed on the expectations and requirements of pilots.
Prerequisites: ATM 2131, ATM 2161.
Co-requisites: None

ATM 2214 Advanced Professional Environment (1,0,2-1)
An in-depth appreciation of contributors to ATS operations and their inter-relationship, including a Familiarisation visit to obtain an oversight of an operational unit.
Prerequisites: ATM 2182
Co-requisites: None

ATM 2224 Advanced Aviation Law (1,0,1-1)
An appreciation of the principles of ATC Licensing and Competence, together with an understanding and the application of ATS regulations.
Prerequisites: ATM 1114
Co-requisites: None

ATM 3044 ATM Project II (2,9,2-4)
This module provides students with the opportunity to show an appreciation of the information gained during the Tower (ICAO 052) and Radar (ICAO 054) courses, through the completion of an ATM-related project. Under the supervision of an instructor, students shall select and research a topic from a pre-determined list and produce a reasoned analysis of their work.
Prerequisites: ICAO 052**;** ICAO 054
Co-requisites: None

ATM 3202 Unusual/Degraded/Emergency Situations (2,3,3-4)
An in-depth appreciation of the types of unusual/degraded and emergency situations that might be encountered by a Tower controller in the course of his duties; and the actions to be taken in such an event. An appreciation of the ways in which pilots may be expected to react, is also covered.
Prerequisite: None
Co-requisite: ATM 3231, ATM3261, ATM 3282, ATM 3241

ATM 3231 Air Traffic Management – Tower (4,3,4-5)
An in-depth appreciation of all air traffic management subjects with particular respect to the provision of Aerodrome Control Service to both IFR and VFR aircraft; also the importance of maintaining the integrity operational environment.
Prerequisite: ATM 2131
Co-requisite: None

ATM 3241Adv. Equipment & Systems (3,3,3-4)
An in-depth view of equipment and systems, covering voice communications, automation, controller working position and equipment limitations and degradation.
Prerequisites: ATM 2161
Co-requisites: None

ATM 3251 Aerodromes (1,0,1-1)
This module is designed to give students an understanding of the design and layout of aerodromes and associated technical aids and equipment required to operate a safe and efficient flow of air traffic on the ground and in the vicinity of an aerodrome
Prerequisites: None
Co-requisites: None

ATM 3261 Advanced Aircraft (1,0,1-1)
An in-depth appreciation of aircraft instruments, data and categories, combined with knowledge of factors affecting aircraft performance in various stages of flight.
Prerequisites: ATM 1124
Co-requisites: None

ATM 3271 Advanced Meteorology (1,0,1-1)
An in-depth appreciation of the impact of meteorological phenomena and adverse weather on ATS operations. In addition, an appreciation of how to obtain, decode, use and relay meteorological information
Prerequisites: ATM 2141
Co-requisites: None

ATM 3282 Advanced Navigation (1,0,2-1)
An in-depth appreciation of maps and aeronautical charts and their use; also an appreciation of the effect of precision, limitations and change of the operational status of navigational systems, on ATS operations
Prerequisites: ATM 2151
Co-requisites: None

ATM 3292 Advanced Human Factors (2,0,2-2)
An in-depth study and analysis of the human factors that affect personal and team performance in ATS operations, including medical and psychological factors, social and organisational factors, stress and human error.
Prerequisites: ATM 2172

Co-requisites: None

ATM 3312 Air Traffic Management – Radar (4,6,3-6)
An in-depth appreciation of all air traffic management subjects with particular respect to the provision of Radar Control Service to both IFR and VFR aircraft; also the importance of maintaining the integrity of the operational environment.
Prerequisites: ATM 2131
Co-requisites: None

ATM 3322 Unusual/Degraded/Emergency Situations - Radar (2,3,2-3)
An in-depth appreciation of the types of unusual/degraded and emergency situations that might be encountered by a Radar controller in the course of his duties; and the actions to be taken in such an event. An appreciation of the ways in which pilots may be expected to react, is also covered.
Prerequisites: None
Co-requisites: None

ATM 2003 On Job Training – (0,40,0-13)
This module is provided in the form of On-the-job Training (OJT) and is to be undertaken following successful completion of the BASIC course. Students will undergo a short period of classroom/simulator Training, prior to gaining practical experience working as an Air Traffic Control Assistant at an operational ATC unit.
Prerequisites: ICAO 051 theory course
Co-requisites: None

ATM 2024 Radiotelephony & Phraseology Lab (1,3,1-2)
Language Training for Air Traffic Control Trainees
Prerequisites: ICAO 051 course
Co-requisites: ATM 2003)

ATM 3033 On Job Training – (0,40,0-13)
This module is provided in the form of On-the-job Training (OJT) and is to be undertaken following successful completion of the Tower and Approach radar courses. Students will undergo a short period of classroom/simulator Training, prior to gaining practical experience working as a trainee Air Traffic Controller at an operational ATC unit.
Prerequisites: ICAO 052 course, ICAO 054 course.
Co-requisites: None

AVIATION SCIENCE-Course Description

AVSC 1001 - IT Applications (0,6,2-2)

The course provides advanced knowledge in information technology applications, understand operations related to various short-cuts and keys that are not frequently used, overview of file management, word processing, templates, spreadsheets, databases and electronic communications, able to prepare power-point slides and presentations.
Pre-requisite: None
Co-requisite: None

AVSC 1093 - Human Factors (3,0,4-3)

The course presents concepts to avoid human errors by considering human factors, human performance and limitations, social psychology and by studying of the various factors that play a key role in causing accidents.
Pre-requisite: None
Co-requisite: None

AVSC 1103 - Aviation Legislation (3,0,5-3)

The course provides understanding and overview of the aviation maintenance regulatory framework, understand the EASA part 66 and part 145, JAR-OPS and Part M regulations, aircraft certification, approved maintenance

organizations, licensing procedures as well as applicable national and international requirements.
Pre-requisite: None
Co-requisite: None

AVSC 3314 - Engineering Project (3,4,9-4)

This module provides concepts and aspects to understand how to use and apply tools of proper research mechanisms, enable assessment of other vital characteristics such as team work, leadership, punctuality and professionalism.
Pre-requisite: Third year student status.
Co-requisite: None

AVSC 3402 - Engineering Business Management (3,0,1-3)

The course presents concepts and skills related to basic management, basic principles of management such as planning, organizing, coordinating and their important role in an effective organization, the importance of leadership, role-model and other virtues are covered in this module.
Pre-requisite: Third year student status
Co-requisite: None

AVSC 3411 - Quality Assurance (3,0,2-3)

The course provides fundamental knowledge of the various regulations with regards to aircraft quality assurance procedures, entities that will help to manage aviation quality assurance processes, including procedures in the aviation regulatory framework such as aircraft documentation, checks required at various stages, precautionary methods in place, control and feedback mechanisms.
Pre-requisite: None
Co-requisite: None

AVSC 3004 Technology Project Management (3,0,2-3)

This course provides the tools necessary for developing a project plan with goals and objectives and identifying tasks, time frames, and resources that will achieve these goals. Also covered is the management of the implementation of the project identifying performance indicators as continuous monitoring operations or controls that ensure accurate information on relative to the plan.
Pre-requisite: None
Co-requisite: None

AVIONICS TECHNOLOGY-Course Description

AVN 1232 - Electrical Engineering I (3B) (3,3,9-4)

This course covers the basic principles of electricity like: electron theory, static electricity and conduction, electrical terminology, generation of electricity, DC sources of electricity, and DC theory.
Pre-requisite: MATHS 1011, PHY 1021
Co-requisite: None

AVN 1233 - Electrical Engineering II (3B) (3,3,3-4)

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.
Pre-requisite: AVN 1232
Co-requisite: None

AVN 1234 – Electrical Engineering III (3B) (1,3,4-2)

This course covers the applications of electrical engineering I and II as related to aviation topics.
Pre-requisite: AVN 1233
Co-requisite: None

AVN 1404 Electronics (2,3,3-3)

This course covers electronic fundamentals with emphasis on semiconductors such as the diode and the transistor. A fundamental characteristics, properties and uses of these devices are discussed. A brief into to integrated circuits, printed circuit board technology, and servo mechanisms are also covered.
Pre-requisite: AVN 1233
Co-requisite: None

AVN 2003 – OJT in Maintenance Environment (A) (0,40,0 – 13)

Required On the Job Training under the supervision of a faculty member at a Part 145 licensed establishment.
Pre-requisite: Second year student status
Co-requisite: None

AVN 2043 - Electronic I (4B1) (3,6,5-5)

This course introduces two basic electronic semiconductors devices, the diode and the transistor. Various diode types and their applications and various transistors types and applications are discussed. Types of diodes covered include the PN junction, Zener, Shottky with applications extended to rectifier circuits. BJTs and MOSFETs and their applications are also covered.
Pre-requisite: AVN 1234
Co-requisite: None

AVN 2044 - Electronics II (4B2) (3,6,6-5)

This course builds on top of AVN 2043 Electronics I by addressing Integrated Circuits (ICs) and applications with emphasis on operational amplifiers and their applications. Printed circuit boards (PCB's) and servo mechanisms are also covered.
Pre-requisite: AVN 2043
Co-requisite: None

AVN 2051 – Fundamentals of Digital Techniques (5A) (2,3,8-3)

The course covers the electronic instrument systems, basic computer structure and electrostatic sensitive devices, typical systems arrangements and cockpit layout of electronic instrument systems, computer terminology, special handling of components sensitive to electrostatic discharges.
Pre-requisite: AVN 1404
Co-requisite: None

AVN 2053 - Digital Techniques I (5B1) (1,3,2-2)

This course covers an advanced level of digital systems with emphasis put on electronic instrument systems, numbering systems, data buses and data conversion.
Pre-requisite: AVN 1234
Co-requisite: AVN 2253

AVN 2253 - Digital Techniques II (5B1) (2,6,2-4)

This course is a continuation of Digital Techniques I covering an advanced level with emphasis put on logic circuits, computer technology as applied in aircraft, microprocessors, fiber optics, electronic displays, electrostatic sensitive devices, software management control, electromagnetic environment, and typical electronic/digital aircraft systems layout.
Pre-requisite: AVN 1234
Co-requisite: AVN 2053

AVN 2254 – Digital Techniques III (5B2) (3,6,6-5)

This course covers materials required for avionics specialization as an in depth continuation to the materials covered Digital Techniques I and II. Covered topics include digital Radar systems, and other digital navigation and communications systems.
Pre-requisite: AVN 1234, AVN 2253
Co-requisite: None

AVN 3043 Electronic Communication Techniques (2,3,3-3)

This course covers the basic principles of electronic communication techniques and radio principles. AM, FM and other modulation techniques are discussed and the principles of a super-heterodyne receiver are learned.
Pre-requisite: AVN 1404
Co-requisite: None

AVN 3142 – Propulsion and FADEC (14B2) (3,3,2-4)

The course introduces to the constructional arrangement and operation of turbojet, turbofan, turbo shaft, and turbo prop engines, electronic engine control and fuel metering system (FADEC), and covers engine indication systems, their components and their principles of operation.
Pre-requisite: AVN 2044, AVN 1234
Co-requisite: None

AVN 3223 - Avionics I (13 B2) (2,6,6-4)

This is the first course in a series of two of a condensed version of Module 13-Cat B2. This course covers flight theory, general concepts of aero-structures, auto-flight principles, comm. And nav. Systems, and Electrical power generation and regulations.
Pre-requisite: AVN 3252
Co-requisite: None

AVN 3224 - Avionics II (13B2) (3,6,3-5)

This course is a second in a series of two of a condensed version of Module 13-Cat B2. This course covers Flight controls, instruments systems, lighting and on board maintenance systems.
Pre-requisite: AVN 3253
Co-requisite: None

AVN 3231 – Avionic Systems I (13B2) (3,9,12-6)

This course introduces theory of flight and its controls to include rolling, pitching, and yaw controls, general concepts of airframe structures are also covered to prepare students for an understanding of control instrumentation as flight aids. The course also covers auto flight control systems. also covered are electronic communication systems, wave propagation principles, transmission lines, radio principles, and modulation techniques.
Pre-requisite: AVN 2254, AVN 2044
Co-requisite: None

AVN 3232 – Avionic Systems II (13B2) (3,3,8-4)

This course covers primary and secondary radar systems, communication and navigation systems such as VHF, VOR, DME, MLS, GPS, FDS, and INS. Also covered are practical installations and data busses.
Pre-requisite: AVN 3231
Co-requisite: None

AVN 3234 – Avionic Systems III (13B2) (3,6,5-5)

This course completes the sequence by covering aircraft electrical power systems, to include AC, DC and emergency power systems sources. Equipment and furnishings, flight controls, instrument, lighting, and onboard maintenance systems.
Pre-requisite: AVN 3232
Co-requisite: None

AVN 3003 – OJT/Internship (0,40,0-13)

Required On the Job Training under the supervision of a faculty member at a Part 145 licensed establishment.
Pre-requisite: Third year student status
Co-requisite: None

AVN 3252 – A/C Digital Techniques I (5B1) (3,6,1-5)

This course covers an advanced level of digital systems with emphasis put on electronic instrument systems, numbering systems, data buses and data conversion with emphasis put on logic circuits, computer technology as applied in aircraft, microprocessors, fiber optics, electronic displays, electrostatic sensitive devices, software management control, electromagnetic environment, and typical electronic/digital aircraft systems layout.
Pre-requisite: AVN 1234
Co-requisite: None

AVN 3253 – A/C Digital Techniques II (5B2) (3,3,1-4)

This course covers materials required for avionics specialization as an in depth continuation to the materials covered Digital Techniques I and II. Covered topics include digital Radar systems, and other digital navigation and communications systems.
Pre-requisite: AVN 1234, AVN 3252
Co-requisite: None

Electromechanical Engineering Technology (EMT)

EMET Mechatronics Engineering Technology Specialization

EME-013 Introduction to Programming with C++ (3 CR)

This programming course oriented to electromechanical students introduces the object-oriented programming paradigm focusing on the definition and use of classes along with fundamentals of object-oriented design in a modern object-oriented language such as C++. Other topics include complex data structures, simple searching and sorting techniques and an introduction to software engineering issues.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-014 Electronic Devices and Circuits (3 CR)

This course aims to introduce to the students the basics of electronic devices and their applications; semiconductors; diodes; rectifiers; transistors; and amplifiers.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-101 Mechatronics I: Electrical Components (3 CR)

This course covers the basics of electrical components in a complex mechatronic system. Based upon a physical system, students will learn the basic functions and physical properties of electrical components, and the roles they play within the system. 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, Tutorial 2 hrs/wk.

EME-102 Mechatronics II: Mechanical Components and Elec. Drives (3 CR)

This course covers the basics of mechanical components and electrical drives in a complex mechatronic system. Based upon a physical system, students will learn the basic functions and physical properties of mechanical components as well as electrical drives (AC and DC), and the roles they play within the system. They will also learn about 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 will be examined. Technical documentation such as data sheets and specifications of mechanical elements and electrical drives will also be covered. By understanding the interworking's of the complete system, students will learn and apply troubleshooting strategies to identify, localize and (where possible) correct malfunctions. Preventive maintenance of mechanical elements and electrical drives as well as safety issues within the system will be discussed.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-103 Pneumatic and Hydraulic Systems (3 CR)
This course covers the basics of pneumatic, electropneumatic and hydraulic control circuits in a complex mechatronic system. Students will learn the functions and properties of control elements based upon physical principles, and the roles they play within the system. Technical documentation such as data sheets, circuit diagrams, displacement step diagrams and function charts will also be covered. By understanding and performing measurements on the pneumatic and hydraulic control circuits, students will learn and apply troubleshooting strategies to identify, localize and (where possible) correct malfunctions. Preventive maintenance of (electro) pneumatic and hydraulic components as well as safety issues within the system will be discussed.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-104 Programmable Logic Controllers (3 CR)
This course covers the fundamentals of digital logic and an introduction to programmable logic controllers (PLCs) in a complex mechatronic system with a focus on the automation system SIMATIC S7-300 and the appropriate programming software STEP7. Using computer simulation, students will learn the role PLCs play within a mechatronic system or subsystem. They will also learn basic elements of PLC functions by writing small programmes and testing these programmes on an actual system. Students will learn to identify malfunctioning PLCs, as well as to apply troubleshooting strategies to identify and localize problems caused by PLC hardware.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-105 Process Control Technologies (3 CR)
This course covers topics in Closed Loop Control and technologies used in Process Control in the context of a complex mechatronic system. Based on a real system, students will learn the basic functions related to obtaining knowledge of plant documentation and manuals, making suggestions for use in future analysis, creating sets of suggestions for future analysis, and creating diagrams that show the interaction between controllers, sensors and actuators. The course focuses in helping students to be able to characterize a system by its step response function, and creating and interpreting charts with diagrams for time-based changes of measured values. Students will learn how to establish controller operating parameters and learn the difference between the types of controllers that are typically used in mechatronic systems. PID controllers will be introduced and discussed, along with strategies for optimizing them. Based on the step response functions mentioned above, students will learn how to determine which controller is the best one to use. The advantages and disadvantages of ON/OFF and PID controllers are covered in certain systems. Finally, optimization and troubleshooting of industry controllers is covered. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-106 Introduction to Totally Integrated Automation (3 CR)
This course introduces the Siemens concept Totally Integrated Automation by looking at the automation pyramid. Students will start at the field level with analogue sensors and actuators and later on go up to the control level with programming and networking PLCs. The course begins with connecting different analogue sensors (for example voltage, current, and resistance sensors) to analogue modules. In order to write a PLC programme with analogue values, course participants need to know how to use real numbers. In order to work with these and other kinds of numbers, the participants also need to get to know additional STEP 7 functions like comparison, memory, arithmetic, conversion, and jump functions. Later in the course, participants will learn the basics of MPI-Bus and PROFIBUS systems. PLCs will be connected to each other with a bus cable in order to create an MPI network with the corresponding data configuration in STEP 7. PROFIBUS modules are going to be wired with bus cables to a PLC. Additionally, maintenance and troubleshooting of these bus systems are essential components of the course.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-107 Introduction to Microcontrollers (3 CR)
This course is designed to enable graduates to recognize and understand Microprocessor and Microcontroller technology. It also provides the student the opportunity to develop the knowledge and skills to programme, test and interface memory devices. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-108 CAD/CAM Technologies (3 CR)
The CAD/CAM Technologies course is divided into two main branches; Manufacturing Technologies, including CNC and CAD/CAM. For the remainder of the class, the emphasis turns to manufacturing automation. In this section the main concepts to be covered include Metal Cutting, Modal Analysis, CNC, CAM and CAD. These tools provide students with part of the skill set necessary to maintain and improve mechatronic systems. The class can concentrate on one or more of these topics as needed in each particular case and depending the students' background. The metal cutting section includes references on material properties, tool geometry and mechanics for manufacturing processes. The section on CNC is one of the main focuses of this part of the course and it includes different types of commands, an introduction to CNC design and general algorithms. The CAM section explains the use of NC, APT, parametric definitions as well as tool geometry. The course ends with a general CAD instruction that can be extended as needed. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-109 Motor Drives Control (3 CR)
This course covers principles of motor control in part as a continuation on Mechanical Components and Electric Drives. In the first part of the course, General Machine Operation, different types of braking and loads on a motor are addressed, as well as questions of improving motor efficiency and power. Different control techniques are then discussed, including different methods of starting a motor, controlling voltage and frequency, and the role of different sensors in relation to motor operation. Troubleshooting techniques and an examination of the various causes of motor failure are discussed; preventive measures that can be taken in order to protect motors are also taught.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-111 Manufacturing Processes (3 CR)
This course is divided into two major parts: a section on process management and a section on the function and importance of a hands-on design project. In each case, a blueprint is presented to instructors that they can use when implementing the course at their school. For the process management component, a factory simulation is conducted. Each participant is assigned a role and the rules of the simulation are discussed. After a series of runs of the simulation, a discussion and presentation is made, where participants not only present their performance and progress data but also track what they learned. For the hands-on design project component, instructors are encouraged and supported in creating a useful design project for students. Students are divided into teams, informed of the rules of the project, given a timeline, budget and a "customer", as well as other parameters
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-112 Mechatronics System Design (3 CR)
This course presents specifics in the mechanical design of mechatronic systems. Its main foci are problem analysis, conceptualization & drawing, design/material selection, and performance analysis to create complete functional mechatronic systems. Topics include requirements of mechanical subsystems as components of the whole and design methods. Components like bills of materials and economic analysis will also be covered in lecture. This study is oriented towards a design project with the goal of developing a complete dynamic mechatronic system based upon optimal solution and materials considerations, economic considerations, quality and reliability. Projects and assignments are therefore essential elements of this course. Students will carry out a design project from start to finish, which can be geared toward any application of mechatronics, such as robotics and manufacturing systems. These deliverables are a great opportunity to gain a hands-on experience in designing and building a mechatronic system. The intent of this course is also to provide the student with a cooperative working experience within a team. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-113 Customized Automation Solutions with TIA (3 CR)
In this 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 programme 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 programmes. 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, Tutorial 2 hrs/wk.

