

AVIATION MAINTENANCE ENGINEERING TECHNOLOGY: AVIONICS (BAAET) : BACHELOR

Bachelor of Aviation Maintenance Engineering Technology: Avionics (BAAET)

Program Mission

Prepare graduates to be successful as technicians and engineers embracing innovation and discovery and striving for life-long learning and professional development in the field of Aviation Maintenance Engineering Technology.

Program Description

The Bachelor of Aviation Maintenance Engineering Technology: Avionics (BAAET) program articulates into the GCAA licensed outcome which is approved by the General Civil Aviation Authority (GCAA) UAE (CAR 147/02/2009). The program provides the graduates with excellent knowledge and skills to work effectively and professionally in the aviation community. Furthermore, it has the important element of broad education and continuous lifelong learning abilities. Graduates can take positions in the aviation industry and can work individually or in teams to practically apply avionics maintenance skills and solutions with consideration of the industry regulations and ethics. Students will graduate with a Bachelor degree and after a further two years industry experience and meeting the General Civil Aviation Authority requirements they will have a license of category 'B2' (Avionics). They also have the option to exit the program with a diploma degree after completion of the second year (see diploma degree requirements and conditions). Employment opportunities for aviation graduates within the UAE, Gulf region and worldwide are abundant and expanding. Employment opportunities include military operations, state commercial operations, private aviation operations and aviation supporting industries and logistics.

The program curriculum covers all avionics maintenance training modules required and licensed by the General Civil Aviation Authority (GCAA) and compatible with European Aviation Safety Agency (EASA). The program also has the main and important engineering courses and the General Studies courses which will prepare the students to be competent engineers and productive educated professionals. Graduates will be ready for positions as aviation engineers and technicians with the technical and managerial skills necessary to enter careers in aviation maintenance, management, and operations. Students will gain the required practical knowledge and skills through labs, practical assignments and work placements.

The curriculum aims to produce high-quality engineers known for productivity, timeliness, dedication, and competence in the workplace. Graduates have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. The program stresses the effective use of technology, information resources and engineering tools. The program provides leadership qualities based on moral and ethical principles coupled with sound and rational judgment. Finally, the program is

designed to prepare motivated students for graduate studies in Aviation Engineering and other related areas of professional practices.

Students will have the option to graduate with a Diploma in Aviation Maintenance Engineering Technology (Avionics) upon the successful completion of 77 credits inclusive of the 8 week Work Placement

Program Goal

The Program Educational Objectives of the Bachelor of Aviation Maintenance Engineering Technology: Avionics program are to:

1. Provide aviation graduates with the technical knowledge and skills required by the aviation industry to maintain a variety of aircraft systems to the highest standards.
2. Prepare graduates for a successful career as effective decision makers with strong communication and teamwork skills and an understanding of the global, ethical and social implications of the aviation industry and engineering profession.
3. Prepare graduates with a strong commitment to lifelong learning, continuing education and professional growth.
4. Provide graduates with leadership qualities and commitment to contribute actively to achieving the regulatory authorities' mission.

Program Learning Outcomes

Upon graduation, a HCT graduate in Bachelor of Aviation Maintenance Engineering Technology: Avionics program should demonstrate:

1. an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to identify, explain, formulate and solve broadly-defined engineering problems appropriate to the aviation maintenance and in accordance with regulations and manufacturer's instructions;
2. an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems related to Aviation Engineering Technology;
3. an ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature, computer software, information and communication technologies at a level required for basic aviation maintenance;
4. an ability to conduct standard tests, measurements, experiments and practical activities and to analyze and interpret the results to improve processes;
5. an ability to function effectively as a member as well as a leader on technical teams.
6. An ability to develop and evaluate a business plan to transform an engineering design (systems, products ,services and solutions) into a business opportunity utilizing entrepreneurial skills and knowledge

Requirements

Completion Requirements

Students seeking the Bachelor of Aviation Maintenance Engineering Technology (Avionics) degree must successfully complete the following requirements:

