

AERONAUTICAL ENGINEERING TECHNOLOGY: 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 Aeronautical Engineering Technology.

Program Description

The Bachelor of Aeronautical Engineering Technology program provides excellent, broad education with a focused area of specialization options to cater for the UAE's globally-oriented aircraft and aerospace industry. Program graduates are trained to support the design, manufacturing, and maintenance of aeronautical systems to the highest level of industry standards.

During the course of study, students use state-of-the-art software and hardware to enhance their analytical and practical skills in the field, to equip them with essential tools and skills to strengthen their career opportunities, and to facilitate their entry into the industrial world.

The curriculum is well defined to produce high quality engineers with productivity, timeliness, dedication and competence in the workplace.

Graduates have the ability to work efficiently, gather and provide information accurately, acquire troubleshooting skills logically, and to continuously fostering lifelong learning. Also, Aeronautical engineering program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. In addition to that, it is designed to prepare interested students for graduate studies in Aeronautical Engineering Technology and other relevant professional practices.

Program Goals

1. Provide Aeronautical Engineering Technology professionals, with the technical knowledge and skills required by the industry, to design, develop, and maintain aeronautical systems to highest level of industry standards.
2. Prepare graduates for a successful career as effective decision makers with strong communication and teamwork skills and clear understanding of the global, ethical and social implications of the aero-engineering industrial profession.
3. Provide graduates with strong commitment to lifelong learning, continuous education, and professional growth.
4. Provide graduates with leadership qualities and commitment to contribute actively in achieving the UAE vision of aeronautical and aerospace technology development.

Program Learning Outcomes

Upon graduation, HCT graduate in Bachelor of Aeronautical Engineering Technology should demonstrate:

1. Ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the Aeronautical Engineering Technology.

2. Ability to design systems, components, or processes to meet specified needs for broadly-defined engineering problems appropriate to the Aeronautical Engineering Technology.
3. Ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
4. Ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
5. Ability to function effectively as a member as well as a leader in technical teams.
6. 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 Aeronautical Engineering Technology

Students must successfully complete a minimum of 134 credits, including:

Code	Title	Credit Hours
Program Core Courses		80
Program Elective Courses		6
Mathematics and Science Courses		15
General Studies course		33
Total Credit Hours		134

Code	Title	Credit Hours
Aeronautical Engineering Core Courses		
Required Credits: 80		
AET 2103	Fundamentals of Flight	3
AET 2403	Applied Thermofluids	3
AET 2902	Sophomore Design Project	2
AET 3303	Aircraft Structures	3
AET 3413	Applied Aerodynamics I	3
AET 3423	Applied Aerodynamics II	3
AET 3503	Fixed And Rotary Wing Assemblies	3
AET 3513	Aircraft Design	3
AET 3603	Flight Vehicle Dynamics and Stability	3
AET 4433	Aircraft Propulsion	3
AET 4613	Avionics Systems	3
AET 4902	Capstone Design Project I	2
AET 4912	Capstone Design Project II	2
EGN 1001	Engineering Workshop	1
EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programing for Engineers	2
EGN 2803	Work Placement I	3
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3803	Work Placement II	3

EGN 4873	Data Analytics	3
EGN 4883	Introduction to Artificial intelligence	3
ELE 2153	Electrical Eng Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2213	Mechanics of Materials	3
MCE 2223	Applied Dynamics	3
MCE 2303	Material Selection and Testing	3
MCE 2311	Solid Modelling	1
MCE 4603	Control Systems	3
MTE 3603	Electronics Systems and Circuits	3

Mathematics and Science Required Courses

Required Credits: 15

CHM 1103	Engineering Chemistry	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Introduction to Differential Equations	3
PHY 1203	Physics of Electricity and Magnetism	3