EME-114 Feedback Control Systems (3 CR)
This course presents the theories and applications of feedback control systems to mechatronic systems. Topics covered involve feedback control systems design such as control system performance specifications, block diagram formulation, pole position & dynamic system response, root-locus design, frequency response design, digital control topics such as AD / DA converters and digital PID implementation, as well as numerical simulation using Matlab/Simulink. A deep understanding of PID-control and systems approach is required for the course. Based on the lectures, design exercises, laboratory works and seminars, students will learn both classical and digital methods of controlling and optimizing mechatronic systems. This course aims to give the students the ability to design, troubleshoot, improve and optimize the mechatronic control system according to customer and user needs. Special emphasis will placed on knowledge and hands-on experience of PID-controllers, because most of the course content is based on analysis and simulation of PID-controllers. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-115 Dynamics and Kinematics of Machinery (3 CR)
This course covers topics in dynamics and kinematics of machinery and its applications. Based on lectures, seminars, projects and laboratory work, students will learn how to analyze translational/rotational motions in machinery, understand machine vibrations from both theoretical and practical standpoints and be able to prevent, measure, diagnose and solve problems involving such vibrations. They will gain the skills necessary to design, select and evaluate the mechanisms for various applications, such as gear trains and cams. Projects involve using graphical, analytical, and numerical techniques for the dynamic analysis and synthesis of machines. The aim of this course is to get a deeper understanding of machine behavior, understand and carry out the design and troubleshooting of reciprocating and rotating mechanical systems, and learn dynamic analysis and dynamic synthesis techniques. Students will be able to understand how to synthesize and analyze mechanisms and machine elements with regard to their kinematics. The labs will consist of selecting teams, preparation for discussion and completing the lab project, which will consist of constructing a model of a simple machine. The model may be either virtual (e.g., using Working Model), real, or both and must be used to address some hypothesis. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-116 Quality Management (3 CR)
This Course is designed to allow students to explain and distinguish between different Quality approaches. The Course also provides students with opportunities to examine different quality control techniques and analyze quality costs. The Course has been written with a view to providing students with an overview of Quality as applied in the context of the student's working environment.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

EME-117 Integration of Mechatronics Systems (3 CR)
This course studies mechatronics at a theoretical and practical level; balance between theory/analysis and hardware implementation is emphasized; emphasis is placed on physical understanding rather than on mathematical formalities. A case-study, problem-solving approach, with hardware demonstrations, either on video or in class, and hardware lab exercises, is used throughout the course. This course covers the fundamental areas of technology on which successful mechatronic system designs are based: physical modeling, from design model to truth model, and mathematical modeling of dynamic multidisciplinary physical systems; analysis of mathematical models through analysis and computer simulation; measurement systems (analog and digital sensor modeling, analysis, and implementation) for model validation and control; control actuator (electromechanical and fluid) modeling, analysis, and implementation; continuous controller design and real-time analog and digital implementation; analog and digital control and power electronics. Throughout the coverage the focus is kept on the role of each of these areas in the overall design process and how these key areas are integrated, from the very beginning

of the design process, into a successful mechatronic system design. Starting at design and continuing through manufacture, mechatronic designs optimize the available mix of technologies to produce quality precision products and systems in a timely manner with features the customer wants. The real benefits to industry of a mechatronic approach to design are shorter development cycles, lower costs, and increased quality, reliability, and performance.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-118 Robotics (3 CR)
This course will introduce robotics kinematics, dynamics and control. Descriptions of position and orientation, frames, rotations of a frame, homogeneous transformations, transform arithmetic, transform equations, representation of a frame's orientation, examples. Link description, link connection, Denavit-Hartenberg convention, manipulator kinematics, joint space and Cartesian space, examples. Solvability, manipulator subspace, algebraic and geometric approaches, Pieper's solution procedure, examples. Linear and angular velocity of a rigid body, velocity propagation from link to link, Jacobian and singularities, static forces, Jacobian in the force domain, Cartesian transformation of velocities and static forces, examples.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-119 Control Systems (3 CR)
This course aims to introduce students to the fundamentals knowledge of control system theories and applications. Topics include: mathematical modeling, dynamic system responses, feedback control characteristics, stability of feedback systems, PID controller. The course includes project work where students formed in teams perform design, analyze laboratory implementation of control systems for engineering applications. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-120 Modeling of Systems and Simulation (3 CR)
This course aims to introduce to the students modeling of systems and simulation using ordinary Differential Equations First Order Differential Equations: Separable- Homogenous -Linear- Bernoulli - Exact- Integrating Factors. Second Order Linear Differential Equations: Homogenous Equations with Constant Coefficients - Undetermined Coefficients Method - Variation of Parameters Method - Euler's Equation - Non Homogenous Equations - Higher Order Linear Equations - Systems of Differential Equations, Laplace Transforms Basic Properties - Solving Initial Value Problems Using Laplace- Solving Integral Equations - Solving Systems of Differential Equations; Some Engineering Applications. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-122 Engineering Economics (3 CR)
Engineering and engineering economy, some engineering economic concepts, equity and debt capital, cost concepts and accounting, elements of cost, life cycle cost, interest formulas and economic equivalence, equivalence involving inflation, economic analysis of alternatives, basis for comparison of alternatives, decision making process, decision making among alternatives, evaluating production operations, break–even analysis, evaluating replacement alternatives, economic life of an asset, benefit – cost ratio analysis, cost – effective analysis, cost accounting, depreciation and its methods, income tax and its relation with profit and interest, time value of money, inflation and its affects, estimating economic elements, economic feasibility and indices, estimates and decision making, replacement studies, decisions under risk and uncertainty, sensitivity analysis, decision involving multiple criteria, economic analysis for public projects and utility, capital budgeting, value engineering, use of computer software and case studies in engineering economics. Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

EME-123 Advanced Eng. Mathematics (3 CR)
Students entering in Advanced Engineering Mathematics should have a firm grasp of Calculus, linear algebra and vector calculus. They should be able to graph functions, integration and differentiation of functions. The objective of Advanced Engineering Mathematics is for students to learn the basics of Modeling and solution of differential equations. They will study standard functions with graph, geometrical meaning of differential equations, modeling and solution of ordinary differential equations also application of Laplace transform. More generally, the students will improve their ability to think critically, to analyze a real problem and solve it using a wide array of mathematical tools. They will also able to apply these ideas to a wide range of problems that include the engineering equations. The

students should be able to interpret the concepts of modeling algebraically, graphically and verbally. Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

EME-125 Electrical Machine and Applications (3 CR)
This Course has been designed to give students a fundamental knowledge and understanding of a range of electrical motors and transformers. In particular, students will study the constructional features, principle of operation, performance characteristics and applications of DC motors, single phase motors, three phase motors, synchronous generators and motors, and different types of transformers. The Course acts as a good foundation Course for more in depth studies in specialist areas of electrical motors and transformers. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-130 Applied Safety (3 CR)
This Course is designed to enable students and graduates to develop knowledge and competence related to safe working practices and work permits. The Course is intended to raise the student's awareness of health and safety practice and to provide opportunities to demonstrate the operation of permit-to-work systems. Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-131 Process Equipment Design (3 CR)
This course is aimed to introduce how to design a process equipment; deign parameters; design of vessels and tanks; design of Storage vessels, reaction vessels, agitation and mixers, heat exchangers, filters and driers, centrifuges; piping design; planning and manufacturing and how to control process. Lecture 3 Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-132 Material Handling Equipment (3 CR)
The purpose of this course is to introduce to the students of material handling equipment, types, selection of materials, design of hoist and cranes, load lifting, storage design and warehouse automation.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EME-150 PLC and Electric Drive OCT Module (3 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of electrical drive control technologies. The training is designed to build: Social skills through team interactions, Technical competence through hands-on training, Methodological competence, PLC, Stepper Motors, Servo Motors. Lecture 1 hrs/wk, Practical 6 hrs/wk.

EME-151 PCB OCT Module (3 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. Lecture 1 hrs/wk, Practical 6 hrs/wk.

EME-152 Pneumatics and Hydraulics OCT (3 CR)
This training module is mainly dealing with the management and schematic drawing of Hydraulics and Pneumatics system. The equipment which we used is produced by FESTO. It has pretty good performances and it guides to good results with the assist of FLUID SIM which can simulate the operation process of both hydraulics and pneumatics. Therefore, the students can be educated to be able to handle both pneumatics and hydraulics system. Lecture 1 hrs/wk, Practical 6 hrs/wk.

EME-153 Process Control OCT Module (3 CR)
The purpose of the on-campus training is to provide practice-oriented training of new key competencies in areas of process control technologies. The training is designed to build: CoreLife skills through team interactions; Technical competence through hands-on training Methodological competence; Level Control; Flow rate control; Pressure Control; Temperature. Lecture 1 hrs/wk, Practical 6 hrs/wk.

EME-154 Robotics OCT Module (3 CR)
This training course module is intended to provide students with knowledge and hands-on skills in the programming of a pick and place robotic arm. Lecture 1 hrs/wk, Practical 6 hrs/wk.

EME-160 Malta Fab 8 Orientation for ATIC/Abu Dhabi Polytechnic OJP (1.5 CR)

This introductory course is aimed to introduce to the trainees **GLOBALFOUNDRIES** company, overview on the semiconductor industry and applications, clean room, team work and communications.
Lecture 23 hrs, Practical 11 hrs.

EME-161 Malta Fab 8 Pre-Maintenance (3 CR)
This course aims to prepare the students for the pre-maintenance knowledge, terminology hardware, software, procedures for working on, and programming automated manufacturing systems. Lecture 27 hrs, Practical 27 hrs.

EME-162 AMAT Reflexion Polisher Pad Change OJP (1.5 CR)
Upon successful completion of this course, a student will be able to safely complete a pad change PM on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products. Lecture 13 hrs, Practical 26 hrs.

EME-163 AMAT Reflexion Polisher System Overview (0.3 CR)
Upon successful completion of this course, a student will be able to safely complete a pad change PM on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 4 hrs, Practical 3 hrs.

EME-164 AMAT Reflexion Polisher Wet Robot Verification (0.5 CR)
Upon successful completion of this course, a student will be able to safely complete a wet robot verification on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 6.5 hrs, Practical 10 hrs.

EME-165 AMAT Reflexion Polisher Head/ Lead Screw Lubrication (0.5 CR)
Upon successful completion of this course, a student will be able to safely complete a head and lead screw lubrication PM on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed head and lead screw lubrication PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products. Lecture 5.5 hrs, Practical 7.5 hrs.

EME-166 AMAT Reflexion Polisher Head Replacement (0.7 CR)
Upon successful completion of this course, a student will be able to safely complete a head replacement PM on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed head replacement PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 6.5 hrs, Practical 17 hrs.

EME-167 AMAT Reflexion Polisher Head Replacement (1.5CR)
Upon successful completion of this course, a student will be able to safely complete a UPA calibration PM

on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed UPA calibration PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 13 hrs, Practical 22 hrs.

EME-168 AMAT Reflexion Polisher Pad Conditioner Downforce Calibration (0.5CR)
Upon successful completion of this course, a student will be able to safely completing the polisher pad conditioner downforce calibration on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products. Lecture 5.5 hrs, Practical 8 hrs.

EME-169 AMAT Reflexion Polisher Megasonic Wafer Roller Inspection (0.7CR)
Upon successful completion of this course, a student will be able to safely completing the Megasonic Wafer Roller Inspection on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products. Lecture 7 hrs, Practical 11 hrs.

EME-170 AMAT Reflexion Polisher Megasonic Filter Replacement (0.75CR)
Upon successful completion of this course, a student will be able to safely performing megasonic filter replacement on a AMAT Reflexion Polisher in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed pad change PM will ensure the continued productivity of the AMAT Reflexion Polisher, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 7 hrs, Practical 12 hrs.

EME-171 AMAT Producer CVD System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the AMAT Producer CVD tool in Fab 8. This short course will help students understand related information to the Producer and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be to able interact safely and confidently with the user interface on the tool and the factory systems software that communicates with the tool. Lecture 4 hrs, Practical 7 hrs.

EME-172 AMAT Producer CVD System Overview (0.2 CR)
Upon successful completion of this course, a student will be able to safely complete a Weekly PM on a Lam Research 2300 Kiyo CX/EX Chamber in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed Weekly PM will ensure the continued productivity of this etch system, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 3 hrs, Practical 1 hrs.

EME-173 Lam 2300 Kiyo CX/EX Etch Chamber System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the Lam 2300 Kiyo CX/EX Etch Chamber in Fab 8. This short course will help students understand related information to the etcher and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be able interact safely and confidently with the user interface on the tool and the factory

systems software that communicates with the tool. Lecture 4 hrs, Practical 7 hrs.

EME-174 TEL Tactras Vigus Etch Chamber Clean PM (3 CR)
Upon successful completion of this course, a student will be able to safely complete a TEL Tactras Vigus H Chamber Clean PM on a TEL Tactras Vigus H in Fab 8. When performed according to the instructions outlined in this JBI, a properly completed TEL Tactras Vigus H Chamber Clean PM will ensure the continued productivity of the TEL Tactras Vigus H, reduce defects and contamination as well as reduce wafer scrap and repeated tool downtime. Employees are required to follow the procedures of this job instruction while observing all safety precautions in order to prevent damage to personnel, tool, parts, materials and product. Lecture 28 hrs, Practical 58 hrs.

EME-175 TEL Tactras Etch Chamber System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the TEL Tactras Etch Chamber in Fab 8. This short course will help students understand related information to the etcher and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be able interact safely and confidently with the user interface on the tool and the factory systems software that communicates with the tool. Lecture 4 hrs, Practical 7 hrs.

EME-176 Varian ViiSta 900XPT System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the Varian ViiSta 900XPT Ion Implanter in Fab 8. This short course will help students understand related information to the implanter and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be able interact safely and confidently with the user interface on the tool and the factory systems software that communicates with the tool. Lecture 4 hrs, Practical 7 hrs.

EME-177 Varian ViiSta Trident System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the Varian ViiSta Trident Ion Implanter in Fab 8. This short course will help students understand related information to the implanter and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be able interact safely and confidently with the user interface on the tool and the factory systems software that communicates with the tool. Lecture 4 hrs, Practical 7 hrs.

EME-178 Varian VIISta 900XPT Medium Current Ion Implanter Quarterly PM1 (3 CR)
Upon successful completion of this course, a student will be able to safely complete a PM 1 on a Varian VIISta 900XPT Medium Current Ion Implanter in Fab 8. When performed according to the instructions outlined in this JBI, a properly completed PM 3 will ensure the continued productivity of the Varian VIISta 900XPT Medium Current Ion Implanter, reduce defects and contamination as well as reduce wafer scrap and repeated tool downtime. Trainees are required to follow the procedures of this training guide while observing all safety precautions in order to prevent damage to personnel, tool, parts, materials and product. Lecture 28 hrs, Practical 56 hrs.

EME-179 Varian VIISta Trident High Current Ion Implanter (1.5 CR)
Upon successful completion of this course, a student will be able to safely complete a 2-wk/3-wk PM on a Varian VIISta Trident High Current Ion Implanter in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed 2-wk/3-wk PM will ensure the continued productivity of this implanter, reduce defects and contamination as well as reduce scrapped product and repeated tool downtime. Participants are required to follow the procedures of the assigned JBI while observing all safety precautions in order to prevent harm to personnel, parts, materials and products.
Lecture 13 hrs, Practical 23 hrs.

EME-180 AMAT Endura II APC Kit Change (1.5 CR)
Upon successful completion of this course, a student will be able to safely complete an APC Process Kit Change on a TFM-AMAT Endura II-CuBS in Fab 8. When performed according to the instructions outlined in this JBI, a properly completed APC Process Kit Change will ensure the continued productivity of the TFM-AMAT Endura II-CuBS, reduce defects and contamination, as well as reduce wafer scrap and

repeated tool downtime. Lecture 13 hrs, Practical 29 hrs.

EME-181 AMAT Endura II CURFX Kit and Target Change (6 CR)
Upon successful completion of this course, a student will be able to safely complete an CURFX Process Kit and Target Change on a TFM-AMAT Endura II-CuBS in Fab 8. When performed according to the instructions outlined in this JBI, a properly completed CURFX Process Kit and Target Change will ensure the continued productivity of the TFM-AMAT Endura II-CuBS, reduce defects and contamination, as well as reduce wafer scrap and repeated tool downtime. Lecture 47 hrs, Practical 102 hrs.

EME-182 AMAT Endura PVD System Overview (0.4 CR)
Upon successful completion of this course, a student will be able to identify and explain various features and characteristics of the AMAT Endura PVD tool in Fab 8. This short course will help students understand related information to the Endura and improve communications with other employees who are assigned to work on the same tool. More importantly, this course will enable the student to be able interact safely and confidently with the user interface on the tool and the factory systems software that communicates with the tool. Lecture 7 hrs, Practical 4 hrs.

EME-183 AMAT Producer CVD Weekly PM (0.5 CR)
Upon successful completion of this course, a student will be able to safely complete a weekly PM on a AMAT Producer CVD in Fab 8. When performed according to the instructions outlined in the JBI, a properly completed weekly PM will provide essential data indicative of additional potential maintenance as well as ensure that surface areas of the tool are clean. Lecture 5 hrs, Practical 9 hrs.

EME-190 Graduation Project I (3 CR)
This course is aims to introduce to the students the concept of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards real life technical applications. Lecture 1 hrs/wk, Practical 5 hrs/wk.

EME-191 Graduation Project II (3 CR)
This course is aims to finalize the Graduation Project I of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the third year of study and training. The project scope could be outlined by an industrial sponsor towards real life technical applications. Lecture 1 hrs/wk, Practical 5 hrs/wk.

EME-192 EME Design Project I (3 CR)
This course is aims to introduce to the students the concept of developing an mechatronics engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1 hrs/wk, Practical 5 hrs/wk.

EME-193 EME Design Project II (3 CR)
This course is aims to introduce to the students the concept of developing an mechatronics engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

EMET Mechanical Engineering Technology Specialization

EME-201 Statics (3 CR)
This course aims to introduce to the students force and moment vectors, resultants. Principles of statics and free-body diagrams. Equilibrium principles. Applications to simple trusses, frames, and machines. Properties of areas, second moments. Internal forces in beams. Laws of friction. Principles of particle

dynamics. Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

EME-202 Dynamics (3 CR)
This course aims to introduce to the students force and moment vectors, resultants, free-body diagrams. Principles of particle dynamics. Mechanical systems and rigid-body dynamics. Kinematics and dynamics of plane systems. Energy and momentum of 2-D bodies and systems.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

EME-203 Materials 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 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-205 Strength of Materials (3 CR)
This course is designed to enable candidates to develop knowledge and understanding of the principles and laws that relate to material strength relating to compressive, tensile and shear loading on materials.. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-205 Applied Industrial Plant 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 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-206 Plant Systems I (3 CR)
This Course is designed to consolidate students' awareness of mechanical plant courses, sub systems and systems used throughout industry. Students will be enabled to describe, explain and also correctly complete associated information gathering, including calculations. The Course also considers commissioning techniques for plant replacement as applied to items of plant and sub systems, allowing the student to produce commissioning procedures and documentation. This Course is particularly relevant for those students who wish to pursue a career as mechanical maintenance engineers, supervisors or technicians. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-207 Plant Systems II (3 CR)
This Course is designed to consolidate students' awareness of mechanical plant courses, sub systems and systems used throughout industry. Students will be enabled to describe, explain and also correctly complete associated information gathering, including calculations. The Course also considers commissioning techniques for plant replacement as applied to items of plant and sub systems, allowing the student to produce commissioning procedures and documentation. This Course is particularly relevant for those students who wish to pursue a career as mechanical maintenance engineers, supervisors or technicians. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-209 Heating, Ventilation and Air Conditioning (HVAC) (3 CR)
This Course is designed to allow students to develop knowledge and understanding of the principles of operation of refrigeration and HVAC (Heating, Ventilation and Air Conditioning) systems. Students will also develop the knowledge and understanding of the criteria used to select suitable system courses and the skills to test the performance of systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-211 Vibration and Noise Control (3 CR)
This course focus on engineering vibration of continuous systems, multi degrees of freedom, natural frequency, resonance frequency, transient vibrations**,** vibration modes, vibration and noise measurements, vibration control. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-212 Safety Engineering and the Environment (3 CR)
This Course is designed to enable students to understand all relevant Health and Safety legislation and complete basic risk assessment on the equipment, environment and methods relating to the

engineering sector. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-216 Machine Elements (3 CR)
This course focuses on the study of the mechanical components that are included in a complex mechatronic system. It begins with an overview of Statics and Kinetics, which includes force system analysis, study of equilibrium, frames and machines, friction and effects of forces on the motion of objects among other basic topics. The second part of the course focuses on Machine Elements, fundaments and classification of a variety of components expanding the material into calculations involving force, stress and wear analysis, as well as calculations to determine the different features from a particular component required in given a system. The course focuses on the employment of these techniques for supporting mechatronic systems and to ensure its proper function, correct possible defects that may interrupt the process and to plan preventive maintenance operations on them, observing and incorporating locally enforced and general safety standards. Course 5 of Level 2 provides a deeper insight into the principles behind the different components of the system. The course aims to form both high and low level mechatronic experts at production and development facilities.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-217 Machine Design (3 CR)
This is an advanced course on modeling, design, integration and best practices for use of machine elements such as shafts, bearings, couplings, springs, gears, cams and others elements. Modeling and analysis of these elements is based upon extensive application of physics, mathematics and core mechanical engineering principles (solid mechanics, fluid mechanics, manufacturing, estimation, computer simulation, etc.). Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-219 Personal Development Planning (3 CR)
This course helps students to take responsibility for their own learning and development. In particular it provides a framework for the development of the personal and general skills and qualities which employers seek in the workplace and which are increasingly recognized as underpinning success in personal life, in citizenship and in lifelong learning. The contexts of progression to employment, or from college to university, or developing Core Skills, can be used. Lecture 3hrs/wk, Tutorial 2 hrs/wk.

EME-230 Vehicle Dynamics (3 CR)
This course focuses on the fundamentals of vehicle kinematics, dynamics, transient response, handling of wheeled vehicles and , handling of tracked vehicles. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-233 Advanced Strength of Materials (3 CR)
This Course is designed to enable students to develop their knowledge, understanding and skills in solving problems involving complex beams, cantilevers, and thin, thick and combined cylinders. It should also provide students with an opportunity to develop their analytical and problem solving skills. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-255 Pumps OCT Module (3 CR)
The overall objectives of On Campus Training (OCT) courses are to develop student practical skills by "learning while doing" and provide hands-on training with machine equipment and systems. In addition to this, to develop student's skills such as observation, measurement, recording data, data analysis, technical report writing and presentation. And also to develop student team working skills.
Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-256 Air Compressors OCT Module (3 CR)
This On Campus Training (OCT) courses provides hands-on training on operating, measuring, testing and controlling industrial air compressors. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-257 Heat Exchangers OCT Module (3 CR)
This On Campus Training (OCT) courses provides hands-on training on operating, measuring, testing and controlling industrial heat exchangers. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-258 Fluid Mechanics OCT Module (3 CR)

This On Campus Training (OCT) courses provides hands-on training on operating, measuring, testing and controlling industrial fluid mechanics systems and applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-290 Graduation Project I (3 CR)
This course is aims to introduce to the students the concept of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-291 Graduation Project II (3 CR)
This course is aims to finalize the Graduation Project I of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the third year of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-292 EME Design Project I (3 CR)
This course is aims to introduce to the students the concept of developing an mechanical engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-293 EME Design Project II (3 CR)
This course is aims to introduce to the students the concept of developing an mechanical engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EMET Control and Instrumentation Engineering Technology Specialization

EME-301 Distributed Control Systems (DCS I) (3 CR)
This course is designed to enable graduates to gain knowledge and understanding and apply Distributed Control Systems (DCS) in Industrial Measurement and Control Engineering, construction and operation of DCS controller, operator interface, and CS applications and implementation.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-302 Distributed Control Systems (DCS II) (3 CR)
This Unit is designed to enable graduates to gain advanced knowledge and understanding and apply Distributed Control Systems (DCS) in Industrial Measurement and Control Engineering. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-303 Complex Control Systems (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of process control technology and apply that knowledge to industrial situations. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-304 Digital Communications in Measurement and Control Eng. (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of digital communications in Measurement and Control technology and apply that knowledge to industrial situations. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-306 Transmission of Measurement Signals (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of different methods and techniques of transmitting measurement signals. The Unit will cover pneumatic, instrument electrical and digital signals transmission and it will also cover modulation techniques. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-307 Safe Instrumentated Systems (3 CR)
This course is designed to enable graduates to gain knowledge and understanding and apply Safe