1. A minimum of 150 credits which are divided as follows:
 - a. Program major requirements of 99 credits as specified by program core requirements.
 - b. Aviation Program Work Placement is as follows:
 - Work placement I and II are 8 weeks each. HCT will use its best endeavors to provide work placement opportunities. However, HCT is not able to guarantee work-placement positions.
 - Students requiring a Certificate of Recognition (COR) at the completion of the program will be required to complete approximately 300 hours of the above-mentioned Work Placement in an “actual maintenance working environment”.
 - c. A minimum requirement of 18 credits of Math and Science courses.
 - d. General Studies requirements of 33 credits according to the General Studies breakdown and as advised in the study plan of the program.
2. Minimum CGPA of 2.00.
3. Successful completion of 60% of the GCAA license exams

Code	Title	Credit Hours
Avionics Core Courses		
Required Credits: 99		
AVT 1003	Aviation Mathematics and Physics	3
AVT 2103	DC Electrical Fundamentals	3
AVT 2113	AC Electrical Fundamentals and Electrical Machines	3
AVT 2253	Workshop Practices and Safety for Avionics	3
AVT 2263	Aircraft Materials for Avionics	3
AVT 2273	Aircraft Hardware for Avionics	3
AVT 2283	Maintenance Procedures and Abnormal Events for Avionics	3
AVT 2293	Electrical Wiring Standards and Practices for Avionics	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3
AVT 2806	Work Placement I for Aviation	6
AVT 2902	Sophomore Design Project	2
AVT 3102	Semiconductor Fundamentals	2
AVT 3123	Integrated Circuits and Servomechanisms	3
AVT 3133	Digital Techniques	3
AVT 3143	Electronic Instrument Systems	3
AVT 3403	Human Factors	3
AVT 3413	Aviation Legislation	3
AVT 3503	Aircraft Flight Control and Structures for Avionics	3
AVT 3513	Aircraft Instrument and Lighting for Avionics	3
AVT 3603	Propulsion	3
AVT 3806	Work Placement II for Aviation	6

AVT 4602	Aircraft Conditioning and Oxygen for Avionics	2
AVT 4613	Aircraft Radio and Navigation Systems	3
AVT 4623	Aircraft Electrical Power for Avionics	3
AVT 4633	Avionics Systems	3
AVT 4643	Aircraft Fuel and Passenger Systems for Avionics	3
AVT 4653	Aircraft Radar Systems	3
AVT 4663	Aircraft Protection Systems for Avionics	3
AVT 4673	Aircraft Hydraulic and Landing Gear for Avionics	3
AVT 4683	Aircraft Autoflight Systems	3
AVT 4902	Capstone Design Project I	2
AVT 4911	Capstone Design Project II	1
EGN 1133	Design Thinking in Technology	3

Mathematics and Science Required Courses

Required Credits: 18

CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Introduction to Differential Equations	3
PHY 1203	Physics II	3

General Studies

Required Credits: 33

English, Arabic or other Languages

Required Credits: 12

Humanities or Arts

Required Credits: 3

AES 1003

Information Technology and Mathematics

Required Credits: 6

ICT 2013 and MTH 1113

The Natural Sciences

Required Credits: 3

PHY 1103

The Social or Behavioral Sciences

Required Credits: 9

Description	Data
Total Required Credits	150
Maximum Duration of Study	6 years
Cost Recovery Program	No
Minimum Duration of Study	4 years
Program Code	BAAET
Major Code	AAE

Ideal Study Plan

Recommended Sequence of Study

Year 1		Credit Hours
Semester 1		
EGN 1133	Design Thinking in Technology	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
MTH 1103	Pre Calculus	3