Aeronautical Engineering Elective Courses

Required Credits: 6

AET 4123	Aircraft Reliability and Maintenance Engineering	3
AET 4143	Human Factors in Aviation	3
AET 4203	Mechanics of Composite Structures and Materials	3
AET 4213	Rotary Wing Aircraft	3
AET 4313	Manufacturing Processes	3
AET 4323	Non Destructive Testing	3
AET 4333	Introduction to Aero Elasticity	3
AET 4443	Computational Fluid Dynamics	3
AET 4453	Space Propulsion	3
AET 4503	Finite Element Analysis	3
AET 4623	Automatic Control of Flight Vehicles	3
AET 4863	Special Topics in Aeronautical Engineering	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	134
Maximum Duration of Study	6 years
Minimum Duration of Study	4 years

Cost Recovery Program	No
Program Code	BAEET
Major Code	AET

Ideal Study Plan

Recommended Sequence of Study

Bachelor of Aeronautical Engineering Technology

Year 1**Semester 1**

		Credit Hours
LSS 1003	Life and Future Skills	3
LSC 1103	Professional Communication and Reporting	3
PHY 1103	Physics of Mechanics and Motion	3
EGN 1133	Design Thinking in Technology	3
MTH 1203	Calculus I	3
EGN 1001	Engineering Workshop	1
Credit Hours		16

Semester 2

CHM 1103	Engineering Chemistry	3
PHY 1203	Physics of Electricity and Magnetism	3
MTH 2103	Calculus II	3
ICT 2013	Computational Thinking and Coding	3
MCE 2203	Applied Statics	3
MTH 1113	Statistics for Engineering	3
Credit Hours		18

Year 2**Semester 3**

AET 2103	Fundamentals of Flight	3
ELE 2153	Electrical Eng Fundamentals	3
MCE 2223	Applied Dynamics	3
MCE 2303	Material Selection and Testing	3
AET 2403	Applied Thermofluids	3
MCE 2311	Solid Modelling	1
Credit Hours		16

Semester 4

AES 1013	Arabic Communications	3
LSS 1123	Basic Research Methods	3
MCE 2213	Mechanics of Materials	3
MTH 2503	Introduction to Differential Equations	3
EGN 2712	Applied Programing for Engineers	2
AET 2902	Sophomore Design Project	2
Credit Hours		16

Summer

EGN 2803	Work Placement I	3
Credit Hours		3

Year 3**Semester 5**

AET 3303	Aircraft Structures	3
AET 3413	Applied Aerodynamics I	3
AET 3503	Fixed And Rotary Wing Assemblies	3
AET 3603	Flight Vehicle Dynamics and Stability	3
MTE 3603	Electronics Systems and Circuits	3
Credit Hours		15

Semester 6

AET 3513	Aircraft Design	3
LSC 2193	Applied Skills Capstone	3
EGN 3012	Project Management	2
AET 3423	Applied Aerodynamics II	3
EGN 3212	Economics for Engineering	2

AES 1003	Emirati Studies	3
Credit Hours		16
Summer		
EGN 3803	Work Placement II	3
Credit Hours		3
Year 4		
Semester 7		
EGN 4873	Data Analytics	3
AES 1033	Islamic Culture	3
MCE 4603	Control Systems	3
AET 4613	Avionics Systems	3
AET 4902	Capstone Design Project I	2
BUS 2403	Innovation and Entrepreneurship	3
Credit Hours		17
Semester 8		
AET 4433	Aircraft Propulsion	3
AET 4912	Capstone Design Project II	2
EGN 4883	Introduction to Artificial intelligence	3
2 Major Elective Courses		6
Credit Hours		14
Total Credit Hours		134

Faculty and Academic Staff

Faculty

Al Ain Women's

Mazin Abuharaz, PhD, Aerospace Engineering, Old Dominion University, USA

Mohamad Muflehi, Masters, Electronics, Sheffield Hallam University, UK

Raed Kafafy, PhD, Aerospace Engineering, Virginia Polytechnic Institute & State University, USA

Rizal Bin Zahari, PhD, Aeronautical Engineering, Cranfield University, UK

Syed Aftab, PhD, Aerospace Engineering, Universiti Putra Malaysia, Malaysia