Instrumentated Systems (SIS) in Industrial Measurement and Control engineering. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-308 Applications of Programmable Logic Controllers (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of using a programmable logic controller (PLC) to perform proportional, integral and derivative (PID) control and to generate shutdown trips. The Unit will also allow the student to develop knowledge and skills about networked systems that incorporate PLCs. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-309 Supervisory Control and Data Acquisition (SCADA) (3 CR)
This course is designed to enable graduates to gain knowledge and understanding and apply supervisory control and data acquisition to industrial process measurement and control systems. The course also provides the student with the opportunity to develop practical configuration skills to enable them to apply SCADA to specified industrial systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-314 Online Process Analyzers (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of Analyzers used as part of process control systems, by being able to explain the operation, and know the applications of the different types of analyzers commonly found in industrial process control systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-315 Fire and Gas Detection (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of Fire and Gas Detection Systems used to protect process plant and personnel, by being able to explain the operation, and know the applications of the different types of Fire and Gas Detection Systems commonly found in industrial process plant. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-316 Hazard and Plant Safety Engineering (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of hazard and plant safety engineering and apply that knowledge to industrial situations. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-317 Intelligent Instrumentation and Asset Management Systems (3 CR)
This course is designed to enable graduates to gain knowledge and understanding of intelligent instrumentation and asset management systems and apply that knowledge to industrial situations. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-318 Instrumentation in Hazardous Areas (3 CR)
This Unit is designed to enable graduates to gain knowledge and understanding of instrumentation in hazardous areas and apply that knowledge to industrial situations.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-333 Oil and Gas Meter Systems and Control Engineering (3 CR)
This course is designed to enable graduates to gain knowledge and understanding and apply meter proving in industrial Measurement and Control Engineering systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-390 Graduation Project II (3 CR)
This course is aims to develop an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the third year of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-391 Graduation Project II (3 CR)
This course is aims to finalize the Graduation Project I of developing an engineering technology project in

the field of student specialization utilizing the knowledge and hands-on the student has gained over the third year of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-392 EME Design Project I (3 CR)
This course is aims to introduce to the students the concept of developing an Control and Instrumentation Engineering Technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications.
Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-393 EME Design Project II (3 CR)
This course is aims to finalize the Graduation Project I of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the third year of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EMET Electrical Engineering Technology Specialization

EME-401 Electrical Safety (3 CR)
This Course is designed to enable students and graduates to develop knowledge and competence related to safe working practices and work permits. The Course is intended to raise the student's awareness of health and safety practice and to provide opportunities to demonstrate the operation of permit-to-work systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-402 Digital Electronics (3 CR)
The course is designed to enable students and graduates to know, understand and apply the basic concepts of digital electronics. It provides students and graduates with an opportunity to develop the knowledge and skills to be able to design and construct logic circuits to meet a design brief.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-403 Application of Electrical and Electronic Instruments (3 CR)
This course is designed to enable the students to gain the basic knowledge and application of electrical and electronic instruments safely, use digital multi-meters, oscilloscopes and test electrical circuits. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-404 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 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-405 Electricity Power Systems (3 CR)
This Course is designed to provide students and graduates with knowledge and understanding of electrical power supply systems and the concept of power quality. Students and graduates will also be provided with the opportunity to analyze power system faults and explain methods of improving power system efficiency. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-406 Three Phase Systems (3 CR)
This Course is designed to enable students and graduates to know and understand the principles of three phase systems. It provides students and graduates with the opportunity to develop the knowledge and skills to enable them to describe the production and characteristics of a three phase supply. It also provides students and graduates with the opportunity to develop the necessary knowledge and skills to determine voltages and currents in both balanced and unbalanced three phase loads. The Course also allows students and graduates the opportunity to develop the knowledge and skills to calculate different

types of power in three phase loads and also to describe the techniques used to measure active power in three phase systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-407 Transformers (3 CR)
This Course is designed to enable students and graduates to develop knowledge and the required level of understanding of the principles of transformers used in the power industry. The Course provides the study paths through the transformer subject area ranging from ideal transformers together with practical or less-than- ideal transformers operation, three-phase transformers and protection. This Course also gives students and graduates the opportunity to develop the necessary knowledge and mathematical skills in solving transformer equivalent circuits.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-408 Electrical Motor Drive Systems (3 CR)
This Course has been designed to allow students and graduates to develop a knowledge and understanding of electrical motor drive systems at both a systems level and at individual component level (e.g. transmission arrangements, electrical protection and starting and braking methods). Students and graduates will also have an opportunity to consolidate their knowledge of electrical motor drive systems by undertaking an investigation of the reasons for the selection of the component parts in a practical industrial or commercial drive system. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-409 Control Systems Behavior (3 CR)
This course is designed to enable students and graduates to develop their knowledge and understanding of closed -loop control systems. It allows students and graduates to develop knowledge and skills that will enable them to model and analyze closed -loop control systems. The Course also provides students and graduates with the knowledge and skills to allow them to understand how controllers can be used to suitably modify the behavior of closed loop systems. The Course also provides the students and graduates with the opportunity to apply simulation software as a tool to analyze and predict the behavior of control systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-410 Electrical Networks and Resonance (3 CR)
This Course is designed to enable students and graduates to develop knowledge and understanding and apply a range of network theorems to the solution of d.c. and a.c. electrical network problems. The Course also allows students and graduates to undertake a detailed study of series and parallel electronic and electrical passive resonant circuits that includes the calculation of Q - factor and bandwidth and the plotting of impedance - frequency and current - frequency curves for both series and parallel cases. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-411 Transmission Lines and Complex Waves (3 CR)
This course is designed to enable students and graduates to understand the basic principles and concepts of transmission lines and complex waves. It will provide students and graduates with the opportunity to develop knowledge and skills to determine electrical quantities associated with transmission lines and secondly, to solve simple electrical series and parallel circuits when a complex waveform is applied. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-412 Electrical Installation Design: Computer Aided (3 CR)
Developing the skills required to design Electrical Installation circuits to comply with the current wiring regulations, BS 7671, using commercial computer software. This Course is designed to develop the necessary knowledge and understanding of translating the requirements of an electrical installation design into a complete, fully detailed, personalized design and schematic drawing.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-413 Inspection and Testing of Low Voltage Electrical Installations (3 CR)
The purpose of this course is to enable students and graduates to demonstrate knowledge, understanding and competence in testing and inspection of electrical installations. Lecture 2hrs/wk, Lab

2hrs/wk, Tutorial 2 hrs/wk.

EME-414 Switchgear and Protection of High Voltage Systems (3 CR)
The focus of this course is on protection utilized within the electricity supply system and associated switchgear. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-415 Combinational Logic (3 CR)
The course provides an introduction to the devices, circuits and techniques of digital electronics. Students and graduates investigate the logical and electrical characteristics of logic gates. From given Boolean expressions logic gates are combined to form combinational logic circuits, which are built and tested. The binary number system used by digital circuits, the decimal number system and the hexadecimal number system are investigated along with methods of conversion between them. This Course is suitable for students and graduates wishing to embark upon a career in electronic engineering. It is also suitable for students and graduates studying other branches of engineering, science, computing or Technology.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-416 Utilization of Electrical Energy in Buildings (3 CR)
This Course is designed to enable students and graduates to develop knowledge and competence related to the specification of services required for the utilization of electrical energy in buildings. The Course provides students and graduates with the opportunity to appreciate concepts of heating, lighting, ventilation and air-conditioning systems and to develop the skills necessary to solve design problems on these systems. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-417 Applications of Power Electronics in Electrical Motor Drives Systems (3 CR)
This Course has been designed to develop students and graduates' knowledge, understanding and skills in a range of power electronic circuitry used in electrical motor speed and torque control. More specifically students and graduates will study three-phase converters, a.c. to a.c. regulators and inverters particularly as these are applied to motor speed control. Students and graduates will also be provided with an opportunity to consolidate their knowledge, understanding and skills in power electronics and electrical motor speed control by undertaking an investigation into the operation and performance of an electronically controlled motor speed control system. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-418 High Level Eng. Software (3 CR)
This course is designed to give students and graduates knowledge and understanding and apply basic software engineering concepts to solving electrical and electronic engineering problems that require a software solution. The emphasis in this Course is on writing and testing and documenting I/O programmes using the basic structures available in most high level languages. This Course provides the students and graduates with the opportunity to develop skills in system design (top-down design), detailed design (using flow charts or programme design language), implementation in the design in a high level language and verification of the design. This Course also allows the students and graduates to develop their communication skills by generating the documentation for the designed solution.
Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-419 Promoting Energy Efficiency in the Workplace (3 CR)
This course is designed to enable students and graduates to understand the concept of energy efficiency, and to gain knowledge about the tools and techniques which can be utilized in the promotion of energy efficiency in the workplace. Students and graduates should also become aware of where help and advice can be obtained both inside and outside the organization. It would be of particular relevance to supervisors or middle managers who had line-management responsibility for the implementation of energy management policies. Lecture 2hrs/wk, Lab 2hrs/wk, Tutorial 2 hrs/wk.

EME-490 Graduation Project I (3 CR)
This course is aims to introduce to the students the concept of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-491 Graduation Project II (3 CR)
This course is aims to introduce to the students the concept of developing an engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 1hrs/wk, Practical 5 hrs/wk.

EME-492 EME Design Project I (3 CR)
This course is aims to introduce to the students the concept of developing an electrical engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications. Lecture 2hrs/wk, Practical 5 hrs/wk.

EME-493 EME Design Project II (3 CR)
As a continuation of EME Design Project I This course is aims to introduce to the students the concept of developing an electrical engineering technology project in the field of student specialization utilizing the knowledge and hands-on the student has gained over the first two years of study and training. The project scope could be outlined by an industrial sponsor towards a real life technical applications.
Lecture 2hrs/wk, Practical 5 hrs/wk.

Engineering Fundamentals (ENG)

ENG-110 Engineering Graphics (2 CR)
This course includes exploration of lines and planes as they relate 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; the techniques involved in creating oblique projections, axonometric projections, and perspective drawings; and the dimensioning techniques and symbol usage common to all drafting disciplines.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk.

ENG-111 Industrial Safety and Professional Ethics (2 CR)
This course provides principles and practices of accident prevention, analysis of accident causes, mechanical/electrical/chemical/radiation safeguards, fire prevention, housekeeping, occupational diseases, first aid, protection equipment, general safety principles and promotion, and moral responsibilities to society.
Lecture 2 hrs/wk, Tutorial 1 hr/wk.

ENG-112 Schematics and Engineering Diagrams (3 CR)
This course covers interpretation of basic shop drawings, conventional symbols, common electrical and electronic symbols, wiring diagrams, hydraulic and pneumatic symbols, schematic drawings, and piping diagrams.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

ENG-226 Engineering Mechanics (2 CR)
Force and moment vectors, resultants. Principles of statics and free-body diagrams. Applications to simple trusses, frames, and machines. Properties of areas, second moments. Internal forces in beams. Laws of friction. Principles of particle dynamics. Mechanical systems and rigid-body dynamics. Kinematics and dynamics of plane systems. Energy and momentum of 2-D bodies and systems. This course develops the fundamentals of engineering mechanics and problem solving skills essential for petrochemical engineering.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-121 Mechanical Workshop (2 CR)

This course provides mechanical shop safety procedures, bench work, hand tools, precision measuring instruments, drill press, and manual and machined mechanical processes.
Lecture 1 hr/Laboratory 2 hrs/wk.

ENG-122 Mechanical Technology I (3CR)
This course provides basic operation of valves, pumps, heat exchangers, steam traps, filters and strainers, air compressors, and refrigeration machines.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-223 Mechanical Technology II (3 CR)
This course provides basic operation of heating, ventilation, air conditioning, lubrication principles, steam turbines, and diesel engines.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENG-121

ENG-124 Thermodynamics (3CR)
This course covers thermodynamics properties and units, energy forms and balances, steam production and uses, thermodynamic processes, and thermodynamic cycles.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-225 Heat Transfer and Fluid Flow (3CR)
This course covers fluid static and dynamic operation, heat transfer and heat exchangers, thermal hydraulic principles, and thermal hydraulic limitations.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-131 Introduction to Electrical Technology (2 CR)
This course provides electrical shop safety procedures, measurement and evaluation of electrical components, devices, and circuits, power distribution circuits and wiring, enclosures, and printed circuit board development.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-132 Electrical Technology I (3 CR)
This course provides basic electrical theory, voltage production, basic DC theory and circuits, DC circuit inductance and capacitance, DC generators, DC motors, batteries and current converters.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENG-131

ENG-233 Electrical Technology II (3 CR)
This course provides basic AC theory, basic AC reactive components, three phase power, AC generators and transformer, and AC motors.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENG-132

ENG-133 Applied Electrical Technology (3CR)
This course provides basic electrical theory, voltage production, basic DC theory and circuits, DC circuit inductance and capacitance, DC generators, and DC motors. Also it covers basic AC theory, basic AC reactive components, three phase power, AC generators and transformer, and AC motors.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-141 Instrumentation and Control I (3 CR)
This course provides basic concepts of instrumentation and control, temperature sensors and detectors, pressure sensors and detectors, level sensors and detectors, and flow sensors and detectors.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

Pre-requisite: MATH102 and PHYS102

ENG-242 Instrumentation and Control II (3 CR)
This course provides concepts of process control, valve actuators and position indicators, miscellaneous sensors and detectors, chemistry instrumentation, and radiation detectors.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENG-141

ENG142 Applied Instrumentation and Control (3 CR)
This course provides basic concepts of instrumentation and control, temperature sensors and detectors, pressure sensors and detectors, level sensors and detectors, and flow sensors and detectors. Also covers concepts process control, valve actuators and position indicators and miscellaneous sensors and detectors
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102 and PHYS102

ENG-151 Engineering Mechanics and Thermodynamics (3,0,3-3)
This course introduces the fundamentals of engineering statics and dynamics applied to structures. An understanding of coplanar concurrent forces and moment of inertia to stationary and moving objects to develop working skills in mechanics is covered.
Pre-requisite: MATH102 and PHYS102

ENGLISH-Course Description (ENGL)

ENGL-101 English Communication Skills (3 CR)
This course enables students to develop their language skills to communicate effectively for lifelong learning. It helps students read critically, make inferences, draw conclusions, and detect relationships between generalizations and supporting details. This course covers a variety of relevant language and technology topics such as personality types, travel abroad, language, engineering, renewable energy, effective English writing, English grammar, and lexical items.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: IELTS 5.0

ENGL-102 Technical Communications (3 CR)
This course focuses on developing students' language skills in technical communication genres. This course is designed to introduce students to information and language specifically for future technical careers. Covered in this course are the following: the importance of Technical Communication (TC); the goals of TC; ethical and legal considerations; verbal and nonverbal communication; features of effective oral presentations; routine correspondence; document design; descriptions and process analyses; short, informal reports, and criteria and reasons for conducting research in technical communication.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENGL-101

ENGL-103 English for Oil and Gas
This course provides petroleum engineering students with the language, information, and skills that they need in their field of study and future careers. It enables them to learn and practise the English language and specialized terms that they need in real work situations. Consequently, this course develops the students' lexical items, language skills, and knowledge to understand the oil and gas industries, and helps them to apply this knowledge practically. It covers a range of subjects such as upstream, downstream, the refinery process, discovery, hydrocarbons, exploration, drilling, production, transportation, and storage.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENGL-101

ENGL-104 English for Engineering Technology
This course aims to improve the English communications skills for engineering students. It focuses on important language features including specialized vocabulary and terms used in technology and

engineering. By the end of this course, the students will be able to gain the required knowledge and communication skills needed in their specialized field. It covers a variety of related topics, such as robotics, electronics, parts, plastics, manufacturing, etc.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENGL-101

ENGL-105 English for IT
This course builds on the foundational ICT technical communication skills developed in English for IT Specialists. In addition to refining students' competencies in grammar, ICT vocabulary, and oral and written comprehension and expression, this course endeavors to apply students' knowledge in the exploration of current topics of critical interest in the ICT sector. Students will also hone their mastery of technical communication through hands-on exercises, including conducting research, report writing, and giving presentations.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: ENGL-101

ENGL-106 English for Aviation
Pre-requisite: ENGL-101

This course is designed to introduce students to domain-specific terms and skills. Throughout this course, students will be trained to give descriptions, explanations, and information using aviation specific topics and vocabulary. They will also be able to use the language skills that they have picked up in previous English courses within aviation contexts.

This course will focus on units covering design and innovation, manufacturing techniques, frameworks, control systems, engine and fuel systems, and safety emergency.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

ENGL-107 English for Meteorology (3CH)
Pre-requisite: ENGL-102
This course focuses on developing students' English language skills in preparation for a career in Meteorology Science. It introduces students to information and language specific to Meteorology. Covered in this course are the following: Meteorology careers and relevant topics; technology and equipment used in Meteorology; analytical thinking; formal, oral presentations; writing and editing relevant short reports; lexical items in relevant contexts; and English grammar.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

ENGL 1003 – Introduction to Aviation (3,0,2-3)
The course covers a range of topics in aviation history and theories, including aircraft knowledge, aircraft components and instruments, theory of flight, turbulence, cartography, ATC rules and procedures, radar theory, navigation theory, flight plans, ATC communications, weather hazards and alerting services.
Pre-requisite: None
Co-requisite: None

FLIGHTLINE MAINTENANCE-Course Description

FLM 1013 – General Safety, Human Factors, Fire Protection and Control (2,6,2-4)

The course provides an understanding and practical skills of personal and workshop safety, evaluating incidents attributable to human factors and human errors, human performance and limitations, social psychology, environmental influences, errors and their effects on human performance, determine fire classes, decide measures of firefighting, and handle aircraft fire extinguishing equipment,
Pre-requisite: None
Co-requisite: None

FLM 1023 - Workshop Practices, Quality Assurance and GSE Maintenance (2,6,3-4)

The course provides understanding and practical skills to operate hand and power tools, interpret engineering drawings , apply methods of joining aircraft structural members, introduces to regulations related to aircraft quality assurance and quality control procedures, enables to operate and maintain aircraft Ground Support Equipment (GSE) such as hydraulic test benches, ground power units, stairs, ladders, and aircraft towing bars, carry out minor fault diagnosis and defect rectification such as leaks, and loose connections.
Pre-requisite: None.
Co-requisite: None

FLM 1033 – Aircraft Electric and Hydraulic/Pneumatic Power Generation (2,6,2-4)

The course provides a basic overview of aircraft electrical equipment, the generation of different types of current (AC/DC) and their control, safety precautions while handling with electrical or hydraulic power, aircraft electrical power management, types of batteries, charging, loads, systems maintenance, principles of hydraulic and pneumatic aircraft systems, including components such as valves, motors, high pressure and low pressure systems, related power generation and control.
Pre-requisite: None
Co-requisite: None

FLM 1044 – Fundamentals of Turbine and Piston Engines (2,6,2-4)

The course provides basic knowledge of gas turbines and piston engines and their principles of operation, introduces to the various types of engine components and accessories like: fuel system, hydraulic system, lubrication system, starting system, ignition systems, indication systems, and fire-protection system.
Pre-requisite: None
Co-requisite: None

FLM 1054 - Aircraft Fuel & Lubricants and Electrical Ground Power Supply (2,6,3-4)

The course covers the various types of fuels and lubricants used in aviation, identification, properties, calorific values and uses, aspects related to storage, handling and required safety precautions. The course provides a basic overview of aircraft electrical ground supply units, and their basic principles of operation, introduces to aircraft ground power management, aircraft electrical distribution systems, aircraft lighting systems, batteries, Ground Power Units (GPUs), and safety precautions.
Pre-requisite: None
Co-requisite: None

FLM 1064 - Flight Line Operations, Aircraft Documentation (2,6,2-4)

The course provides knowledge and practical experience in aircraft handling and flight line operations like: aircraft taxiing, towing, marshalling, parking and mooring, jacking, tire mounting, flight line inspections, operational testing and troubleshooting as well as consumables replenishment. The course introduces to the various aircraft maintenance documents and applied maintenance procedures. It covers the range of aircraft related documentation such as aircraft log books, manuals, SI, STI, amendments, IPC, and explains how the respective forms have to be filled in.
Pre-requisite: None
Co-requisite: None

Humanities (HUM)

HUM-100 Study Skills (2 CR)

The Study skills course is based on the Emirati students' needs at higher education level to help them complete their studies effectively. It bridges the gap between school and university education level to enable the graduates of high schools to have the needed skills, support, and guidance to achieve success in their academic life. This course covers a variety of topics such as university' life, students' rights and responsibilities, Abu Dhabi Polytechnic's policies, soft skills, self-awareness, note-taking skills, teamwork, ethical communications, time management skills, problem solving skills, Independent study, autonomous learning, and E-learning skills.

Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

HUM-141 Islamic Culture (2 CR)

This course examines the history of Islam and the issues arising from a changing world, such as aspects related to political, economic, social, and cultural history of Islamic Civilization from the Prophet (peace be upon him) and beyond. Students will be introduced to the complexities involved in the attempts to integrate Islamic religious and cultural beliefs.

Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

HUM-142 National Culture and Society (2 CR)

This course defines the main components of the emirates society and culture. This course broadens the students' education and deepens their understanding of their culture and society with special emphasis on UAE, Arabic and Islamic societies. The UAE is a fast growing community which is focused on rooting the values and ethics of the Emirates society and culture. It also emphasizes the country's achievements on economic, political, and social levels which are important aspects at Abu Dhabi Polytechnic. The course covers the historical interaction between the UAE, and its neighboring countries.

Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

Information Technology and Security Fundamentals

ICT-011 Computer Hardware and Software Essentials (3CR)
This course addresses the body of knowledge required for the current CompTIA A+ Certification. The emphasis is on the fundamentals of installing, maintaining and configuring, computer hardware, operating systems, networks and security systems. The course is taught in conjunction with the Cisco Academy using the IT Essentials Curriculum. The course addresses the CompTIA A+ Essentials test.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorials 2 hrs/wk..

ICT-012 Introduction to Programming and Problem Solving (3CR)
The course is targeted to students who have no programming knowledge and experience. The overall goal of this course is to get students familiar with programming concepts and constructs at a relatively slow pace. Furthermore, this course is designed to help students in gaining programming skills and to use a number of special educational tools and systems. This course focuses on Java programming language and environment as a tool to meet the course objectives.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorials 2 hrs/wk.

ICT-021 Programming in Java I (3 CR)
This course endures the ”Introduction to Programming - ” course and builds on previous programming experience and knowledge by studying the course ”Programming in Java I”. This course emphasizes on developing students programming skills and assures that students are capable of configuring and controlling the Java programming platform.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorials: 2 hrs/wk.

ICT-022 Web Programming I (3 CR)
This course introduces students to web application developments. Course will introduce students to how internet works and basics of HTML, Cascade Style Sheets (CSS), JavaScript, DHTML, and HTML5.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorials 2 hrs/wk.

ICT-023 Discrete Mathematics (3 CR)
This course introduces the foundations of discrete mathematics as they apply to computer science. Topics include functions, relations and sets, basic logic, proof techniques, basics of counting.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

ICT-031 Programming in Java II(3 CR)
This course is focused on embracing different programing skills for students. However, this course covers how to create Java technology applications that leverage the object-oriented features of the Java language, such as encapsulation, inheritance, and polymorphism.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

ICT-032 Web Programming II (3CR)
This course is a continuation of ICT-022 (Web Programming I). It covers the structure and function of server side scripting language- Java Server Pages (JSP) and Java Servlets. Students will use these technologies to build interactive web applications. Further topics such as the security and authentication techniques used in web applications are discussed.
Lecture 2 hrs/wk, Lab 3hrs/wk, Tutorial 2 hrs/wk.

ICT-033 Logic Design and Computer Organization (3CR)
This course provides students with the basic computer organization; memory systems including caches, computer arithmetic, processors, controllers, input/output, buses, DMA; data formats; addressing modes; instruction sets and microcode; design of a simple computer; assembly language and programming techniques, bus and memory organization.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

ICT-034 Data Structure and Algorithm Design (3 CR)
This course is an introduction to the concepts of Abstract Data Structures such as Arrays, Queues, Stacks, Heaps, Linked Lists, Maps and Trees. Data structures are implemented in the software development process, through accompanying algorithms, in order to develop efficient, robust and creative software. Introduction to Algorithm analysis, designing of algorithms, measuring algorithms runtime, and their correctness, search structure, sorting, and graphs.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorials 2 hrs/wk.