PHY 1103	Physics I	3
	Credit Hours	15
Semester 2		
LSC 2103	Academic Reading and Writing II	3
LSS 1123	Basic Research Methods	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
	Credit Hours	15
Summer		
AVT 1003	Aviation Mathematics and Physics	3
CHM 1103	Engineering Chemistry	3
	Credit Hours	6
Year 2		
Semester 1		
AES 1013	Arabic Communications I	3
AVT 2103	DC Electrical Fundamentals	3
AVT 2253	Workshop Practices and Safety for Avionics	3
AVT 2263	Aircraft Materials for Avionics	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3
	Credit Hours	15
Semester 2		
AVT 2113	AC Electrical Fundamentals and Electrical Machines	3
AVT 2273	Aircraft Hardware for Avionics	3
AVT 2283	Maintenance Procedures and Abnormal Events for Avionics	3
AVT 2293	Electrical Wiring Standards and Practices for Avionics	3
AVT 2902	Sophomore Design Project	2
	Credit Hours	14
Summer		
AES 1003	Emirati Studies	3
AVT 2806	Work Placement I for Aviation *	6
MTH 2103	Calculus II	3
	Credit Hours	12
Year 3		
Semester 1		
AVT 3102	Semiconductor Fundamentals	2
AVT 3123	Integrated Circuits and Servomechanisms	3
AVT 3133	Digital Techniques	3
AVT 3143	Electronic Instrument Systems	3
AVT 3403	Human Factors	3
	Credit Hours	14
Semester 2		
AVT 3413	Aviation Legislation	3
AVT 3503	Aircraft Flight Control and Structures for Avionics	3
AVT 3513	Aircraft Instrument and Lighting for Avionics	3
AVT 3603	Propulsion	3
BUS 2403	Innovation and Entrepreneurship	3
	Credit Hours	15
Summer		
ICT 2013	Computational Thinking and Coding	3
MTH 2503	Introduction to Differential Equations	3
	Credit Hours	6
Year 4		
Semester 1		
AVT 4602	Aircraft Conditioning and Oxygen for Avionics	2
AVT 4613	Aircraft Radio and Navigation Systems	3
AVT 4623	Aircraft Electrical Power for Avionics	3
AVT 4633	Avionics Systems	3
AVT 4643	Aircraft Fuel and Passenger Systems for Avionics	3

AVT 4902	Capstone Design Project I	2
	Credit Hours	16
Semester 2		
AES 3003	Professional Arabic	3
AVT 4653	Aircraft Radar Systems	3
AVT 4663	Aircraft Protection Systems for Avionics	3
AVT 4673	Aircraft Hydraulic and Landing Gear for Avionics	3
AVT 4683	Aircraft Autoflight Systems	3
AVT 4911	Capstone Design Project II	1
	Credit Hours	16
Summer		
AVT 3806	Work Placement II for Aviation	6
	Credit Hours	6
	Total Credit Hours	150

*Work Placement I shall start after year 2 Summer Semester is completed.

Faculty and Academic Staff

ABU DHABI MEN'S

Ari Legowo, PhD Control & System Engineering, Osaka Prefecture University, Japan

Eleni - Eleftheria Kamperi, Bachelor Aircraft Technology, Technological Education Institute, Chalkida, Greece

Eric Abalayan, Bachelor Aeronautical Engineering, Mats College of Technology, Philippines

Evangalos Papageorgiou, PhD Aeronautical Engineering, University of Southampton, UK

Michael Ledesma, Bachelor Aeronautical Engineering, Mats College of Technology, Philippines

Serdar Dalkilic, PhD Aviation, Anadolu University, Turkey

DUBAI MEN'S

Aziz Almahadin, PhD Aeronautical Engineering, University of Hertfordshire, UK

Frank Oval, Bachelor Technical Management, Embry, Riddle Aero University, USA

Islam Zaki, Masters Aviation Management, University of Newcastle, Australia

Mohammad Qutaishat, Masters Production and Operations Management, Hashemite University, Jordan

Tekwani Bunti Kanayo, Masters Aeronautics, Embry-Riddle Aeronautical Univ, USA