AVIATION MAINTENANCE ENGINEERING TECHNOLOGY (AVIONICS): BACHELOR

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

Bachelor of Aviation Maintenance Engineering Technology : Avionics

Students must successfully complete a minimum of 150 credits, including:

Code	Title	Credit Hours
Program Core Courses		99
Mathematics and Science Courses		18
General Studies course		33

Total Credit Hours		**150**
Note : Students must Successfully complete 60% of the GCAA license		
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”		
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		
LSC 1103, AES 1013, AES 1033 and LSC 2193		
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		
LSS 1003, LSS 1123 and BUS 2403		

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

Ideal Study Plan
Recommended Sequence of Study

Year 1		
Semester 1		**Credit Hours**
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		
AES 1033	Islamic Culture	3
AES 1013	Arabic Communications I	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 3		
AES 1003	Emirati Studies	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
MTH 2103	Calculus II	3
	Credit Hours	18
Semester 4		
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
ICT 2013	Computational Thinking and Coding	3
	Credit Hours	17
Summer		
AVT 2806	Work Placement I for Aviation	6
	Credit Hours	6
Year 3		
Semester 5		
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
LSS 1123	Basic Research Methods	3
	Credit Hours	17
Semester 6		
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
LSC 2193	Applied Skills Capstone	3
	Credit Hours	15
Summer		
AVT 4602	Aircraft Conditioning and Oxygen for Avionics	2
MTH 2503	Introduction to Differential Equations	3
	Credit Hours	5
Year 4		
Semester 7		
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	14
Semester 8		
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
BUS 2403	Innovation and Entrepreneurship	3
	Credit Hours	16
Summer		
AVT 3806	Work Placement II for Aviation	6
	Credit Hours	6
	Total Credit Hours	150

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

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