ICT-035 Computing Ethics
The overall objective of this course is to introduce different aspects of the IT-profession and their ethical law. This course gives an overview of ethics for computer science and computer engineering students. Topics include ethical foundations; privacy; security; cybercrime; intellectual property; free speech; the digital divide; digital identities; and dependence on cyber structure.
Lecture 2 hrs/wk, Tutorials 2 hrs/wk.

ICT-041 Fundamentals of Information Security (3CR)
This course covers basic concepts and techniques in applied information security, e.g., confidentiality, integrity, availability, and current concerns of anonymity, privacy and safety of web-based transactions, forensics investigations, etc. The course also covers the main available safeguards, such as authentication, authorizations, and network security, and shows how these techniques are applied to address the issues arising in a variety of different domains, ranging from business to health care, from law to national security. The course is linked to CompTIA security+ certificate.
Lecture 3hrs/wk, Lab 1 hrs/wk, Tutorial 2 hrs/wk.

ICT-042 Intro to Database Systems (3CR)
This course covers database design and the use of database management systems. It includes an introduction to the relational model, relational algebra, and SQL. The students will gain the required knowledge to describe databases, their characteristics, functions, pros and cons. Topics include data modeling, database design theory, data definition and manipulation languages, storage and indexing techniques, etc. on Oracle database management system.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

ICT-043 Introduction to Software Security (3CR)
The course introduces basic and fundamental concepts in software security. The course starts by describing the software development life cycle. The course then introduces different secure software development issues. More specifically the course will cover secure software developing (SSD) and other secure software development issues related to smart phone and web application development.
Lecture 3 hrs/wk, Lab 1 hrs/wk, Tutorial 2 hrs/wk.

ICT-044 Introduction to Computer Networks Security (3CR)
This course examines principles, design, implementation, and performance of computer networks. The course is designed to provide participants with an introduction to fundamental concepts in the design and implementation of computer communication networks, their protocols, and applications. Topics include: Internet protocols and routing, local area networks, wireless communications and networking, TCP, network address translation, switching and routing, etc. It will also embark students on basic issues in network security, protection, and hardening.
Lecture 3 hrs/wk, Lab 1 hr /wk, Tutorial 2 hrs/wk.

ICT-045 Intro to Operating Systems Security (3CR)
The course aims to introduce Operating System Concepts with emphasis on foundations and design security principles. This course covers and traces the evolutionary history of Operating Systems and introduces, concepts of Batch processing, Multiprogramming and Timesharing, structures and functions of operating systems, the different components of operating system like Process Management, Concurrency mechanisms, Deadlock handling, Memory Management techniques, Virtual Memory, File System and Secondary Storage Management, Security and protection etc.
Lecture 3hrs/wk, Lab 1 hrs/wk, Tutorial 2 hrs/wk.

Mathematics and Sciences (MAS)

MATH-101 Mathematics I (3 CR)
This course covers arithmetic functions, elementary algebra, rational and quadratic equations, linear and quadratic functions, logarithmic and exponential functions, and application of scientific and engineering notation.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

MATH-102 Mathematics II (3 CR)
This course is a continuation of Mathematics I with emphasis on analyzing data by means of functions and graphs and statistical analysis and interpretation of results. Additionally, it emphasizes on mathematical concepts of algebra and trigonometry.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH101

MATH-103 Mathematics III (3 CR)
This course is an extension of Mathematics I and II emphasizing mathematical modeling of real-world applications such as the creation and interpretation of graphs and control charts. This course covers the basic concepts and applications of differentiation, and the basic methods and applications of integration.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH102

MATH-104 Mathematics IV (3 CR)
This course covers the basic concepts and applications of sequences and series, 3D space and partial derivatives.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH103

MATH-201 Statistics (3CH)
This course covers the principal concepts in statistics and the definitions. Measurements and scales, frequency distributions and graphs, measures of central tendency, kurtosis and skewed distribution, examining distributions and estimations, sampling theory, predication theory and applications. Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH103

MATH-301 Advanced Mathematics (3 CR)
This course covers the basic concepts and applications of ODEs, Complex Number Theory, PDEs and their applications.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: MATH104

MATH 2004 Advanced Technical Mathematics (3,0,3-3)
This course covers topics that are deemed pertinent to technology. It continues with coverage of trigonometry, complex numbers, matrices, polynomials and rational functions, basic statistics, analytic geometry, differential and integral calculus with applications, partial derivatives and double integrals, series, and differential equations. This course can be used as an elective.
Pre-requisite: MATH 102
Co-requisite: None

Physics

PHYS-101 Physics I (3 CR)
The course provides the fundamentals of physics and skills in fundamental concepts relating to units, kinematics, dynamics, work, energy, stress, strain and Modulus of Elasticity.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: Math101
Co-requisite: None

PHYS-102 Physics II (3 CR)
This course is a continuation of Physics I with an emphasis on developing student understanding and skills in fundamental concepts related to rotational motion, torque, principle of conservation of angular momentum, and fluid mechanics.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: PHYS101
Co-requisite: None

PHYS-103 Physics III (3 CR)
This course is a continuation of Physics II with an emphasis to develop student understanding and skills in the fundamentals of heat and thermodynamics, heat transfer, optics, waves, Gyroscopes, sound and vibration.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: PHYS102

Chemistry

CHEM-101 Chemistry I (3 CR)
This course provides the basic fundamentals of chemistry including solution chemistry, physical states, and nomenclature with a focus on water chemistry including effects of impurities, ion exchange, water treatment, and corrosion.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.

CHEM-102 Chemistry II (3 CR)
This course is a continuation of Chemistry I with an emphasis on water chemistry fundamentals, sources and types of impurities, control/removal of impurities, effects of impurities, the use of hydrogen gas in oxygen control, radical production and recombination, and radiochemistry.
Lecture 2 hrs/wk, Lab 2 hrs/wk, Tutorial 2 hrs/wk.
Pre-requisite: CHEM101

Information Technology

ICT-112 Introduction to Programming and Problem Solving

The course targets students who have no programming knowledge and experience. The overall goal of this course is to get students familiar with programming concepts and constructs at a relatively slow pace. Furthermore, this course is designed to help students in gain problem solving skills using tools and methods that apply to various industrial environments. The course presents simple case studies using Java programming language and environment.
Lecture 2 hrs./wk, Lab 2 hrs./wk, and Tutorials 2 hrs/wk

ICT-140 Modeling and Simulation I (2CR)
The MATLAB environment, simple calculations using MATLAB, programming in MATLAB, Matrix computations, advanced graphs, solving nonlinear problems in MATLAB, efficiency in MATLAB, advanced data types in MATLAB
Lecture 1hrs/wk, Lab 1 hrs/wk, Tutorial 2 hrs/wk.

ICT-210 Modeling and Simulation II (2CR)
This course covers simulation basics, dynamical, finite state, and Complex model simulations, converting to parallel and distributed simulations, probability and statistics for simulations and analysis, simulations results analysis and viewing tools.
Lecture 1hrs/wk, Lab 1 hrs/wk, Tutorial 2 hrs/wk.

Secure Software Development Specialization

SSD-110 Secure Database Development I (2CR)
This course introduces oracle database systems. This course focuses on training student to efficiently develop the database using the SQL* and the PL/SQL. By completing this course student shall be able to successfully obtain the *Oracle Certified Associate (OCA)* certificate.
Lecture 1 hrs/wk, Lab 2 hrs/wk, Tutorials 2 hrs/wk.

SSD-111 Practical Requirements Engineering (3 CR)
This course focuses on the importance of requirements engineering process to successful software development projects. Furthermore, this course demonstrates the requirements process during the software development life cycle. Solicit requirements from stakeholders, write and maintain a usable requirements specification. Requirements prioritization and packaged for different releases of software systems.
Lecture 3 hrs/wk, Tutorials 3 hrs/wk.

SSD-112 Secure Web Programming (3 CR)
This course focuses on developing large scale, dynamic and secure web applications using the PHP Programming language and features. This course is a preparation stage for the *"'PHP - Zend Certificate"'*. During this course students are obligated to develop professional dynamic websites.
Lecture 1 hrs, Lab 3hrs, Tutorials 2 hrs/wk.

SSD-113 Secure Java Programming (3CR)
This course focuses on preparing students for the Sun
Microsystems exam certificates. By completing this course student shall be able to successfully obtain the *"' Oracle Certified Java Associate (SCJA)"'* qualification certificate.
Lecture 1 hrs/wk, Lab 3 hrs/wk, Tutorial 2 hrs/wk.

SSD-114 Fundamental of C++ Programming (3CR)
C++ is a widely used Programming language for application development. The course introduces C++ syntax and functions not found in the traditional C. The fundamental concepts of the object oriented paradigm are introduced and object oriented Programming is stressed in place of traditional structured Programming. Object arrays, pointers to objects, and linked lists of objects are the focus of the class.
Lecture 2 hrs/wk. Lab 2 hrs/wk, Tutorial 2 hrs/wk.

SSD-115 Information Systems Security (3CR)
The overall objectives of this course to elevate students' knowledge and professionalism by understanding the major concepts and fundamentals in the information systems security.
Lecture 2 hrs/wk, Tutorials 2 hrs/wk., Lab 2 hrs/wk.

SSD-120 E-Commerce (3 CR)
The overall objective of this course to introduce different applications of Electronic Commerce. Furthermore, this course elaborates on the importance of Security in designing and developing these applications.
Lecture 3hrs/wk, Tutorials 2 hrs/wk.

SSD-121 Secure Mobile Applications Development (3CR)
This course introduces mobile platform as for software applications development. This course covers basic level of mobile applications development using the Java as a Programming language. This course is a preparation stage for the"'J2ME"'.
Lecture 1hrs/wk, Lab 3hrs/wk, Tutorials 2 hrs/wk.

SSD-122 System Analysis and Design (3CR)
This course introduces established and evolving methodologies for the analysis, design, and development of an information system. Emphasis is placed on system characteristics, managing projects, prototyping, CASE/OOM tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.
Lecture 2 hrs/wk, Lab 1hrs/wk, Tutorial 2 hrs/wk.

SSD-124 Secure Database Development II (3CR)
This course endures the afore offered course "'Database Development I"' learning objectives. However, this course covers developing database forms and reports using Oracle technology and solutions. This course is a preparation stage for the *"'Oracle Certified Professional"' - OCP* .
Lecture 1 hrs/wk, Lab 3hrs/wk, Tutorials 2 hrs/wk.,

SSD-130 Desktop Software Applications Development (in-House) (3 CR)
The overall objectives of this course to build on students' knowledge and professional maturity in developing desktop software applications.

SSD-131 Secure Web Application Development (in-House) (3 CR)
The overall objectives of this course to build on students' knowledge and professional maturity in developing secure web-based systems.

SSD-132 Secure Mobile Applications Development (in-House) (3 CR)
The overall objectives of this course to build on students' knowledge and professional maturity in developing software applications for mobile devices.

SSD-133 Secure Database Development II (In-House) (3CR)
The overall objectives of this course to build on students' knowledge and professional maturity in developing database software applications using SQL/ PL SQL/ Forms builders and Report Builders.

SSD-134 Software Project Management (in-House) (3 CR)
The overall objectives of this course to elevate students capability to successfully design a project plan for a software development project.

SSD-135 Human-Computer Interaction (In-House) (3CR)
The overall objectives of this course to elevate students' capability to design and implement a user-friendly secure software application.

SSD140 Secure Software Design and Implementation (In House) (3CR)
The overall objectives of this course to build on students' knowledge and professional maturity in designing and developing secure desktop software applications.

SSD141 Web Applications Security (In House) (3 CR)
The overall objectives of this course to build on students' knowledge and professional maturity in designing and developing secure web-based systems.

SSD142 Ethical Hacking (in House) (3CR)
This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and

processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.

SSD-143 Database Security (in-House) (3CR)
The overall objectives of this course to build on students' knowledge and professional maturity in designing and developing secure database software applications using SQL/ PL SQL/ Forms builders and Report Builders.

SSD144 Mobile Applications Security (in House) (3 CR)
The overall objectives of this course to build on students' knowledge and professional maturity in designing and developing secure software applications for mobile devices.

SSD-210 Web Infrastructure and Security Architecture (3 CR)
This course focuses on embracing the different requirements and their influence on identifying the infrastructure requirements and develops secure and large scale architecture for web applications. This course uses E-Commerce web applications, social networks as an example to explore security threats, importance of attaining dependable web applications.
Lecture 2 hrs/wk, Tutorials 2 hrs/wk, Lab 2 hrs/wk.

SSD-211 Object Oriented Analysis and Design (3CR)
In this course, the students will learn how to produce detailed object models and designs from system requirements; use the modeling concepts provided by UML; identify use cases and expand into full behavioral de-signs; expand the analysis into a design ready for implementation and construct designs that are reliable.
Lecture 3 hrs/wk, Tutorials 2 hrs/wk.

SSD-212 Advanced Secure Mobile Applications Development (3CR)
In this course, students are introduced to additional features, Programming skills, and projects on mobile software applications development using the J2ME technology.
Lecture 1 hrs/wk, Labs 4 hrs/wk, Tutorial 2hr /wk.

SSD-213 Software Verification and Validation (3 CR)
The overall objective of this course is to develop student's knowledge and professionalism to develop software system that meets customers' requirements according to processes best practices, standards and procedures.
Lecture 3hrs/wk, Tutorial 2 hrs/wk.

SSD-214 Embedded Systems Secure Development I (3CR)
In this course, the fundamentals of embedded system hardware and firmware design and implementation will be explored. Issues such as embedded processor selection, hardware/firmware partitioning, glue logic, circuit design, circuit layout, circuit debugging, development tools, firmware architecture, firmware design. The architecture and instruction set of the microcontroller will be also presented.
Lecture 1hrs/wk, Tutorial 2 hrs/wk, Lab 3hrs/wk.

SSD-215 Graduation Project (1CR)
The overall course objective is to develop students' creativity, design, and team work skills.

SSD-240 Software Quality Assurance and Management (3CR)
The overall objectives of this course are focused on introducing basic concepts, models, and approaches to achieve quality to software applications.
Lecture 3hrs/wk, Tutorial 2 hrs/wk.

SSD-241 Embedded Systems Secure Development II (3 CR)
This course is continuum from the afore offered course Embedded Systems Development I. The overall objective of this course is to build on student's skills and knowledge to develop software applications for embedded (real-time) systems.
Lecture 1hrs/wk, Tutorial 2 hrs/wk, Lab 4 hrs/wk.

SSD242 Selected Topics in Software Engineering (3 CR)
The course offers participants with advanced topics in software engineering that is related to new technology, solutions, models, and approaches.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 3hrs/wk.

SSD243 Graduation Project II (2 CR)
The course will build on student's maturity and professionalism to develop software applications project. This course enables students to implement their theoretical and practical knowledge gained from training and course throughout their studies in this field to develop their software development project.
Lecture 1hrs/wk, Tutorial 2 hrs/wk, Lab 3hrs/wk.

SSD244 Penetration and Vulnerability Testing (3CR)
This course content revolves around series of exercises based on "hacking" into a network (penetration testing the network) and then defending against the hacks with special emphasis on software application security. This hands-on course focusing on hacking techniques, exploit techniques, vulnerability assessment and penetrating testing techniques to build countermeasures.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSD-215 Graduation Project (1CR)
The overall course objective is to develop students' creativity, design, and team work skills.

SSD- 310 Information Security Risk Management (3CR)
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.

SSD- 311 Security Planning and Incident Handling (3CR)
The overall objectives of this course help student understand contingency planning and its components. This includes the role of policies and procedures as well as risk assessment, business impact analysis, incident reporting and response and business resumption planning.

SSD- 312 Information Assurance & Security Management (3CR)
This course provides students a systematic and practical approach for establishing, managing and operating a comprehensive Information Assurance programme. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies.

SSD- 313 Enterprise Software Architecture & Design (3CR)
This course is an introduction to Enterprise Architecture (EA), it is designed to be the first exposure to foundational enterprise architecture (EA) concepts and practices.

SSD- 314 Information Security Economics (3CR)
This course will introduce students with advanced knowledge about the challenges and current practices in security decision making. Student possesses thorough knowledge in financial models and security metrics. During the course students will apply his/her knowledge in financial models to support security decision making.

SSD- 315 Advanced Web Application Security (2CR)
The course will introduce web application security threats, such as hackers, masqueraders, information spoofing, sniffing, and distribution of damaging software, the associated security risks, and prevention/detection/response techniques.

SSD- 320 Information Warfare (3CR)
This course presents the relationships and interdependencies of business and national objectives, of companies and countries, and of their dependence on advances in technology. This course shows how the dependencies on advanced computing and information technologies can lead to a weak security weaknesses.

SSD- 321 Advanced Cryptology (3CR)
This course covers advanced topics in Cryptology including: classical cryptography, 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.

SSD- 322 Security Policy Design & Implementation (3CR)
This course examines the concepts underlying security policy design, implementation, and management. It addresses the steps in security model design, data classification, threats and vulnerabilities, quantitative and qualitative risk analysis, evaluating countermeasures, and the standards to ensure confidentiality, integrity, and availability.

SSD- 323 Info Security Governance & Compliance (3CR)
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.

SSD- 324 Ethics, Law and Policy in Cyberspace (3CR)
This course builds on topics covered in previous course (ICT-035 computing ethics). 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.

SSD- 325 Critical Software Security Controls & Standards (2CR)
This course will demonstrate the techniques and tools needed to implement and audit the critical security controls. It helps students master specific, proven techniques and tools needed to implement and audit the Twenty Critical Security Controls.

SSD- 330 Malware Analysis: Tools and Techniques (3CR)
This course will utilize key tools and techniques for malware analysis and examine malicious programmes. Students will learn how to explore Windows malware in two phases: Behavioral analysis focuses on the programme's interactions with its environment, such as the registry, the network and the file system.

SSD- 331 Organizational and Human Aspects of Information Security (3CR)
This course will give students insight into corporate organizations and policies, and how the security is embedded into organization, processes and corporate documentation framework. The course also gives practical awareness and the ability to plan a corporate awareness campaign.

SSD- 332 Security as Continuous Improvement (3CR)
This course covers the quality improvement paradox in security and quality improvement processes. It will also cover how to ensure the improvement of the performance of computer security incident Response teams (CSIRTs).

SSD- 333 Socio-technical Security Risk Modeling and Analysis (2CR)
In this course gives introduction to Systems Thinking and Socio-technical modeling and analysis, Technology Adoption and Security, Overview of the Information security landscape, How to conduct a socio-technical security and risk assessment of an organization or business, and Strategic.

SSD- 334 Elective Course (3CR)
This course will offer participants advanced topics in software development and security, which is related to new technology, solutions, models, and approaches. 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.

SSD- 335 Software Security Trends(3CR)
The course will explain the current software security challenges, well-known vulnerabilities, attack methods, secure software engineering principles, and strategies to avoid vulnerabilities.

SSD- 340 Field Training III(9CR)
This course shall be conducted collaboratively with Abu Dhabi Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules.

Network and Cyber Security Specialization

NCS-110 Routing and Switching I (3 CR)
This course develop student abilities in routing and switching fundamentals of computer networks to achieve certain performance goals and to define routing criteria including addressing and schema that may affect system performance. Topics include LAN/WAN, Protocol Hierarchies, OSI Reference Model, TCP/IP reference Mode, IP Addressing, Address Resolution Protocol, ARP cache, ARP on same network, ARP on different networks, ARP protocol format.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-111 Secure Network Design I (3 CR)
This course builds student skills required to comprehend LAN design and analysis, implementation of routing protocols, WAN technologies and telecommunications industry standards with special emphasis on Cisco equipment and protocols. Design a LAN solution detailing structured cabling components, desktop and server hardware, network operating systems, and network administration tools. VLANs, Interval Routing, Wireless AP Configuration, Enterprise Security, Network Troubleshooting.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-112 Network Security I (3 CR)
This course will cover the essential issues in computer (digital) and network security. Topics include: viruses, Internet worms, computer crime, web server security, denial of service attacks, authentication protocols, firewalls, Trojan horses, intrusion detection, data encryption methods, public key cryptography (RSA, DES), email viruses, attachments, spyware, digital homeland security.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-113 Wireless Networks (3 CR)
This course addresses the fundamentals of wireless networking, including architectures, protocols, and standards. It describes concepts, technology and applications of wireless networking as used in current and next-generation wireless networks.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-114 Storage Networking I (2 CR)
This course develops student capabilities in information storage system environment: information storage, evolution of storage technology and architecture, Data Center Infrastructure, key challenges in managing Information. Additional topics include basics of Storage technology, storage systems architecture, network storage, storage area networks, information availability, securing the storage

infrastructure.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

NCS-115 Internet and Cyber Security (3 CR)
The objective of this course is to cover attacks and threats in Internet and cyber space. The student will be introduced to network mapping, port scanning, sniffing, Does, Dodos, reflection attacks, attacks on DNS and leveraging P2P deployments for attacks. Other topics covered include certification authorities, digital signatures and message integrity. In addition, secure networking protocols, including PGP, SSL, and IPsec are also covered.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-120 Routing and Switching II (3 CR)
This course is a continuation of Routing and switching I with focus on Cisco Advanced Routing and LAN Switching focused on the ability to sell, design, install, and support the core infrastructure of a Cisco solution for small and medium-sized businesses. Knowledge of building, configuring, and troubleshooting campus networks and remote access networks.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-121 Secure Network Design II (3 CR)
This course is a continuation of network design I with emphasis designing networks like LAN, WAN, and broadband access leading to Cisco CCDA certification. This course discusses the design and implementation of network systems such as Ethernet switches and Internet routers. The network development life cycle. Network analysis and design methodology. Network design issues: Manageability; Node placement and sizing; Link topology and sizing; Routing; Reliability. Data in support of network design. Structured enterprise network design. Hierarchical tree network design.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-122 Network Security II (3 CR)
This course is a continuation of network security I with emphasis on developing skills required for CCNA Security certification leading to CCNP Security certification. This certification validates skills including installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security structure.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-123 Wireless Networks Security (3 CR)
The course will focus on the security and privacy issues associated with wireless networks. Various attacks against wireless networks and their defense strategies will be analyzed including satellite, terrestrial microwave, and military tactical communications, and public safety, cellular and wireless LAN networks. A CCNA Wireless certification will validate student ability to configure, implement and support wireless LANs using Cisco equipment.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-124 Storage Networking II (2 CR)
This course is a continuation of storage networking I with focus on putting into practice advanced Storage Networking Solutions (e.g. Cisco). It develops 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/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

NCS-125 Ethical Hacking and Digital Forensics (2 CR)
The course develops student skills about the integrity of the network infrastructure. A Certified Ethical Hacker is a skilled professional who understands and knows how to look for the weaknesses and vulnerabilities in target systems and uses the same knowledge and tools as a malicious hacker. Topics include ethical Hacking and Computer Crime, Scanning Networks, System Hacking, Hacking Webservers and Web Applications, Hacking Wireless Networks, Evading IDS, Firewalls, Digital Forensics.

Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-130 Routing and Switching I [In-House Training–Phase I] (3 CR)
The course builds on practical knowledge of students to select and implement routing and switching of computer networks and what would be the best routing protocols and switching fabrics to achieve certain performance using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-131 Secure Network Design I [In-House Training – Phase I] (3 CR)
The course focuses on LAN design and analysis, implementation of routing protocols, WAN technologies and telecommunications industry standards with special emphasis on Cisco equipment and protocols using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-132 Network Security I [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge of students to pertaining to essential issues in computer (digital) and network security. Topics include: viruses, Internet worms, computer crime, web server security, denial of service attacks, authentication protocols, firewalls, Trojan horses, intrusion detection, data encryption methods, digital homeland security using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-133 Wireless Networking Design [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge of students to the fundamentals of wireless networking, including architectures, protocols, and standards. It describes concepts, technology and applications of wireless networking as used in current and next-generation wireless networks using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-134 Storage Networking I [In-House Training – Phase I] (2 CR)
The course builds on practical knowledge of students on Information Storage System Environment: Information Storage, Evolution of Storage Technology and Architecture, Data Center Infrastructure, Key Challenges in Managing Information using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-135 Applied Cryptography [In-House Training – Phase I] (3 CR)
The course provides to students the necessary conceptual background and hands-on experience to understand the most common modern cryptographic algorithms and protocols and how to use them to secure distributed applications and computer networks.
In- House Practical Training and Evaluation.

NCS-140 Routing and Switching II [In-House Training [Phase 2] (3 CR)
The course builds on practical knowledge of students to develop Cisco advanced Routing and LAN Switching with focus on the ability to design, install, and support the core infrastructure of a Cisco solution for small and medium-sized businesses. Knowledge of building, configuring, and troubleshooting campus networks and remote access networks using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-141 Secure Network Design II [In-House Training [Phase 2] (3 CR)
The course builds on practical knowledge in designing networks like LAN, WAN, and broadband access leading to Cisco CCDA certification. This course discusses the design and implementation of network systems such as Ethernet switches and Internet routers, Network analysis and design methodology, Node placement and sizing; Link topology and sizing; Routing; Reliability using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.
NCS-142 Network Security II [In-House Training [Phase 2] (3 CR)

The course builds on practical knowledge of students skills leading to CCNP Security certification. This certification validates skills including installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality and availability of data and devices and develops competency in the technologies that Cisco uses in its security structure using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-143 Wireless Networks Security [In-House Training-Phase 2] (3 CR)
The course builds on practical knowledge of security and privacy issues associated with wireless networks leading to Cisco CCNA Security certification. Various attacks against wireless networks and their defense strategies will be demonstrated on cellular and wireless LAN networks. A CCNA Wireless certification will validate students' ability to configure, implement and support wireless LANs using Cisco equipment using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-144 Storage Networking II [In-House Training Phase 2] (2 CR)
The course builds on practical knowledge of putting into practice Advanced Cisco Storage Networking Solutions. The course will demonstrate different network storage solutions using training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

NCS-145 Ethical Hacking and Digital Forensics [In-House Training-2] (3 CR)
The course builds on practical knowledge of ethical hacking procedures and best practices. The course will prepare students for acquiring a world class certification on ethical hacking, which validates student abilities to hack into different types of information systems and find security breaches in a safe manner. The course also provides hands-on on computer crime investigation.
In- House Practical Training and Evaluation.

NCS-210 Advanced Routing and Switching (3 CR)
The course covers advanced topics in routing and switching leading to CCNP certification that allows students to manage today's complex networks while keeping key applications secure and performing efficiently. Topics include advanced Routing and Switching for complex system, lifecycle Services for Routing and Switching, Cisco Wide Area Application Services, and building Scalable Cisco Internetworks.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-211 Cloud Computing Security (3 CR)
This course covers cloud computing, cloud architecture and service models, the economics and benefits of cloud computing, horizontal/vertical scaling, thin client, multimedia content distribution, multiprocessor and virtualization, distributed storage, security in cloud computing, disaster recovery, free cloud services and open source software, and example commercial cloud services.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-212 Advanced Network Security (2 CR)
The course focuses on building the requirements for the Cisco CCNP Security certification. Holders of such certificate will be responsible for security in routers, switches, networking devices, and appliances. Skills validated in the course include choosing, deploying, supporting, and troubleshooting Firewalls, VPNs, and IDS/IPS solutions for their networking environments.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk, Lab 3 hrs/wk.

NCS-213 Advanced Wireless Networks Security (2 CR)
The course covers principles, advances, and challenges of next generation wireless networks. This course exposes students to a wide variety of optimization problems in the design and operation of wireless networks. Topics include Medium Access Alternatives, Security and Privacy, Wireless wans: Third and fourth Generation Systems, Imax standard, Wireless MANs, Ad-hoc Routing and Sensor networks. The course leads to CCNP Wireless certification.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk, Lab 3 hrs/wk.

NCS-214 Graduation Project I (1 CR)
The overall course objective is to develop students' creativity, design, and team work skills in pursuing a modern topic in network and cyber security issues.

NCS-215 Threats, Vulnerabilities, and Risk Analysis (3 CR)
The overall course objective is to develop students' skills in being able to identify and analyze common types of threats, vulnerabilities, and risks and their impact on the network performance. The course will also present how to develop countermeasures for such threats.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-221 Field Training I (9 CR)
This course shall be conducted collaboratively with Abu Dhabi Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure networking and web space.
11 weeks; Training Modules based on Industrial partner schedule.

NCS-231 Field Training II (9 CR)
Training Modules based on Industrial partner schedule This course is a continuation of Field training I with focus on building more job skills in the specialization of study.
11 weeks; Training Modules based on Industrial partner schedule.

NCS-240 Security Architectures and Models(3 CR)
The course covers the broad domain of security architecture and models, access control systems and methodology, laws, investigation, and legal ethics. 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/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-241 Mobile Networks Security (2 CR)
The course presents advanced topics in security solutions for wireless and mobile networks including security issues, challenges and solutions. It also outlines the security mechanisms which protect applications downloaded by mobile devices. The course will also provide solid foundation for developing secure mobile applications on Android mobile devices with emphasis on basics of mobile application security analysis and design.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-242 Firewall and Intrusion Analysis (3 CR)
The course focuses on network firewall security. It will cover installation and configuration techniques, and discuss how to make an intelligent choice of firewall technology and present basic firewall troubleshooting. Moreover, it will cover different intrusion detection systems and their signatures.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-243 Graduation Project II (2 CR)
The course is a continuation of Graduation Project I. Student will continue working on delivering creative, team work solution for the problem identified in the previous phase of the project.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk, Lab 3 hrs/wk.

NCS-244 Selected Topics in Network Security (3 CR)
This course will offer participants advanced topics in network security and cyber security, which is related to new technology, solutions, models, and approaches. The objective is to help students explore advancement, state-of-the-art technology, solutions, methods, processes, and approaches in order to cope with technology evolution.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-310 Privacy in a Networked World (3 CR)

This course will use hacking techniques 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.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-312 Advanced Mobile Device Security (3 CR)
This course provides guiding principles for how to best design and develop Mobile apps with security in mind. It explores concepts that can be used to secure apps and how developers can use and incorporate these security features into their apps.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-313 Network Perimeter Protection (3 CR)
This course covers network security and cryptographic protocols. Network vulnerabilities, attacks on TCP/IP, network monitoring, security at the link, network and transport layers. Network related physical security, risk management and disaster recovery/contingency planning issues and housekeeping procedures.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-314 Advanced Cryptology (3 CR)
This course covers advanced topics in Cryptology including: classical cryptography, 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/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-315 Information Assurance & Security Management (3 CR)
This course provides students a systematic and practical approach for establishing, managing and operating a comprehensive Information Assurance programme. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-320 Virtualization and Private Cloud Security (3 CR)
Cloud computing is a relatively new phenomenon that provides for distributed computing and data storage capabilities. This course will look at current research results in cloud security in order to identify opportunities for continued research in this field.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-321 Advanced Web Application Security (3 CR)
The course will introduce web application security threats, such as hackers, masqueraders, information spoofing, sniffing, and distribution of damaging software, the associated security risks, and prevention/detection/response techniques.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-322 Information Warfare (3 CR)
This course presents the relationships and interdependencies of business and national objectives, of companies and countries, and of their dependence on advances in technology. This course underscores how hostile countries, business competitors, terrorists, hacktivists and others are waging Information Warfare (IW) against their adversaries.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-323 Systems Embedded Security (3 CR)
The course will cover the topics of making embedded systems reliable, safe, and secure. The course will cover a study of the system architectures, operating systems and hypervisors, networking, storage, and cryptographic issues that must be considered when designing secure embedded systems.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-324 Info Security Governance & 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.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-325 Malware Analysis: Tools and Techniques (3 CR)
This course lays the groundwork for malware analysis by presenting the key tools and techniques malware analysts use to examine malicious programmes. Students will learn how to save time by exploring Windows malware in two phases.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-330 Firewall and Intrusion Analysis (3 CR)
The objective of this course is to provide the knowledge students need to effectively implement an information security (InfoSec) programme, businesses must follow a security policy and management best practices.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-331 Advanced Penetration Testing, Exploits, & Ethical Hacking (3 CR)
This course focuses on network and information systems security from an offensive point of view. Students will learn technical testing and examination techniques used to identify, validate and assess technical vulnerabilities within and enterprise.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS- 332 Ethics, Law and Policy in Cyberspace (CR)
This course builds on topics covered in previous course (ICT-035 computing ethics). 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.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-333 Security Planning and Incident Handling(2 CR)
The overall objectives of this course help student understand contingency planning and its components. This includes the role of policies and procedures as well as risk assessment, business impact analysis, incident reporting and response and business resumption planning.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-334 Elective Course (2 CR)
This course will offer participants advanced topics in network and cyber security, which is related to new technology, solutions, models, and approaches. The objective is to help students explore advancement, state-of-the-art technology, solutions, methods, processes, and approaches in order to cope with technology evolution.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-335 Network Security Trends (2 CR)
Students who will complete this course are expected to possess thorough knowledge of current network security challenges, well-known vulnerabilities, attack methods, secure network engineering principles, and strategies to avoid vulnerabilities.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

NCS-340 Field Training III (9 CR)
This course shall be conducted collaboratively with Abu Dhabi Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

Systems and Servers Security Administration Specialization

SSA-110 MS Server Security I (3 CR)
The course provides in-depth training on implementing, configuring, managing and troubleshooting Active Directory Domain Services (AD DS) in Windows Server 2008 and Windows Server 2008 R2 environments or later versions. It covers core AD DS concepts and functionality as well as implementing Group Policies, performing backup and restore and monitoring and troubleshooting Active Directory related issues
Lecture 2 hrs/wk, Tutorial 3 hrs/wk, Lab 2 hrs/wk.

SSA-111 MS Exchange Server Security I (3 CR)
The course covers issues on how to configure and manage a messaging environment in accordance with technical requirements. Students will learn how to install MS Exchange Server Security 2007 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 3 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-112 Linux/UNIX Operating Systems Security I (3 CR)
This course is intended to teach students how to 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. Apart from basic Linux/Unix proficiency, this course is designed to give students a working knowledge of tools in Linux/UNIX based work environments.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-113 Database Systems Security (2 CR)
This course will focus on issues related to the design and implementation of secure data stores. Emphasis will be placed on multilevel security in database systems, covert channels, and security measures for relational and object-oriented database systems
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

SSA-114 MS SharePoint Server Security I (3 CR)
The course equips students with skills 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 including configuring Security for SharePoint Content.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

SSA-115 Critical Infrastructure Security (3CR)
This course develops a network theory of vulnerability analysis and risk assessment of critical infrastructures of within the enterprise network. The course teaches how to apply fault and financial risk reduction techniques to derive the optimal strategy for protection an enterprise network.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-120 MS Windows Server Security II (3 CR)
The course is a continuation of windows server I with focus presenting advanced topics on design Network and Application Infrastructure with Windows Server 2008 and Windows Server 2008 R2 to meet varying business and technical requirements and will prepare IT Professionals for the role of Enterprise Administrator, operating system security. The learning plan also helps students prepare for Microsoft Technology certification.
Lecture 2 hrs/wk, Tutorial 3 hrs/wk, Lab 2 hrs/wk.

SSA-121 MS Exchange Server Security II (3 CR)
This course builds on its predecessor (MS Exchange Server Security I) to Develop student capabilities (skills) on how to configure and manage a messaging environment in accordance with technical requirements. Students will learn how to perform more on install MS Exchange Server Security 2007 and manage routing, client access, and the backup and restore of databases.
Lecture 2 hrs/wk, Tutorial 3 hrs/wk, Lab 2 hrs/wk.

SSA-122 Linux/UNIX Operating System Security II (3 CR)
This course builds on its predecessor (Linux/UNIX Operating System I) to introduce more topics to Linux/Unix operating systems. Topics include basic system administration, file systems and access permissions, common tools and utilities, and network service configurations, etc. and configure common network/internet services and clients such as web, FTP, SSH.
Lecture 2 hrs/wk, Tutorial 3 hrs/wk, Lab 2 hrs/wk.

SSA-123 MS SharePoint Server Security II (3 CR)
This course builds on its predecessor (MS SharePoint Server Security I) to teach students how to perform more tasks 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 releases.
Lecture 2 hrs/wk, Tutorial 3 hrs/wk, Lab 2 hrs/wk.

SSA-124 Client/Server Security Administration (3 CR)
The course covers the issue of administering client-server architectures and performs its related Programming techniques. The course also covers the essential knowledge and skills required to successfully administer peer-to-peer as a variant to client/server networks. Hands-on experience with commercial client software is important course component.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 4 hrs/wk.

SSA-130 Microsoft Window Server Security I [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge to provide in-depth training on implementing, configuring, managing and troubleshooting Active Directory Domain Services (AD DS) in Windows Server 2008 and Windows Server 2008 R2 environments using Microsoft training Abu Dhabi Polytechnic hosted in Abu Dhabi Polytechnic along with training programme.
In- House Practical Training and Evaluation.

SSA-131 MS Exchange Server Security I [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge on how to configure and manage a messaging environment in accordance with technical requirements. Students will learn how to install MS Exchange Server Security 2007 and manage routing, client access, backup and restore of databases, addressing, mailboxes, Exchange and Active Directory using Microsoft training Abu Dhabi Polytechnic hosted in Abu Dhabi Polytechnic along with training programme.
In- House Practical Training and Evaluation.

SSA-132 Linux/UNIX Operating Systems Security I [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge to teach students how to install and configure Linux/UNIX operating systems. It will also demonstrate how students can use the tools provided by Linux/Unix. Linux/Unix design paradigms. It serves as a beginners-level knowledge of installation and configuration of different types of Linux/UNIX operating systems using Red Hat training Abu Dhabi Polytechnic hosted in Abu Dhabi Polytechnic along with training programme.
In- House Practical Training and Evaluation.

SSA-133 MS SharePoint Server Security I [In-House Training – Phase I] (3 CR)
The course builds on practical knowledge 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 using Microsoft training Abu Dhabi Polytechnic hosted in Abu Dhabi Polytechnic along with training programme.
In- House Practical Training and Evaluation.

SSA-134 Database Application Server Admin (3 CR)
This course introduces the architecture of Oracle Application Server and enables the students to effectively install and manage Oracle Application Server. Basic management tasks such as starting and stopping of Oracle Application Server instances and its components, configuring the Oracle Application Server Infrastructure and the Oracle Application Server middle-tier. This course counts towards the requirement for the Oracle Application Server Administrator Certification.
In- House Practical Training and Evaluation.

SSA-135 Physical Security and Biometrics (1 CR)
The course presents aspects of physical (environmental) security and biometrics. The physical security domain provides protection techniques for the entire facility, including all of the information system resources. In particular, development of site Physical Security Programme will be demonstrated.
In- House Practical Training and Evaluation.

SSA-140 MS Windows Server Security II [In-House Training [Phase 2] (3 CR)
The course builds on practical knowledge and advanced skills to design Network and Application Infrastructure with Windows Server 2008 and Windows Server 2008 R2. The course will allow students to design such infrastructure to meet varying business and technical requirements and will prepare IT Professionals for the role of Enterprise Administrator. The course will demonstrate how to configure security concepts in a Windows Server 2008 environment in preparation for Microsoft Technology certification. The course makes use of training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

SSA-141 MS Exchange Server Security II [In-House Training [Phase 2] (3 CR)
The course builds on practical knowledge and advanced skills to configure and manage a messaging environment in accordance with technical requirements. Students will learn how to install MS Exchange Server Security 2007 and manage routing, client access, and the backup and restore of databases, and manage addressing and recipient objects such as mailboxes, distribution groups, and contacts. The course makes use of training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

SSA-142 Linux/UNIX Operating System II [In-House Training-Phase 2] (3 CR)
The course builds on practical knowledge and advanced skills to Linux/Unix operating systems as continuation to previous course. Topics include advanced installation system configuration and administration, file systems and access permissions, common tools and utilities, network services, shell Programming, storage management, file system administration, configuring network services and security.
In- House Practical Training and Evaluation.

SSA-143 MS SharePoint Server Security II [In-House Training [Phase 2] (3 CR)
The course builds on practical knowledge and advanced skills to install, configure, and administer Microsoft SharePoint and also how to manage and monitor sites and users by using Microsoft SharePoint 2010 or later. The course makes use of the training academies hosted in Abu Dhabi Polytechnic.
In- House Practical Training and Evaluation.

SSA-144 Database Server Security Administration I (3 CR)
The course is an introductory course for Oracle and Microsoft Database Administration (DBAs). The course presents 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 programmes. It serves as preparatory course for the Oracle Certified Professional (OCP) programme. It will also prepare student for DBA Training as a Microsoft Certified Database Administrator (MCDBA) who can implement and administer Microsoft SQL Server databases.
In- House Practical Training and Evaluation.

SSA-145 System Security Assessment (2 CR)
The course is to teach students the criteria for system security assessment . The course covers the fundamentals of establishing a required level of software and system security and applying methods and determining measures to assess whether the required level of security and assurance has been achieved using a range of assessment methods including requirements validation, risk analysis, threat analysis, vulnerability assessment, and assurance cases.
In- House Practical Training and Evaluation.

SSA-210 MS Windows Server Security Administration I (3 CR)
The course equips the students with capabilities to get Windows Server 2008 certification. The course will validate student ability to use new features, including web tools, virtualization technologies, security enhancements, and management utilities. It will also provide students with the knowledge and skills to configure and troubleshoot Windows Server 2008 and Windows Server 2008 R2 Sp1 Network Infrastructures and technologies, and configuring secure network access.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-211 MS Exchange Server Security Administration I (3 CR)
The overall objective of the course is to Develop student capabilities (skills) of administering MS Exchange Server Security and its related services and components. Students will get the knowledge and skills to configure and manage an Exchange Server 2010 messaging environment. This course will teach students how to configure Exchange Server 2010, as well as provide guidelines, best practices, and considerations that will help to optimize Exchange Server deployment.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-212 Linux/UNIX Server Security Administration I (3 CR)
The course builds on practical knowledge and advanced skills on Linux/UNIX system administration. Topics include system administration common practices, system installation and configuration. 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.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-213 MS SharePoint Server Security Administration I (2 CR)
The course covers various topics on administering Microsoft SharePoint and also explains how to manage and monitor sites and users by using Microsoft SharePoint 2010 or later including writing custom Service Applications and monitoring and Optimizing SharePoint Performance.
Lecture 1 hrs/wk, Tutorial 1 hrs/wk, Lab 2 hrs/wk.

SSA-214 Database Server Security Administration II (3 CR)
This course is an advanced course for Oracle and Microsoft Database Administration (continuation to course SSA-144). The course covers in-depth administration skills of Oracle architecture and internal mechanisms such that the student is able to perform advanced DBA tasks and Oracle networking that leads to the Oracle Certified Professional (OCP) programme. It will also prepare student for DBA Training as a Microsoft Certified Database Administrator (MCDBA) who can implement and administer Microsoft SQL Server databases.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-215 Graduation Project I (1 CR)
The overall course objective is to develop students' creativity, design, and team work skills in pursuing a modern topic in system and server security administration.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-221 Field Training I (9 CR)
This course shall be conducted collaboratively with Abu Dhabi Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure system/server administration.

11 weeks; Training Modules based on Industrial partner schedule.

SSA-231 Field Training II (9 CR)
This course is a continuation of Field training I with focus on building more job skills in the specialization of study.
11 weeks; Training Modules based on Industrial partner schedule.

SSA-240 MS Windows Server Security Administration II (3 CR)
This course is a continuation to SSA-210. The course develops student capabilities to get Windows Server 2008 certification where emphasis is placed on using new features, including web tools, virtualization technologies, security enhancements, and management utilities. It will also provide students with the knowledge and skills to configure and troubleshoot Windows Server 2008 and Windows Server 2008 R2 Sp1 Network Infrastructures and technologies, Network Policy server and Network Access Protection and configuring secure network access.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

SSA-241 MS Exchange Server Security Administration II (3 CR)
The course is a continuation to MS Exchange Server Administration I with emphasis on advanced topics in enterprise-level messaging administrators using MS Exchange Server Security and its related services. Topics include advanced administration of exchange server, securing messages with Exchange Server 2007, implementing Messaging Policies in Exchange Server 2007, high availability and Disaster recovery in exchange Server 2007, and introducing unified messaging in exchange Server 2007.
Lecture 1 hrs/wk, Tutorial 2 hrs/wk, Lab hrs/wk.

SSA-242 Linux/UNIX Server Security Administration II (3 CR)
This course is a continuation of SSA-212. The focus is on advanced topics in Linux/Unix system administration. Topics include shell scripts, scripting tools, software development tools, managing documentation, using open source, configuring services including email, logging, and DNS, building and configuring custom kernels, kernel modules, patching and updating the kernel and applications, system monitoring and tuning, and basic system security, System and service monitoring, basic Apache web server setup, configuring web mail.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

SSA-243 Graduation Project II (2 CR)
The course is a continuation of Graduation Project I. Student will continue working on delivering creative, team work solution for the problem identified in the previous phase of the project.

SSA-244 Selected Topics in Server Security (3 CR)
The course will offer participants advanced topics in server security and administration, which is related to new technology, solutions, models, and approaches. The objective is to help students explore advancement, state-of-the-art technology, solutions, methods, processes, and approaches in order to cope with security technology evolution.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab2 hrs/wk.

SSA-245 Penetration and Vulnerability Analysis (2 CR)
This advanced course in system security focuses on penetration testing and vulnerability analysis. It introduces methodologies, techniques and tools to analyze and identify vulnerabilities in stand-alone and networked applications. The identification of vulnerabilities and risks inherent in the operation and administration of information systems will be explored. Countermeasures will be discussed and documented in an effort to counter identified vulnerabilities.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 1 hrs/wk.

SSA-310 Malware Analysis: Tools and Techniques (3 CR)
This course will utilize key tools and techniques for malware analysis and examine malicious programmes. Students will learn how to explore Windows malware in two phases: Behavioral analysis

focuses on the programme's interactions with its environment, such as the registry, the network and the file system.

SSA- 311 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.

SSA- 312 Information Assurance & Security Management (3 CR)
This course provides students a systematic and practical approach for establishing, managing and operating a comprehensive Information Assurance programme. The course provides students with an understanding of the essential issues required to develop and apply a targeted information security posture to both public and private corporations and government run agencies.

SSA-313 Virtualization and Private Cloud Security (3 CR)
Cloud computing is a relatively new phenomenon that provides for distributed computing and data storage capabilities. Instead of buying large servers to store data, and being saddled with the cost of building and maintaining those systems, users can now purchase those servers from a third party with the ability to expand or contract those needs as necessary.

SSA- 314 Business Contingency Planning and Auditing (3 CR)
This course provides insight into secure information system governance, regulations, and compliance including noteworthy legislation, regulations, and compliance issues as well as commonalities and significant differences between departments and agencies within the Federal Executive Branch (FEB).

SSA- 315 Information Warfare (2 CR)
This course presents the relationships and interdependencies of business and national objectives, of companies and countries, and of their dependence on advances in technology.

SSA-320 Identity Management (3 CR)
This course provides students with necessary tool for understanding the complexity of identity in a virtual world. The course describes the key issues of identity management as well as appropriate strategies and preventative measures for ensuring personal safety in the virtual world.

SSA-321 Security Tools and Technologies: Linux/UNIX (3 CR)
Students will learn about the issues and resources available to secure UNIX/Linux Systems. Operating system security mechanisms as well as open source auditing, attack, and defense tools will be covered.

SSA-322 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.

SSA- 323 Systems Embedded Security (3 CR)
The course will cover the topics of making embedded systems reliable, safe, and secure. The course will cover a study of the system architectures, operating systems and hypervisors, networking, storage, and cryptographic issues that must be considered when designing secure embedded systems

SSA- 324 Ethics, Law and Policy in Cyberspace (3 CR)
This course builds on topics covered in previous course (ICT-035 computing ethics). 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.

SSA- 325 Advanced Web Application Security (2 CR)

The course will introduce web application security threats, such as hackers, masqueraders, information spoofing, sniffing, and distribution of damaging software, the associated security risks, and prevention/detection/response techniques.

SSA- 330 Adv. Sec. Essentials – Enterprise Defender (3 CR)
This course provides practices and procedures for defending business-class, heterogeneous networks against threats (including system failure, environmental events, human error) and attacks (including intrusion, malicious software, denial of service).

SSA- 331 Perimeter Protection In-Depth (3 CR)
This course covers network security and cryptographic protocols. Network vulnerabilities, attacks on TCP/IP, network monitoring, security at the link, network and transport layers. Topics include basics of cryptography- secret and public key schemes, message authentication codes and key management.

SSA- 332 System Security Intelligence (3 CR)
This course present the most recent advances in artificial intelligence techniques (i.e. neural networks, fuzzy systems, multi-agent systems, genetic algorithms, image analysis, clustering, etc.), which are applied to the protection of privacy and security.

SSA- 333 Security Policy Design & Implementation (3 CR)
This course examines the concepts underlying security policy design, implementation, and management. It addresses the steps in security model design, data classification, threats and vulnerabilities, quantitative and qualitative risk analysis, evaluating countermeasures, and the standards to ensure confidentiality, integrity, and availability (CIA).

SSA- 334 Elective Course (3 CR)
This course will offer participants advanced topics in system security, which is related to new technology, solutions, models, and approaches. 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.

SSA- 335 Systems/Servers Security Trends (2 CR)
Students who will complete this course are expected to possess thorough knowledge of current software security challenges, well-known vulnerabilities, attack methods, secure software engineering principles, and strategies to avoid vulnerabilities.

SSA- 340 Field Training (9 CR)
This course shall be conducted collaboratively with Abu Dhabi Polytechnic Industrial partner. Content of this course shall meet state-of-the-art and state-of-the-practice technology and training modules. The overall objective of this course aims on developing students' knowledge and practices to develop secure networking and web space.

Oil and Gas Process Engineering Technology

OGP-113 Organic Chemistry (3 CR)
This is an introductory course in organic chemistry designed to give petroleum engineering technology students a knowledge and understanding of the fundamental chemical concepts of organic products and derivatives which are prominent in the petroleum industry.
Lecture 2 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-215 Equilibrium Thermodynamics (2 CR)
Provide students with an understanding of the basic laws and principles of equilibrium thermodynamics. To develop students' ability to undertake thermodynamic analysis in various applications.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-218 Fluid Mechanics (3 CR)
This is an introductory course in fluid mechanics designed to develop both the knowledge of the laws and principles governing fluid mechanics and the ability to apply this knowledge in analyzing related petroleum engineering applications. The course also provides a base for advanced courses in piping design, ducting design, and fluid power systems.
Lecture 2 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-220 Mass Transfer Operations I (3 CR)
The course introduces the fundamental aspects of basic unit operations used in petroleum and oil and gas industry and the concept of equilibrium staged separations. It provides sufficient understanding of the size calculations required for design of unit equipment.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

OGP-222 Elementary Principles of Process Engineering (2 CR)
Solution of elementary problems by application of mass balances, energy balances, and equilibrium relationships
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-223 Physical Chemistry (3 CR)
An overview of some of the topics in Physical Chemistry – Atomic and Molecular Structure, Spectroscopy, Statistical Thermodynamics and Electrochemistry.
Lecture 2 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-225 Chemical Reactors and Mixing (4 CR)
In oil and gas industries, chemical reactions take place in chemical reactors. A variety of chemical reactors will be examined and in in-depth study of batch, and continuously stirred tank reactors will take place. Simulation and laboratory work will be used to teach students the fundamentals of safe and correct start-up, shut down, and control and troubleshooting of mixing tanks and reactors.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-228 Process Heat Transfer (2 CR)
This course deals with underlying theories and applications of heat transfer. These principles are then related to the unit processes involved in petroleum industry.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-313 Surface Production Operation Facilities (2 CR)
This course deals with underlying theories and applications of surface production facilities. Understanding of production aspects such as well stimulation, secondary and tertiary recovery methods applied to reservoirs to increase their productivity are addressed as well.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-314 Analytical Chemistry (3 CR)
The course will define and illustrate the analytical approach to chemical analysis, in particular environmental analysis. The theoretical principles of classical and instrumental analysis will be reinforced by means of a laboratory and tutorial programme. Students will be encouraged to develop problem solving skills and apply these to the solution of real chemical problems.
Lecture 2 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-315 Mass Transfer Operations II (4 CR)
This is the second course of mass transfer operations which provides students with an introduction to calculation methods and design/procedures for complex distillation systems, cooling towers, crystallizers, absorbers, evaporators and dryer systems.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-316 Gas Processing and Treatment (3 CR)
The course is designed for petroleum engineering technology students to enhance their understating about gas processing and treatment.

Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

OGP-327 Introduction to Refining Processes (4 CR)
This is the first course of two refining processes courses that focus on the core building blocks of the refining process systems, equipment and economics. The two courses will emphasize refining process unit operation fundamentals and safe utilization of these fundamentals by operations and maintenance personnel.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-331 Water Treatment and Injection (4 CR)
Secondary Recovery schemes, including pressure maintenance, have become almost standard in the development of oil fields throughout the world in an effort to increase recoveries at a minimum cost. The primary mechanism used is water injection - water is cheap, readily available and immiscible with the oil - but requires specific treatments to ensure reservoir problems are minimized. Furthermore as water is injected water will be produced in increasing amounts leading to additional (or different) treatment prior to injection or disposal. The course provides coverage of the theory and practice of water treatment for injection as part of a secondary recovery scheme or disposal of produced waters.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-338 Process Equipment Drawing (1 CR)
This course covers an introduction and anatomy of process equipment drawing. It will integrate the materials cover in the prerequisite (schematic and mechanical drawing). Different process equipment schematics and components will be covered as shown in the course topics.
Lecture 1 hrs/wk, Tutorial 5 hrs/wk.

OGP-340 Petroleum Storage and Loading (2 CR)
Oil and gas storage and loading belongs the oil and gas process which takes the product from the wellhead manifolds and delivers stabilized marketable products, in the form of Crude Oil, Condensate or Gas to the market.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-401 Utility Systems and Operations (2 CR)
The course provides an overview of the various Utility Systems, key selection considerations and how they are integrated into oil and gas facilities. Individuals will develop a basic understanding of the wide variety of utility systems and components and how they integrate with the process facilities and overall operation. System selection, costs and other managerial decisions pertinent to utility operations are covered.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-414 Chemical Reactor Design (3 CR)
Catalysis and kinetics of heterogeneous reactions. Heterogeneous reactors. Non-isothermal reactor design. Heat and mass transfer in heterogeneous reactors.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-424 Petroleum Refinery (3 CR)
This is the second course of two refining processes courses that focus on the core building blocks of the refining process systems, equipment and economics. The two courses will emphasize refining process unit operation fundamentals and safe utilization of these fundamentals by operations and maintenance personnel
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

OGP-428 Process Modeling, Simulation and Optimization (3 CR)
The course is designed for OGP technology students to enhance their process units modeling and simulation knowledge and skills.
Process Modeling and Simulation. Introduction: uses and classification of mathematical models; a unified approach for formulation, solution and validation of mathematical models; numerical methods (review of techniques for solving systems of linear and nonlinear algebraic equations, systems of ODEs, applications to chemical engineering problems); introduction to MATLAB and available process simulation packages;

modeling and simulation of chemical engineering systems (fundamental laws and concepts, modeling and simulation of typical examples with/without controllers). Process optimization. Essential features of optimization problems; necessary and sufficient conditions for an extremum; unconstrained single variable and multivariable search methods; nonlinear Programming with constraints; applications.
Lecture 2 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-430 Petrochemicals (3 CR)
In this course students will be introduced to the building blocks of petrochemicals, the nine key hydrocarbon compounds that form the basis for the petrochemicals industry. The course covers these important hydrocarbons one by one, sharing knowledge of how they're derived, the technology employed to produce them, and some of the many products manufactured using them.
Lecture 3 hrs/wk

OGP-464 Process Dynamics and Control (3 CR)
This is a three-hour course which is intended to introduce students to the fundamentals and applications of process dynamics and control. The course reinforces controllers design of common process equipment. Practical problems are used as examples.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

OGP-465 Plant and Equipment Design (4 CR)
In this course the students will apply the legislation and codes necessary for Process Engineering design. The course also covers design procedures for some equipment involved in a chemical/oil and gas/ process engineering plant.
Lecture 3 hrs/wk; Lab 2 hrs/wk, Tutorial 2 hrs/wk.

OGP-390 & 490 On-the-Job Performance
OGP-390 & 490 are required on-the-job training for oil and gas process engineering technology students. On-the-Job Training will take place during the third quarter of the third year for HD students and during the fourth quarter of the fourth year for AB students only. Abu Dhabi Polytechnic will arrange with ADNOC and/or any of its group of companies to allocate training place for course students ahead of time.
(Each PET student must participate in an approved training/performance programme. The programme must contain practical elements of the courses in the HD and AB programmes. At the end of the training period, a formal written report must be submitted; student grade will be either S OR U (satisfactory or unsatisfactory).

Petroleum Engineering Technology

PET-010 Introduction to Petroleum Industry (3 CR)
Overview of petroleum industry and petroleum engineering including nature of oil and gas reservoirs, petroleum exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, and improved oil recovery.
Lecture 3 hrs/wk.

PET-115 Introduction to Petroleum Geology (3 CR)
This course is an introduction to petroleum geoscience – a kind of "Essentials of Petroleum Geology" - for petroleum engineering students.
Lecture 2 hrs/wk; lab: 2 hrs/wk, Tutorial 2 hrs/wk.

PET-221 Applied Safety (2 CR)
Process safety is vital to the oil and gas industry. This course introduces the concepts of process safety in the oil and gas industry, the elements and benefits of process safety systems, and tools for implementing and managing a system.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-310 Project Management (2 CR)
This course will provide a comprehensive presentation and discussion of modern project management principles and practices as they relate to design; procurement; construction activities, maintenance; and

upgrade turnarounds at facilities in the oil and gas industry. The course is taught using a combination of instruction, facilitated discussion, and hands-on exercises using "real-world" project examples related to facilities design, procurement, construction, and turnarounds. The exercises will include both individual and group activities that will provide each student with a visual application of the principles and practices discussed throughout the course.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-399 Graduation Project (2 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Students should use available design and simulation software. Final technical written report is submitted by the end of the quarter (week 10) and presented by the group in the same week or during the examination week (11).
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-330 Applied Health (2 CR)
Workers health is vital to the oil and gas industry. This course builds on learning on health and industrial hygiene, and intends to build skills to allow students to be able to apply these techniques within their respective roles, after graduation, in petroleum engineering industry.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-411 Petroleum Economics (2 CR)
The course will provide students with the fundamentals necessary to enable them to answer some questions about planned oil and gas projects such as: what will it cost? what is it worth? will it earn sufficient profit? Contractual arrangements, which also significantly impact the economic viability of a project, are covered. Students will practice cash flow techniques for economic evaluations and investigate frequently encountered situations.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk

PET-414 Advanced Engineering Mathematics (3 CR)
This course covers step-by-step solution methods of ordinary and partial differential equations.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-499 PET Design Project (2 CR)
In this project, students are distributed into groups with a minimum of three students. Each group selects a project under the supervision of a faculty member and makes literature review, process selection and submits a written report and presents it orally at the end of the semester. Each group makes the mathematics calculations, equipment selection and design, technical and profitability analysis, safety and environment evaluation. Some students groups might decide to continue working on the same project started in PET-399 and add advanced design components to it. Students should use available design and simulation software. Final technical written report is submitted by the end of the quarter (week 10) and presented by the group in the same week or during the examination week (11).
Lecture 2 hrs/wk; Tutorial 2 hrs/wk.

PET-326 Petroleum Engineering Numerical Methods (3 CR)
Use of numerical methods in a variety of petroleum engineering problems; numerical differentiation and integration; root finding; numerical solution of differential equations; curve fitting and interpolation.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-435 Applied Environment (2 CR)
This course provides opportunities to apply the tools, techniques and management systems of environmental management in petroleum industries.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-450 Special Topic in Petroleum Engineering Technology (3 CR)
The course will cover a special topic in one or more of the areas of the petroleum engineering discipline. The special topics course series presents selected current and emerging topics in petroleum engineering depending on need as determined by the department faculty. Topic(s) will be selected according to the faculty expertise and the students' interest and enrollment.
Lecture 3 hrs/wk

PET-xxx On-Campus Training
PET-xxx is required on-campus training for petroleum engineering technology and oil and gas process engineering technology students. This vocational training will last for 33 weeks (2nd year: third and fourth quarters; 3rd year: second quarter).

PET-223 Drilling Technology I (2 CR)
Equipment and procedures involved with drilling oil and gas wells are described. The overall drilling process is presented along with definitions and descriptions of drilling equipment. The various components are discussed in greater detail with explanations of the basic science concepts which guide the processes shown in the course topics.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-209 Reservoir Rock Properties (2 CR)
Basic petrophysical properties of reservoir rocks including porosity, permeability, fluid saturation, electrical conductivity, capillary pressure, and relative permeability. Laboratory measurement of the reservoir rock characteristics mentioned above.
Lecture 2 hrs/wk; lab: 2 hrs/wk, Tutorial 2 hrs/wk.

PET-216 Reservoir Fluid Properties (2 CR)
Study of the phase behavior of hydrocarbon systems as related to petroleum recovery. Ideal and real gas behavior, single and multicomponent two-phase systems, properties of reservoir fluids under various conditions of pressure and temperature. Laboratory tests on reservoir fluids.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

PET-217 Reservoir Engineering I (3 CR)
The course serves as an introduction allowing the student to master 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, Tutorial 2 hrs/wk.

PET-218 Logging and Formation Evaluation (4 CR)
Comprehensive study of modem well logging methods, open-hole and cased-hole log interpretation methods. Production logging. Design of logging programmes and examples of applications.
Lecture 2 hrs/wk; lab: 2 hrs/wk, Tutorial 2 hrs/wk.

PET-313 Drilling Technology II (4 CR)
Equipment and procedures involved with drilling oil and gas wells are described. The overall drilling process is presented along with definitions and descriptions of drilling equipment. The various components are discussed in greater detail with explanations of the basic science concepts which guide the processes shown in the course topics.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-315 Geomechanics (3 CR)
This course provides an understanding of the fundamentals of rock mechanics. It introduces important concepts such as elasticity and failure mechanics, borehole stresses, poroelasticity, and acoustic wave propagation. In addition, the course also discusses the important parameters in rock mechanics and the application of rock mechanics in borehole stability, hydraulic fracturing, and reservoir subsidence.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

PET-319 Well Testing (2 CR)
Pressure drawdown and buildup tests. Injection and fall-off tests. Average reservoir pressure. Reservoir limit tests. Type curve matching. Pulse and drill stem tests. Test design and instrumentation.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-320 Petroleum Production Fundamentals (3 CR)
The upstream of the petroleum industry involves itself in the business of oil and gas exploration and production (E&P) activities. While the exploration activities find oil and gas reserves, the production activities deliver oil and gas to the downstream of the industry (i.e., processing plants). The petroleum production is definitely the heart of the petroleum industry. The course contains eight topics covering petroleum production engineering fundamentals. It presents an introduction to the petroleum production system, documents properties of oil and natural gases that are essential for designing and analyzing oil and gas production systems, covers in detail the performance of oil and gas wells, presents techniques used to forecast well production for economics analysis, and describes empirical models for production decline analysis.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-325 Production Logging (4 CR)
Production logging refers to a suite of logs that are normally run on completed injection or production wells to evaluate the performance of the well itself or of the reservoir as a whole. Other production logs can evaluate the well completion or look behind pipe to evaluate the formation and its fluids in the near-well vicinity. Production logs are playing an increasing role in modern reservoir management by providing the only means of identifying downhole fluid movements directly.
Lecture 3 hrs/wk; lab: 2 hrs/wk, Tutorial 2 hrs/wk.

PET-350 Well Completion (4 CR)
Equipment and procedures involved with drilling oil and gas wells are described. The overall drilling process is presented along with definitions and descriptions of drilling equipment. The various components are discussed in greater detail with explanations of the basic science concepts which guide the processes shown in the course topics.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

PET-340 Unconventional Resources Completion & Stimulation (3 CR)
Horizontal wells have become the industry standard for unconventional and tight formation gas reservoirs. Because these reservoirs have poorer quality pay, it takes a good, well-planned completion and fracture stimulation(s) to make an economic well. Even in a sweet spot in the unconventional and tight gas reservoir, good completion and stimulation practices are required; otherwise, a marginal or uneconomic well will result. This course will address few questions related to the course title such as: what are good completion and stimulation practices in horizontal wells in these unconventional reservoirs? What are the objectives of horizontal wells and how do we relate the completion and stimulation(s) to achieving these goals? How many completions/stimulations do we need for best well performance and/or economics? How do we maximize the value from the horizontal wells? When should a horizontal well be drilled longitudinally or transverse?
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-409 Equipment Design and Selection (3 CR)
The course includes three topics presenting principles and rules of designing and selecting the main components of petroleum production systems. These topics are designed for senior level petroleum engineering students. The topics address tubing design, present rule of thumbs for selecting components in separation and dehydration systems, and details principles of selecting liquid pumps, gas compressors, and pipelines for oil and gas transportation.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-410 Gas Production Engineering (3 CR)
Reservoir performance covers the fundamentals of reservoir gas flow and details the best methods for testing wells, according to the time and money available. The importance of flow regime and non-Darcy flow on test design and interpretation is emphasized for new wells and for the possibility of improving

the performance of older wells. Also discussed are performances of tight formations, horizontal wells, fractured wells, and methods for estimating gas reserves. Calculation and determination of the effect of each system component on total well performance, which permits optimum sizing of tubing, flow-lines, separators, and compressors. Formation damage, gas well de-watering, hydrate formation, water influx, and abnormal reservoir pressure problems are reviewed. Relate reservoir and well performance to time, as well as calculate cash flow and compression requirements. Discuss the best procedures to predict when liquid loading will make a well nonproductive. Field gas processing, including dehydration and condensate recovery, is briefly reviewed. Gas production is emphasized, although an overview on field gas processing is presented.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-413 Reservoir Engineering II (3 CR)
The course includes application of reservoir engineering data to calculation of recovery potentials and to analysis and prediction of reservoir performance under a variety of production methods to effect maximum conservation.
Lecture 3 hrs/wk; Tutorial 2 hrs/wk.

PET-415 Enhanced Oil Recovery (3 CR)
One-third to one-half of the original oil-in-place may remain in a reservoir as it reaches abandonment due to its economic limit. The primary reasons are heterogeneity of the reservoir, unfavorable fluid properties, inefficient nature of the displacement process, oil price and production cost considerations. The secondary reasons, however, are: inappropriate development, inefficient reservoir management practices, and escalating costs of remedial interventions/corrective measures and producing operations. The oil recovery is generally lower than expected due to some combination of the above reasons. Gaining a better understanding of the reservoir fundamentals and the important variables that influence the recovery process can enhance it. This course covers the recovery improvement possibilities that present themselves at all stages in the reservoir life cycle. It thereby enables one to timely select the most beneficial method and set realistic expectations on production behavior changes and recovery improvement.
Lecture 3 hrs/wk

PET-419 Artificial Lift Methods (4 CR)
Approximately 50% of the wells worldwide need artificial lift systems. The course includes three topics introducing artificial lift methods. The topics present an introduction to the sucker rod pumping system and its design procedure, describe gas lift method, and provide an overview of all other artificial lift methods and their design procedures.
Lecture 3 hrs/wk, Lab 2 hrs/wk.

PET-422 Applied Water Technology & Corrosion (2 CR)
This course will provide the student with the knowledge to identify various types of corrosion, the causes of corrosion and the susceptible locations of corrosion in petroleum industry.
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-429 Production Enhancement (3 CR)
This is the last course in petroleum production engineering and is composed of four advanced topics addressing production enhancement techniques. The topics starts with identifying well production problems, deal with designing acidizing jobs, provide a guideline to hydraulic fracturing and job evaluation techniques, and the last topic presents some relevant information on production optimization techniques.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk.

PET-437 Reservoir Simulation (3 CR)
Solution of production and reservoir engineering problems using state-of-the-art commercial reservoir simulation software, using data commonly available in industry. Emphasis on reservoir description, reservoir model design and calibration, production forecasting and optimization, economic analysis and decision making under uncertainty.
Lecture 3 hrs/wk, Tutorial 2 hrs/wk, Lab 2 hrs/wk.

PET-443 Advanced Drilling Engineering (3 CR)
This course integrates all major well design technologies from pre-spud to total depth (TD). Students are actively engaged in every aspect of the technical activities required to deliver a cost-effective well plan while also gaining valuable perspective on how the overall process should be managed in a dynamic team environment. It also includes advanced well control; Managed pressure drilling; Underbalanced drilling; offshore drilling; horizontal drilling, extended reach, multi-lateral drilling; and fishing operations
Lecture 2 hrs/wk, Tutorial 2 hrs/wk.

PET-490 On-the-Job Performance
PET-490 is required on-the-job training for petroleum engineering technology. On-the-Job-Training will take place during the third quarter of the third year for AB and HD students and during the fourth quarter of the fourth year for AB students only. Abu Dhabi Polytechnic will arrange with ADNOC and/or any of its group of companies to allocate training place for course students ahead of time.
(Each PET student must participate in an approved training/performance programme. The programme must contain practical elements of the courses in the HD and AB programmes. At the end of the training period, a formal written report must be submitted; student grade will be either S OR U (satisfactory or unsatisfactory).

Meteorology Science Specialization

MET-101 Introduction to Meteorology (3CH)
This course covers introduction to meteorology science, the Earth atmosphere, Earth's radiative balance, air temperature, atmospheric pressure, winds, humidity, condensation, clouds, fog, precipitations, thunderstorms and atmospheric optics. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-102 Meteorological Instruments (3CH)
This course covers introduction to weather observation systems, instruments of measuring: air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, visibility, evaporation and upper-air pressure, temperature, humidity and wind. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-103 Weather Observation Methods (3CH)
This course covers measurements at automated weather stations, observations at weather stations of: air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, visibility, evaporation, clouds, balloon techniques, radiation observations. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-104 Physical Meteorology I (3CH)
This course covers introduction to radiation, the sun, properties of radiation, the EM spectrum, radiative properties of natural surfaces, thermal emission, atmospheric transmission, atmospheric emission, absorption by atmospheric gases, terrestrial radiation. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-201 Mapping and GIS (3CH)
This course covers introduction to GIS, data model and structure, projections and coordinate system, visualization of spatial data, querying a map, creating and editing feature data, raster basics and analysis, single map analysis. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-202 Thermodynamical Meteorology (4CH)
This course covers 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: 2 hrs, Lab: 2 hrs.

MET-203 Meteorological International Code (3CH)
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: 1 hrs, Tutorial: 2 hrs, Lab: 4 hrs.

MET-204 Physical Meteorology II (3CH)

This course covers clouds properties, formation of cloud droplets, diffusion growth of water droplets, collision-coalescence growth of rain drop, growth of ice-crystal, precipitation and clouds modification. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-206 Meteorology and Computing (2CH)

a. **MS Excel** In this introductory course to Excel, participants will explore Excel activities that go beyond the basic. After successful completion of this session, participants can expect to have the skills required to work efficiently in an existing worksheet and to also create new worksheets from a template and from scratch. The purpose of this course is provide students the necessary skills to use MS Excel in the workplace as an analysis and presentation tool,
b. **LINUX:** This module introduces the Linux operating system and the underlying Unix platform. For this course, the goal is to introduce the basic operating system commands, editing tools, and the program execution environment.

Lecture: 2 hrs, Tutorial: 1 hrs, Lab: 2 hrs.

MET-206 Climatology (3CH)

This course covers climate and weather, climate analysis methods, general circulation, regional climates, climate classifications, aerosols and climate, biogeophysical cycle. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-207 Aviation Meteorology (3CH)

This course covers fundamentals of aerodynamics, aircraft performance, altitude, thunderstorms, icing, turbulence, wind shear, aviation weather services. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-208 Agrometeorology (3CH)

This course covers introduction to agricultural meteorology, response of plants to radiation, effect of temperature on crops, weather and crops, evapotranspiration, drought, weather abnormalities, climatological methods for managing farm water resources. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-209 Dynamical Meteorology I (4CH)

This course covers math review, forces, pressure, total derivatives. scale analyses, continuity equation, balanced flow, thermal wind, vertical motion, circulation, vorticity. Lecture: 4 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-210 Weather Charts Plotting (2CH)

This course covers decoding of SYNOP, TEMP, and METAR reports, and station plotting techniques. Lecture: 1 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-216 Meteorological Instruments Practice 1 OJT (3CH)

The training course module aims to assess trainee's competence in meteorological instruments. During this work trainee must take account of the relevant worksite operational requirements, procedures and safe working practices. This training course module aims to assess trainee's competence in working safely. This module covers weather observation systems, instruments of measuring: air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, visibility, evaporation and upper-air pressure, temperature, humidity and wind.

MET-217 Meteorological Instruments Practice 2 OJT (3CH)

The training course module aims to assess trainee's competence in meteorological instruments. During this work trainee must take account of the relevant worksite operational requirements, procedures and safe working practices. This training course module aims to assess trainee's competence in working safely. This module continues the recognition of meteorological instruments. Instruments of measuring: precipitation, radiation, sunshine duration, visibility, evaporation and upper-air pressure, temperature, humidity and wind.

MET-218 Weather Observation Methods Practice OJT (3CH)
This training course covers the students training on taking weather elements measurements at automated weather stations, and observations at weather stations of: air temperature, atmospheric pressure, humidity, precipitation, radiation, sunshine duration, visibility, evaporation, clouds, balloon techniques, radiation observations.

MET-219 Meteorological International Code Practice 1 OJT (3CH)
This training course covers training of Surface Synoptic Code/Decode (FM 12-XIV SYNOP).

MET-220 Meteorological International Code Practice 2 OJT (3CH)
This training course covers training of variety of meteorological codes, Upper-Level Report (FM 35-XI Ext. Temp), and Report of Monthly Values from a Land Station (FM 71-XII CLIMAT).

MET-211 Introduction to Weather Charts analysis (3CH)
This course covers variety of weather charts, meteograms, samples of analyzed weather charts, introduction to surface weather chart analysis. Lecture: 1 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-212 Hydrology (3CH)
This course covers introduction to hydrology, water balance, precipitation, evaporation, soil-water, groundwater, and runoff. Lecture: 3 hrs, Tutorial:2 hrs, Lab: 0 hrs.

MET-213 Oceanography (3CH)
This course covers introduction to oceanography, atmospheric influences, the oceanic heat budget, physical properties of seawater, response of upper-ocean to wind, geotrophic currents, coastal processes and tides, circulation and water masses of the oceans, use of chemical traces in oceanography, composition of major components of seawater, primary production of oceans. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-214 Synoptic Meteorology I (3 CH)
This course covers introduction to synoptic meteorology, the formation of surface pressure systems, the movement of surface pressure systems, the formation of upper level systems, the movement of upper level systems, instability, cyclogenesis and anticyclogenesis, the classical Midlatitude cyclone. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-215 Basic Electronics for Meteorology (3 CH)
This course aims to introduce to the students the basics of Receiver circuit, Transmitter circuit and their applications. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-301 Atmospheric Remote Sensing (3 CH)
This course covers introduction to remote sensing, the nature of electromagnetic radiation, sensors and platforms, aerial cameras, microscopic interactions, macroscopic interactions. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-302 Weather Charts Analysis I (3CH)
This course covers analysis of upper air charts, analysis of surface weather chart. Lecture: 1 hrs, Tutorial: 2 hrs, Lab: 4 hrs.

MET-303 Dynamical Meteorology II (4 CH)
This course covers ageostrophic wind, quasi-geopotential geostrophic tendency equation, quasi-geopotential omega equation, waves, geostrophic adjustment, instability. Lecture: 4 hrs, Tutorial; 2 hrs, Lab: 0 hrs.

MET-304 Numerical Weather Prediction (4CH)

This course covers dynamic review, finite difference, the barotropic model, boundaries, spectral models, the effects of discretization, data assimilations. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-305 Environmental Issues (3CH)
This course covers pollution and environmental ethics, ecosystems, natural biogeochemical cycles, population, water pollution, solid waste, hazardous waste, radioactive waste, air pollution, noise pollution, environment impacts, ozone problem and global change, biological indicators of the environment quality. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-306 Marine Meteorology (3CH)
This course covers introduction to marine meteorology, ocean water motions, sea and swell waves, avoidance of tropical storms, weather forecasts for seafarer, ocean surface currents, sea ice, meteorological factors of planning an ocean passage, observations and instruments. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-307 Weather Charts Analysis II (3CH)
This course covers analysis of upper air charts, analysis of surface weather chart. Lecture: 1 hrs, Tutorial: 2 hrs, Lab:4 hrs.

MET-308 Synoptic Meteorology II (3CH)
This course covers analyses of Midlatitude systems using the balance equation, the height tendency equation , and isentropic potential vorticity, fronts and jets, precipitation systems in the Midlatitudes. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-309 Numerical Weather Analysis (3CH)
This course covers model verification, NW process, leading forecast centers, forecast models, details about WRF model. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-310 Satellite Meteorology (3CH)
This course covers introduction to satellite meteorology, orbits and navigations, radiative transfer, meteorological satellite instrumentation, image interpretation, clouds. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-311 Radar Meteorology (3CH)
This course covers introduction to radar, radar hardware and operations, electromagnetic waves, radar equation, distributed targets, radar reflectivity, Doppler radar, Doppler spectrum, meteorological targets. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-312 Air Pollution (3CH)
This course covers introduction to air pollution, the physics and chemistry of air pollution, risks from air pollution, the measurement and monitoring of air pollution, the meteorological bases of atmospheric pollution, air pollution modeling and prediction, the regulatory criteria and standards, preventing air pollution. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-313 Coding/Decoding International Met Reports –OCT (3CH)
This training course covers training of variety of meteorological codes including 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).

MET-314 Synoptic Met & Tephigram Practice – OCT (3CH)
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 acticities, thermodynamics diagrams: tephigram, the skewT/Log P diagram and Stuve diagram, case study.

MET-315 Weather Broadcast Practice – OCT (3CH)
Besides forecasting ability, this training course covers broadcasting preparation; a minor in broadcast journalism/communication is ideal, including work on broadcast newswriting, broadcast reporting, and television/radio production. Students must be able to prepare high-quality demonstration weathercasts, and an internship at a television/radio station is strongly recommended.

MET-316 Computer Programing (C++) Practice I – OCT (3CH)
This training course covers introduction to computer programming, writing, compiling, and debugging programs, data types, operators and expressions, program control statements, functions, arrays, strings, and pointers, classes and objects, object oriented programming, he C++ I/O system, pointers revisited, programming applications and software design.

MET-317 Computer Programing (C++) Practice II – OCT (3CH)
This training course covers program control statements, functions, arrays, strings, and pointers, classes and objects, object oriented programming, the C++ I/O system, pointers revisited, programming applications and software design.

MET-401 Regional Synoptic Meteorology (3CH)
This course covers introduction to regional synoptic meteorology, Mediterranean lows, Red Sea trough, Siberian high, monsoon, air masses, pressure systems, and frontal systems affecting the UAE. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-402 Tropical Meteorology (3CH)
This course covers main characteristics of tropical regions, general circulation, seasonal mean wind fields, local and diurnal circulations, zonally asymmetric features of tropics, tropical weather systems, the tropical oceans, tropical cyclones, monsoons. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-403 Mesometeorology (3CH)
This course covers introduction, mesoscale instability, lower tropospheric mesoscale systems, deep convective systems, orographic mesoscale phenomena, project. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-404 Global Climate Changes (3CH)
This course covers introduction to climate changes, climate history of the Earth, the scientific method and its use, climate change trends, atmospheric circulation and climate change, ocean and climate change, projections of the future climate. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-405 Water Resources Management (3CH)
This course covers basic parameters of water, surface water , groundwater, water measurements, flood events, water quality, irrigation, dams, drinking water and wastewater treatment, International, regional, and local water allocation laws. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-406 Climate Data Management (3CH)
This course covers introduction, climate data management, characterizing climate from data sets, statistical methods for analyzing climate data, services and products. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 2 hrs.

MET-407 Long Range Weather Forecasts (2CH)
This course covers introduction to long range forecasts, the use of El Nino/La Nina oscillations used in seasonal forecasts, the Southern Pacific Oscillation impacts, the use of Arctic and North Atlantic oscillations for seasonal forecasts, Rossby waves effects, intraseasonal weather analysis for tropics, inter-tropical convergence zone effects. Lecture: 2 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-408 Severe Weather (3CH)
This course covers cold waves, thunderstorms, tornadoes, hailstorms, lightning, downbursts, El Nino/La Nina. and the southern oscillation, tropical cyclones, floods, drought, heat waves, sandstorms, thermal inversion, fog, case studies of severe weather impacts, the forecasting and simulating severe weather. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-409 Planetary Boundary Meteorology (3CH)
This course covers the atmospheric boundary layer, basic equations for mean and fluctuating quantities, scaling laws for mean and turbulent quantities, surface roughness and local advection, energy fluxes at the land surface, the thermally stratified boundary layer, and the cloud-topped boundary layer. Lecture: 3 hrs, Tutorial: 2 hrs, Lab: 0 hrs.

MET-411 Weather Charts Analysis – OCT (3CH)
This training course covers analysis of upper air charts, analysis of surface weather chart.

MET-412 Sat & Radar Analyses – OCT (3CH)
This training course covers physical principles, types, imagery, and interpretations of satellite, and radar operations, radar propagations, types of radar data, radar displays, radar interpretations and products.

MET-413 Weather Analysis Techniques- OCT (3CH)
This course covers weather forecast techniques and tools, weather forecasting methods, analyzing Midlatitude weather, upper ridges and troughs, jet streams and jet streaks, weather analysis for tropics, practical forecasting techniques.

MET-414 Numerical Computing with MATLAB – OCT (3CH)
This training course covers introduction to MATLAB, simple calculations and graphs, programming in MATLAB, matrix computations, advanced graphs, solving nonlinear problems in MATLAB, efficiency in MATLAB, and advanced data types in MATLAB.

MET-415 WRF Model (3CH)
This training course covers WRF model overview, soft installation, processing system, initialization, WRF model, data assimilation and case study.

MET-416 Weather Charts Analysis & Forecast I- OJT-II (3CH)
This training course covers analysis of upper air charts, analysis of surface weather chart.

MET-417 Weather Charts Analysis & Forecast II- OJT-II (3CH)
This training course covers weather forecast techniques and tools, weather forecasting methods, analyzing Midlatitude weather, upper ridges and troughs, jet streams and jet streaks, weather analysis for tropics, practical forecasting techniques.

MET-418 Sat & Radar Analyses – OJT-II (3CH)
This training course covers overview of types, imagery, and interpretations of satellite, and radar operations, types of radar data, radar displays, radar interpretations and products.

MET-419 Numerical Weather Analysis – OJT (3CH)
This training course covers model verification, NW process, leading forecast centers, forecast models, NW products.

MET-420 Weather Forecasting Techniques – OJT-II (3CH)

This training course covers weather forecast techniques and tools, weather forecasting methods, analyzing of Midlatitude weather, upper ridges and troughs, jet streams and jet streaks, weather analysis for tropics, practical forecasting techniques.

MET-410 Project (3CH)

Concept and significance of research, aspects of research, writing research document, class presentation of research area, research data, developing a research proposal, and class presentation of research proposal.

13. Student Information and Services

Academic Advising/ Counselling

Students can obtain academic advice from their course instructors and their technical division faculty. In addition tutors and learning advisers are available and can advise students on issues related to academic writing, exam preparation, time management, and other academic skills. Learning advisers can help students improve the structure of written assignments, organize ideas, develop arguments, and understand the expectations of Abu Dhabi Polytechnic. Their focus is on helping students develop strategies to independently revise their own work and manage their study.

Personal and Career Counselling

All students are given advise on careers at the orientation session administered early in their enrollment and throughout their tenure at threAbu Dhabi Polytechnic. Students are given opportunities to discuss their careers with sponsors visiting Abu Dhabi Polytechnic on frequent basis.

Abu Dhabi Polytechnic has career advisers, counselors, and other administrative staff whose primary focus is to help students overcome their academic and social problems and to be aware of other programmes at Abu Dhabi Polytechnic. Counseling may be offered to students who have academic or personal problems that might interfere with their classroom performance or social functioning. Counselors will be able to help students find solutions to their problems and enhance their development at the academic and/or personal level.

Dining

Abu Dhabi Polytechnic: Abu Dhabi offers a variety of food outlets for students and staff. Abu Dhabi Polytechnic understands that everyone has different tastes, appetites, and eating habits. Therefore, Abu Dhabi Polytechnic offers an extensive variety of menus and venue options to best fit each individual lifestyle, schedule, budget, and dietary need. A catering service is also available for Abu Dhabi Polytechnic functions and conference groups of all sizes. Abu Dhabi Polytechnic aims to offer fresh, safe, innovative, and quality food products in modern surroundings which reflect current market trends while ensuring value for money.

At the Al Ain campus there is a Canteen or a Cafeteria that will serve food, drinks, salads and fruits during the two breaks. The canteen is obviously a place that serves food and drink and as such is required to meet the stringent health and hygiene requirements of the UAE. The Management expects you, the student, to play a full part in assisting in keeping this environment free from unnecessary rubbish and waste.

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.

Extracurricular Activities and Groups

The Student Council (described below) is officially recognized by Abu Dhabi Polytechnic to organize students to work with staff to enrich Abu Dhabi Polytechnic's extracurricular activities such as coordinating athletic and cultural activities and forming organized groups of students for particular purposes. Examples, Abu Dhabi Polytechnic sponsors an annual 'Aircraft Pulling Competition' in which teams of students pulled our Bell helicopter around a track on National Day. Abu Dhabi Polytechnic also sponsors field trips to air shows and aviation related events. Our students get a look into the business they are choosing as their career.

A variety of physical, social, and cultural activities are planned during the academic year. Students may organize events through the Student Council. Activities are also planned to complement classroom activities and develop leadership skills and teamwork.

In addition, Abu Dhabi Polytechnic provides opportunities for youngsters to experience aviation first hand. Abu Dhabi Polytechnic sponsors a summer programme for all 9th, 10th, 11th grades that exposes them to the aviation field. Groups of Students from the 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.

Health Services

Abu Dhabi Polytechnic provides medical care for students during the day. Minor complaints are attended to by the Abu Dhabi Polytechnic nurse. Injuries and major complaints are sent to a nearby hospital.

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 arranges furnished residence to all students that travel from other cities to enroll at threAbu Dhabi Polytechnic.

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 programmes 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 programmes to identify the needs of the students for a wide range of books and other resources, conduct

information skills programmes 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.

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.

Office Hours

Students may access Abu Dhabi Polytechnic faculty and staff during usual business hours by making an appointment or dropping in during posted Office Hours – 8am – 4pm.

Privacy and Confidentiality

Student information and academic performance is confidential material and will only be disclosed to staff who need to know. In addition, a student's academic performance will only be discussed with the student concerned and their parents, guardians or sponsor.

Parents and family play an important role in supporting students enrolled in tertiary studies. Parents are able to meet with staff and discuss their child's academic life. Parents, guardians and sponsors should contact the Abu Dhabi Polytechnic receptionist for advice about who it is best to speak with and to make an appointment. In the case of an emergency, parents, guardians and sponsors should contact the Abu Dhabi Polytechnic receptionist who will assist with finding the students. Parents, guardians and sponsors should not enter a classroom or any other teaching area without first making contact with the receptionist.

Smoking Policy

Abu Dhabi Polytechnic is a smoke free zone at both campuses. There is no smoking on or immediately outside the premises.

Student Council

The Student Council is an officially recognized organization that advises the Abu Dhabi Polytechnic administration on the enhancement of student facilities and activities to enhance the student experience in terms of both teaching & learning and cultural enrichment.

The Student Council is a self-governed advisory committee to the Abu Dhabi Polytechnic and all recommendations are submitted to the Executive Committee and other relevant committees. All students are encouraged to participate in the election of their representatives to the Student Council.

The Student Council organizes students to work with staff to enrich Abu Dhabi Polytechnic's athletic, cultural, and organizational activities. The Student Council also addresses and manages student issues pertaining to resources and the learning environment.

Students are encouraged to form and join clubs recognized by the Student Council such as professional and scientific societies, debate clubs, intramural sports, etc., depending on the student's interest.

Transportation

Details are to be determined.

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.

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 programme;
- respect the security and confidentiality of any information that they may receive from that organization in the course of the work experience programme;
- maintain a standard of conduct befitting a student of Abu Dhabi Polytechnic.

14. Library Policies and Procedures

The Abu Dhabi Polytechnic Library (Learning Resource Center)

The Library of the Abu Dhabi Polytechnic is seen more as a learning resource center than a traditional library.

Vision

The vision of the library is to take a leading role in the fulfillment of the Abu Dhabi Polytechnic's mission, vision and goals through:

- Developing education and training programmes 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

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.

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.

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 Manager Students and Support Services and the Librarian will be responsible for recommending any changes to current practice in response to survey findings.

Ongoing Training Sections Input

The library staff 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.

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.

Library Hours

The Library is open for students, staff and training sections for the majority of the teaching day at the Abu Dhabi Polytechnic.

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:

- Student enrolled and with a valid Abu Dhabi Polytechnic library card.
- Teaching and nonteaching Staff of Abu Dhabi Polytechnic and its education partners with a valid Abu Dhabi Polytechnic library card.

Academic Staff may borrow items from the Main Collection for one quarter.

Staff members are responsible for all items they borrow and may not give borrowed materials to students or other staff.

All academic staff loans are due at the end of each quarter, or on the date of the final examination for the subject they teach.

Staff who do not return materials, or who have lost or damaged material must resolve the issue with the Abu Dhabi Polytechnic Librarian. Staff loans that are not returned to the library three months past the due date will be deemed lost and the staff member will be invoiced for replacement. Staff will be billed in accordance with the charges documented in the section below called "Replacement of lost or damaged items."

Staff Borrowers

Faculty may borrow items from the Main Collection for one quarter.

Staff members are responsible for all items they borrow and may not give borrowed materials to students or other staff.

All academic staff loans are due at the end of each quarter, or on the date of the final examination for the subject they teach.

Staff who do not return materials, or who have lost or damaged material must resolve the issue with the Abu Dhabi Polytechnic Librarian. Staff loans that are not returned to the library three months past the due date will be deemed lost and the staff member will be invoiced for replacement. Staff will be billed in accordance with the charges documented in the section below called "Replacement of lost or damaged items."

Student Borrowers

Students must present their Abu Dhabi Polytechnic ID card in order to borrow. 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.

Orientation/Educational Programmes

Identified as one of their priorities, the library staff will strive to provide students and training sections with information on the library and information literacy on an ongoing basis. This is done in the following ways:

- The Librarian provides a brief overview of the library for all new students attending on Orientation Day. All new students and staff are given a copy of the library brochure as part of their Abu Dhabi Polytechnic orientation pack.
- Brochures will be available for users to assist them with procedures and location of materials and other general information about the library (hours, staff, etc.).
- Reference assistance will be provided for users on an ongoing basis. This includes assistance with identifying appropriate material for studies/assignments and then locating this material within the library; accessing electronic resources such as the electronic database system as well as locating good information on the internet.
- Library shelving will be clearly marked with Dewey decimal classification to assist with easy location of materials for our students.
- Librarian staff will assist our users with locating information that is appropriate to their information needs.
- Students are encouraged to use information in a variety of formats depending on information needs. Formats include: books, journals, newspapers, online databases, e-books, Internet resources, video cassettes, and audio cassettes.

Circulation of Materials (Borrowing)

Circulation of materials is a basic function of the Library. All students and staff of the Abu Dhabi Polytechnic have borrowing privileges. Items are due for return on the date shown on the date due slip.

All returning items must be handed to a staff member at the circulation desk or placed in the return chute. Returning material should not be placed on shelves.

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.

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.

Library Current Awareness Services

The Library aims to provide current awareness to support the information needs of staff and students at the Abu Dhabi Polytechnic.

E-mail messages are sent to the relevant person when new books they requested have arrived and are ready to borrow.

Each month a list of all new acquisitions is emailed to all staff. This list is also posted on the library website.

New books are prominently displayed.

Individual staff may be placed on email notification lists to be notified when journals relevant to their academic or research needs are received.

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.

Code of Conduct for Library Users

The rights and responsibilities of all Library patrons are as follows:

- All users have a right to use the facilities of the Library without undue distraction or disturbance.
- Within the precincts of the Library, no person shall act in a manner that interferes with the comfort or convenience of other users.
- Abu Dhabi Polytechnic identification cards must be shown in response to any reasonable request from any member of staff who might require such identification in the course of their duties. Any Library user, whether or not a member of Abu Dhabi Polytechnic, shall produce identification on request from a member of Library staff.
- It is a condition of entry into the Library that staff may inspect all bags, folders or other receptacles capable of containing Library materials and their contents.
- No food is allowed in the library. Drinks are allowed on the proviso that no damage is caused and all rubbish is deposited in bins provided.
- Talking is not permitted in reading areas: quiet conversation is allowed for the purpose of seeking assistance in the use of the catalogues or the collection.
- The reservation of seats or computers is not permitted.
- The Library staff may remove books and other articles left unattended on chairs or tables in the Library for more than twenty minutes. Articles left in these areas at closing time will be cleared away and sent to the Student Services lost property section. The Abu Dhabi Polytechnic accepts no responsibility for personal belongings left in the building.
- No user shall deface, mutilate or destroy Library materials: in addition to any penalty that may be imposed for such conduct; the person concerned shall be liable to pay for the full cost of repair or replacement of damaged materials.
- Users are responsible for all Library materials borrowed in their name until such time as the items are returned to the Library and deleted from the loans register. Borrowers will be charged the replacement cost of any item that is not returned.
- Users should obey any reasonable directions of Library staff in enforcing this Code of Conduct.

Code of Conduct in the Libraries and Other Public Space

Users of the Library and other public space should behave in a manner that does not inconvenience, offend or limit the rights of other users to have access to library materials, study space, and other information technology facilities and services.

This policy applies to all categories of users, including external borrowers and casual visitors.

Standards to be observed within Information Services public spaces

The Code of Conduct sets out the standards of behavior that members of the Abu Dhabi Polytechnic community can reasonably expect when engaged in Abu Dhabi Polytechnic activities.

Users of the Library facilities and services expect an environment that is conducive to study and research. Activities that disrupt such an environment are not acceptable. Such activities include:

- Creation of noise through loud conversations, use of mobile phones, etc.;
- Eating and drinking beverages other than water;
- Smoking;
- Theft of equipment or the property of others;
- Movement of furniture;
- Vandalism;
- Posting of notices without permission; and,
- Unauthorized presence in non-public or restricted areas.

Users of the Library and services expect equitable access to equipment and facilities. Improper use or obstruction of access to such equipment and/or facilities, including the reservation of seats in study areas and the Library, is not acceptable.

Users of library collections expect equitable and open access to these resources. Unauthorized removal, misplacement or mutilation of library resources or retention of overdue material is not acceptable.

Users leaving the Library may be required to present for inspection any item in their possession or any bags, cases or other material brought into the Library.

Users are expected to provide identification to staff acting in the course of their duties where a violation of the Abu Dhabi Polytechnic policy is in question.

Exclusion from the Library

A person who breaches the above standards may be requested to leave the Library.

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.

Library Lending Policy

Definitions

"Item" includes any book, pamphlet, periodical issue (bound or unbound), newspaper, manuscript, film, videotape, CD, DVD, microfilm, microfiche, photograph, print, slide, monograph, thesis, cassette, photocopy, sound recording, musical score, map, laptop, DVD player, musical instrument, plan or any other recorded material, regardless of physical form, under the control of the Librarian. In the Abu Dhabi Polytechnic the terms Library and Learning Resource Center are interchangeable.

Eligibility

The Abu Dhabi Polytechnic staff and students are registered to borrow from the Library. An Abu Dhabi Polytechnic Student/Staff Card is also a Library card.

Staff and students of other tertiary institutions and members of the public may make application to be registered as borrowers by completing and signing a registration form undertaking to comply with

Library Lending Policies, and by providing identification, proof of address and where appropriate, proof of eligibility for a particular borrower category.

Upon acceptance of an application, a Library card, identifying the holder's category as a borrower, will be issued.

Registrations must be renewed annually. Registration may be cancelled or suspended before the expiry date for breaches of Library Lending Policies.

The Librarian or their representative may refuse an application for registration as a user when in the judgment of the Abu Dhabi Polytechnic Director or that officer, such a registration would adversely affect services to Abu Dhabi Polytechnic staff and students.

General Conditions of Loan

The Librarian has discretionary power to lend or refuse to lend any item at any time.

The Librarian may alter the loan period of any item at any time.

No person may remove an item from the Library without a proper loan transaction having first been made.

A valid Abu Dhabi Polytechnic Student/Staff or Library card is required before any loan transaction is made.

Library cards are not transferable. In exceptional circumstances (e.g. a lecturer's research assistant or a representative of a borrower with a disability or illness) an authorized representative may borrow on a library cardholder's behalf, upon receipt of written authorization, and subject to the discretion of the Librarian.

The Library collects stores and uses borrower information for administrative purposes only. The information collected is confidential and will not be disclosed to third parties without the borrower's consent, except to meet government, legal and other regulatory authority requirements.

A borrower is responsible for the safe keeping and return of all items borrowed from the Library and for the cost of repair or replacement of any item damaged or not returned.

Restrictions are placed on the number of loans a user may have at any one time.

Responsibilities of Library Borrowers

The Abu Dhabi Polytechnic staff and students are responsible for maintaining accurate contact details through the Abu Dhabi Polytechnic Portal. As in compliance with the contractual agreements, the affiliated Abu Dhabi Polytechnic email is the main channel for communication concerning library borrowing.

All other borrowers need to notify the Library of any change of address (postal and email) at the earliest opportunity.

The Library should be notified immediately of the loss of an Abu Dhabi Polytechnic Student/Staff or Library Card.

Loan Policies

Loan policies are shown in Table 1. Overnight loans for 2 Hour Loans are not available during Study and Examination weeks.

Table 2.Loan policies for different borrower categories and different loan categories.

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.

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 Table 2.

The penalty for items that are not returned or 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.

Table 2.Penalties for Overdue Items.

	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	
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.	
Number of Renewals	0	
Holds	5	3

Appeals

Persons to whom penalties are applied may appeal either orally, or in writing, to the Librarian to waive or reduce the penalty, or to defer payment of any fine.

A person making such representations may appeal to the Librarian against a decision relating to a penalty made by another Library officer, and may appeal against a decision made by the Librarian to the Abu Dhabi Polytechnic Director whose decision shall be final.

15. Work Experience Policy

Work Experience

Work Experience is the term used to describe work that has to be carried out by students in order to complete the requirements of the course in which they are enrolled. Work experience could include activities such as field studies, practical experience in manufacturing companies, electricity generation sites, airport or automotive companies, etc.

Personal Behavior

Students of the Abu Dhabi Polytechnic undertaking a period of work experience are required to be aware of their personal responsibility to:

- Obey the lawful and reasonable instructions of the organization with which they are undertaking the work experience programme.
- Respect the security and confidentiality of any information that they may receive from that organization in the course of the work experience programme.
- Maintain a standard of conduct befitting a student of the Abu Dhabi Polytechnic.

Public Liability

Students are indemnified for their legal liability in respect of third party claims for damages to property or injury to persons while undertaking approved work experience.

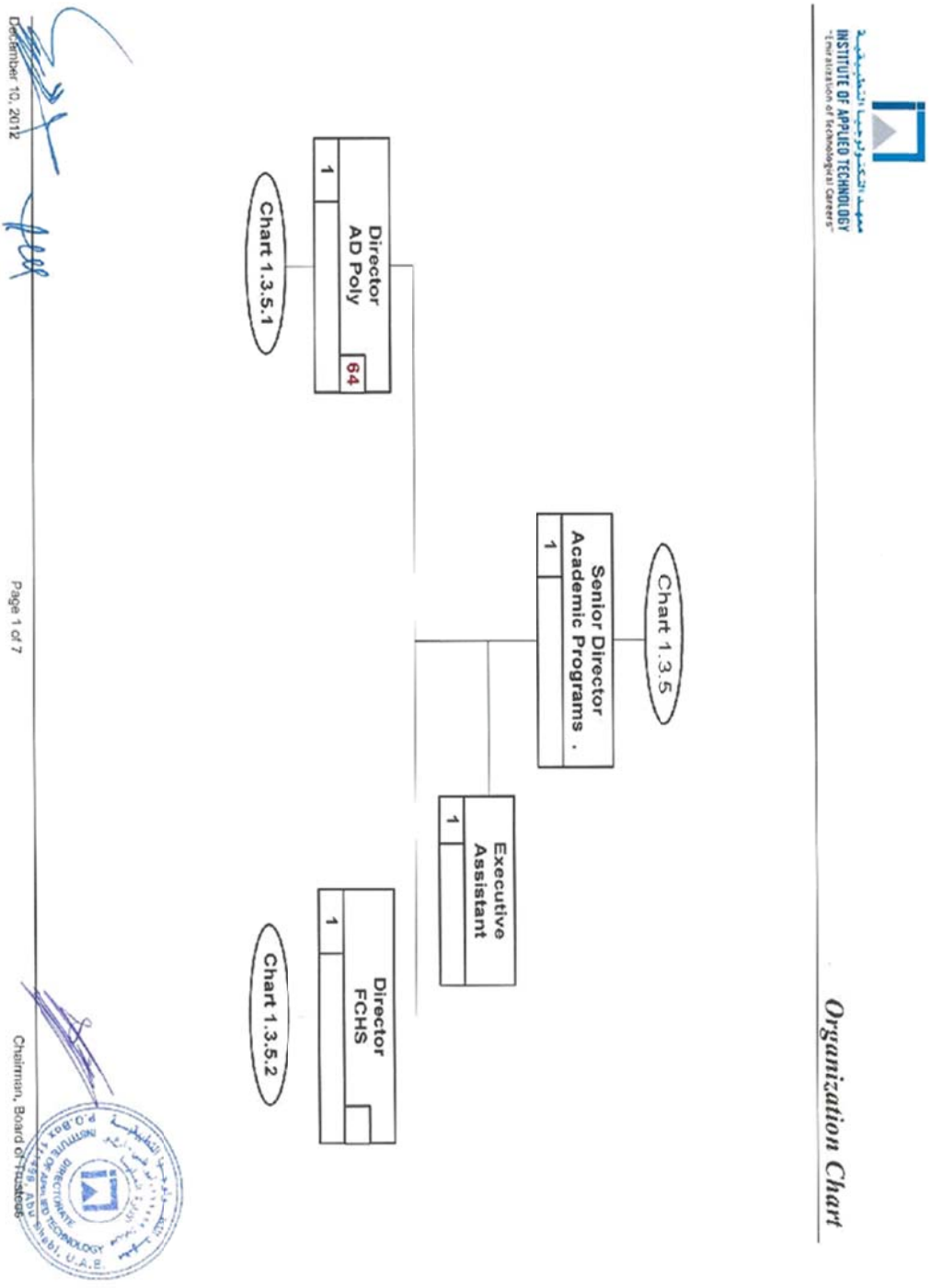
Personal Property

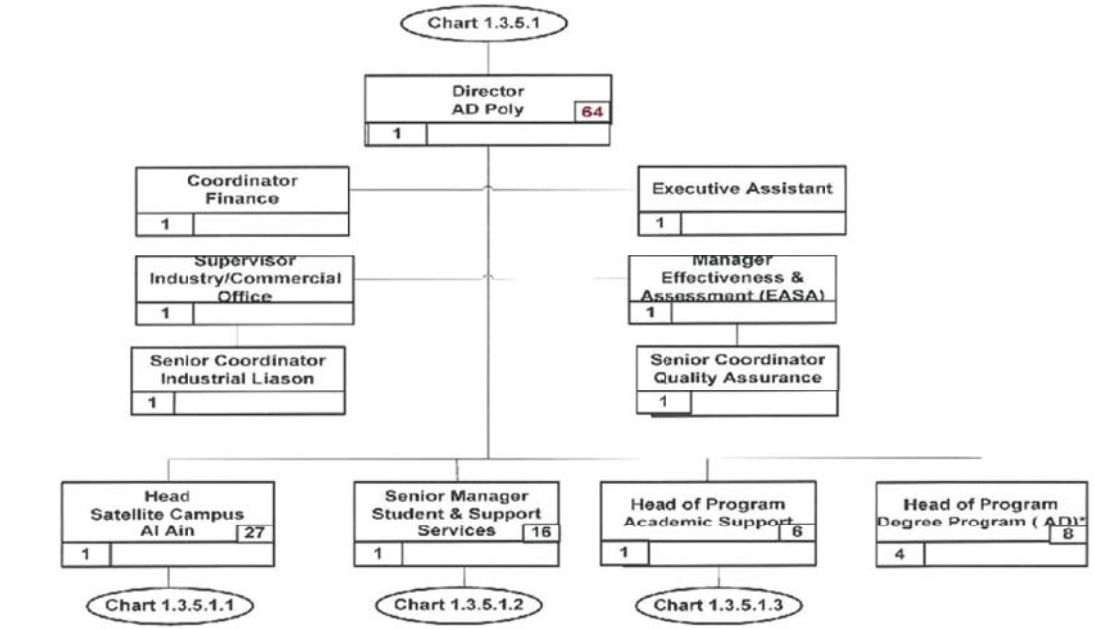
A student's personal property is not covered by Abu Dhabi Polytechnic's Insurance at any time. If a student wishes to arrange cover for personal items they must do so at their own expense.

Personal Health and Accidents

The details regarding medical insurance coverage are to be determined.

Appendix A – Abu Dhabi Polytechnic Organization Chart





* Assignment role.

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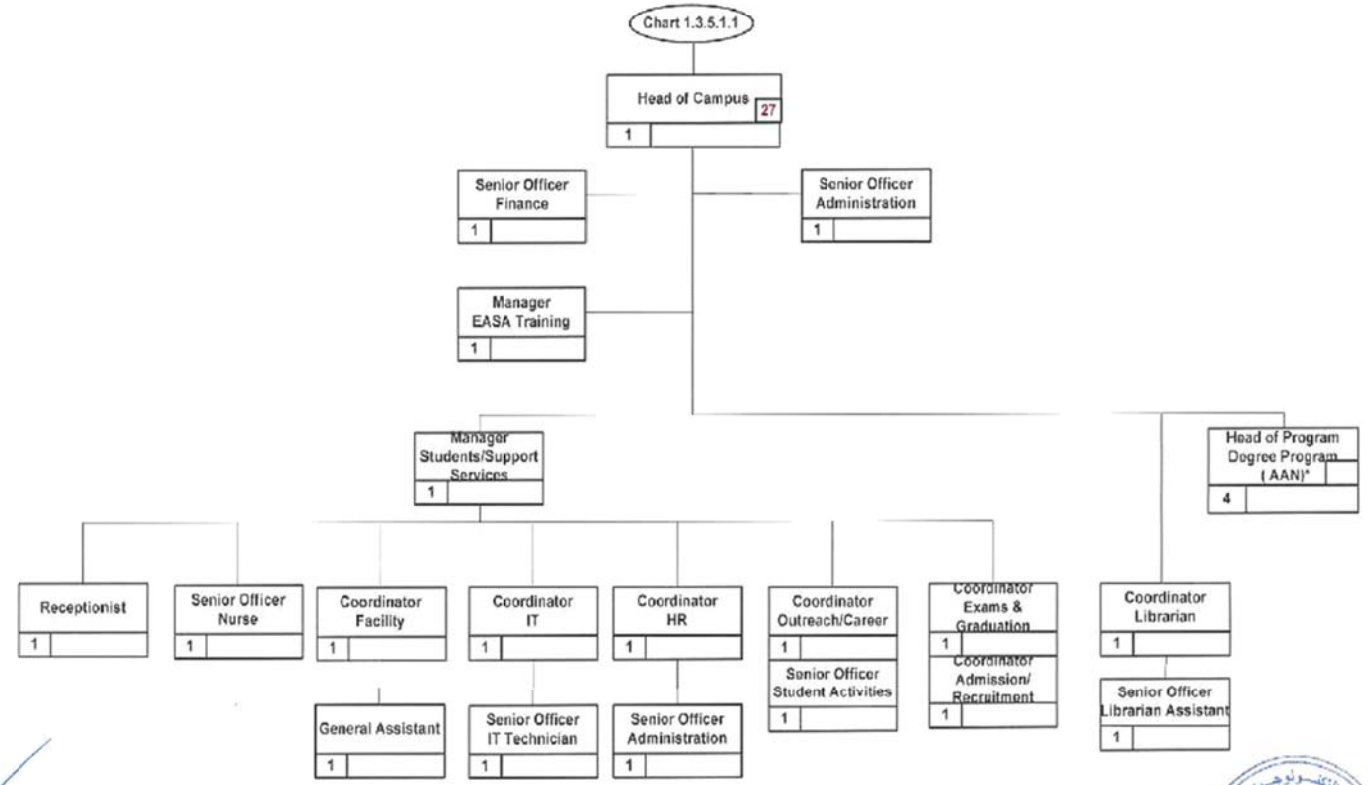
Organization Chart



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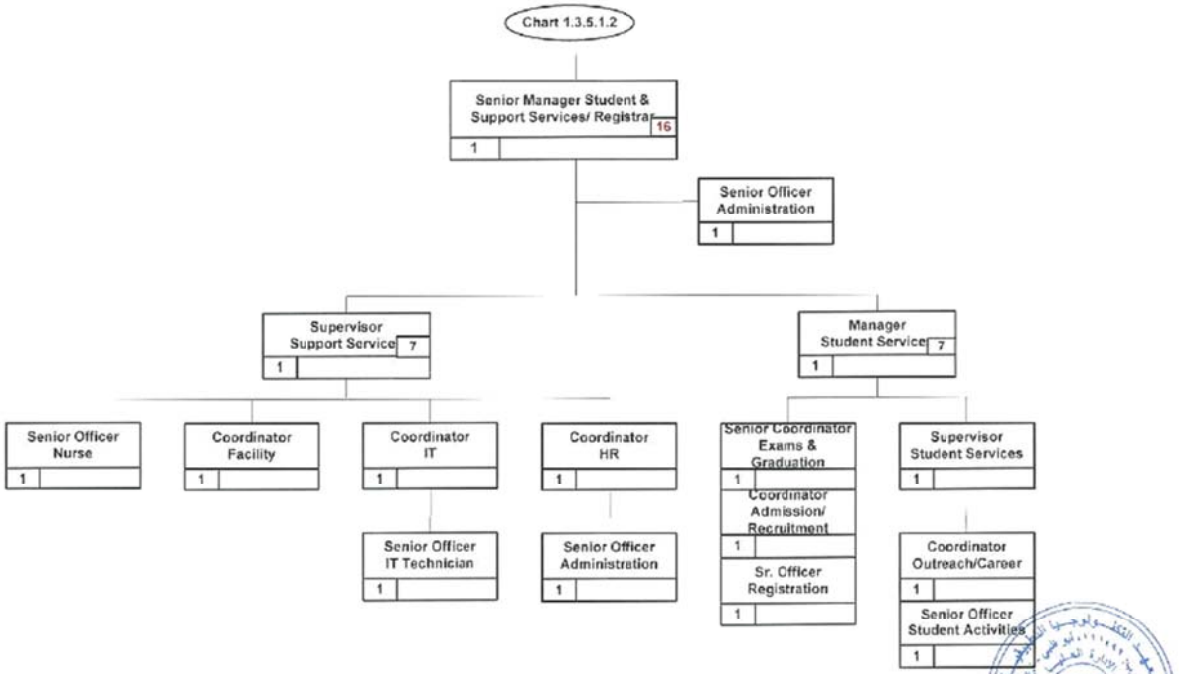
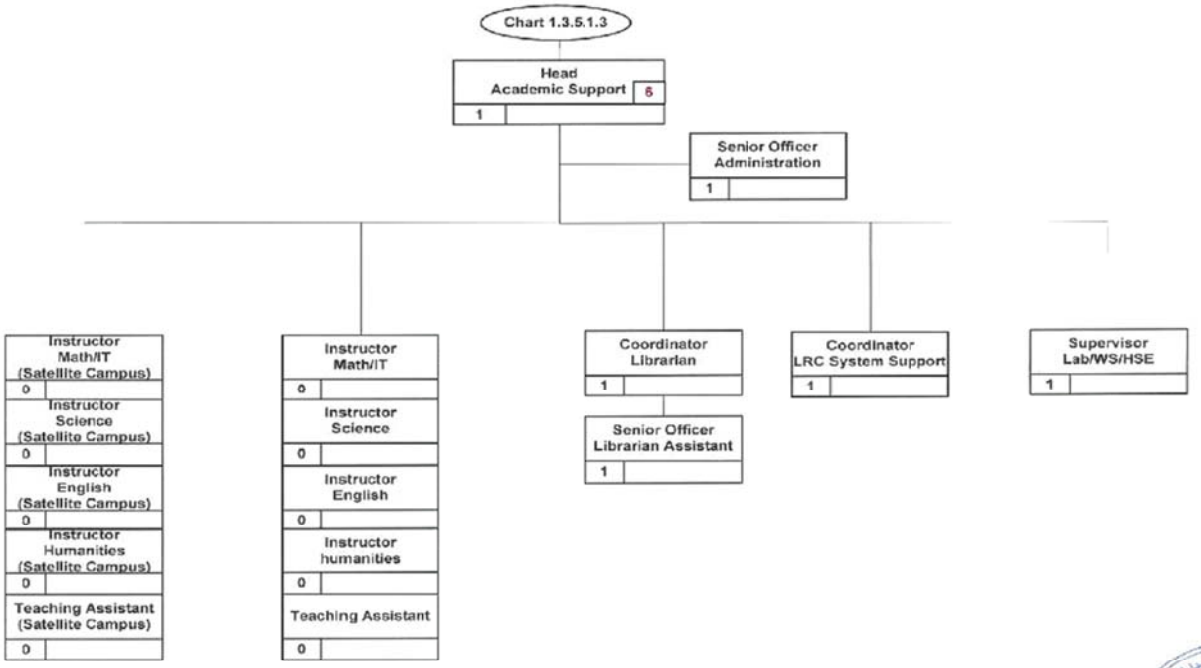


Chart 1.3.5.1.2
Senior Manager Student & Support Services/ Registrar 16
1
Senior Officer Administration
1
Supervisor Support Service 7
1
Manager Student Service 7
1
Senior Officer Nurse
1
Coordinator Facility
1
Coordinator IT
1
Coordinator HR
1
Senior Coordinator Exams & Graduation
1
Supervisor Student Services
1
Coordinator Admission/ Recruitment
1
Senior Officer IT Technician
1
Senior Officer Administration
1
Coordinator Outreach/Career
1
Sr. Officer Registration
1
Senior Officer Student Activities
1

Organization Chart



All Academics positions subject to Student Numbers

INSTITUTE OF APPLIED TECHNOLOGY
"Emiratization of Technological Careers"
Organization Chart
Headquarter – Abu Dhabi
Head of Program " Petrochemical 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Information Security 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Electro-Mechanical 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Advanced Energy 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Satellite Campus – Al Ain
Head of Program " Aircraft Engineering Technology 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Aircraft Maintainance 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Air Traffic Management 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
Head of Program " Defense Program 1
Senior Officer Administration ** 1
Instructors 0
Teaching Assistant/ Lab Technologist 0
* Assignment role.
** Filled for programs with 50+ students.
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Chairman, Board of Trustees