

MECHANICAL ENGINEERING TECHNOLOGY: BACHELOR

Overview

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 Mechanical Engineering Technology.

Program Description

The Bachelor of Mechanical Engineering Technology program provides an excellent broad education to cater for the global UAE industry. Mechanical engineering technology graduates are trained to support the design, development, and maintenance of mechanical, static as well as rotating equipment. The program also teaches them to develop effective energy solutions, and manufacture and maintain state of the art equipment. HCT Mechanical Engineers are trained to use state of the art software and hardware to rapidly prototype and test potential product design, computerized testing and measurements, and computer control of machinery.

The Bachelor of Mechanical Engineering Technology curriculum produces 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 instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. Finally, the program is designed to prepare interested students for graduate studies in mechanical engineering technology and other areas of professional practice.

Students are eligible for a one year Work Experiential Learning experience during their study.

Program Goals

1. Provide Mechanical Engineering professionals who are equipped with the technical knowledge and skills required by the industry to develop, design, and maintain mechanical 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 an understanding of the global, ethical and social implications of the industry and Mechanical Engineering profession.
3. Provide graduates with strong commitment to lifelong learning, continuing education, and professional growth.
4. Provide graduates with leadership qualities and commitment to contribute actively to achieving the Abu Dhabi Vision 2030.

Program Learning Outcomes

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

1. An ability to apply knowledge, methods, techniques, skills and modern tools of mathematics, science, engineering, and technology

to solve broadly-defined engineering problems appropriate to Mechanical Engineering Technology;

2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to Mechanical 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
4. An ability to conduct standard tests, measurements, and experiments 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 Mechanical Engineering Technology

Students must successfully complete a minimum of 138 credits, including:

Code	Title	Credit Hours
Program Core Courses		87
Program Elective Courses		6
Mathematics and Science Courses		12
General Studies course		33
Total Credit Hours		138

Code	Title	Credit Hours
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Mechanical Engineering Core Courses

Required Credits: 87		
EGN 1001	Engineering Workshop	1
EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programming for Engineers	2
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3812	Work Placement	12
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 2323	Manufacturing Technology I	3
MCE 2403	Thermodynamics	3
MCE 2903	Sophomore Design Project	3
MCE 3203	Applied Mechanical Vibrations	3
MCE 3343	Industrial Plant Maintenance	3

MCE 3403	Fluid Mechanics	3
MCE 3413	Applied Heat Transfer	3
MCE 3503	Mechanical Design	3
MCE 3513	Machine Elements and Mechanisms	3
MCE 3613	Fluid Power	3
MCE 4603	Control Systems	3
MCE 4403	Refrigeration and Air Conditioning System	3
MCE 4413	Turbomachinery	3
MCE 4902	Capstone Design Project I	2
MCE 4912	Capstone Design Project II	2

Mathematics and Science Courses

Required Credits: 12

CHM 1103	Engineering Chemistry	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3

Mechanical Engineering Elective Courses

Required Credits : 6

EGN 4333	Renewable Energy Systems	3
EGN 4873	Data Analytics	3
EGN 4883	Introduction to Artificial intelligence	3
MCE 2332	Geometric Dimensioning and Tolerancing	2
MCE 3303	Manufacturing Technology II	3
MCE 3601	Engineering Measurements Lab	1
MCE 4303	Computer Integrated Manufacturing	3
MCE 4323	Non Destructive Testing	3
MCE 4333	Production Planning and Control	3
MCE 4423	Power Plant Engineering	3
MCE 4433	Internal Combustion Engines	3
MCE 4453	Desalination Engineering	3
MCE 4503	Finite Element Analysis	3
MCE 4863	Special Topics in Mechanical Engineering	3

General Studies

Required Credits: 33

English, Arabic or other Languages

Required Credits: 12

LSC 1103, AES 1013, AES 1033 and LSC 2223

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	138
Maximum Duration of Study	6 years

Minimum Duration of Study 4 years

Cost Recovery Program No

Program Code BMCET

Major Code MCE

Ideal Study Plan

Recommended Sequence of Study

Year 1**Semester 1**

		Credit Hours
AES 1013	Arabic Communications	3
EGN 1001	Engineering Workshop	1
EGN 1133	Design Thinking in Technology	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
PHY 1103	Physics I	3
Credit Hours		16

Semester 2

ICT 2013	Computational Thinking and Coding	3
CHM 1103	Engineering Chemistry	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
Credit Hours		15

Summer

MCE 2303	Material Selection and Testing	3
MTH 2103	Calculus II	3
Credit Hours		6

Year 2**Semester 3**

EGN 2712	Applied Programming for Engineers	2
ELE 2153	Electrical Eng Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2311	Solid Modelling	1
MCE 2323	Manufacturing Technology I	3
MCE 2403	Thermodynamics	3
Credit Hours		15

Semester 4

LSS 1123	Basic Research Methods	3
MCE 2213	Mechanics of Materials	3
MCE 2903	Sophomore Design Project	3
MCE 2223	Applied Dynamics	3
MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3
Credit Hours		18

Summer

EGN 2806	Work Placement I	6
Credit Hours		6

Year 3**Semester 5**

AES 1003	Emirati Studies	3
EGN 3012	Project Management	2
LSC 2223	Future Skills Capstone	3
MCE 3403	Fluid Mechanics	3
MCE 3503	Mechanical Design	3
Credit Hours		14

Semester 6

EGN 3812	Work Placement	12
MCE 3203	Applied Mechanical Vibrations	3
Credit Hours		15

Summer		
AES 1033	Islamic Culture	3
MCE 3513	Machine Elements and Mechanisms	3
Credit Hours		6
Year 4		
Semester 7		
BUS 2403	Innovation and Entrepreneurship	3
EGN 3212	Economics for Engineering	2
MCE 3413	Applied Heat Transfer	3
MCE 4603	Control Systems	3
MCE 4902	Capstone Design Project I	2
Credit Hours		13
Semester 8		
MCE 4403	Refrigeration and Air Conditioning System	3
MCE 4413	Turbomachinery	3
MCE 4912	Capstone Design Project II	2
2 Elective Courses		6
Credit Hours		14
Total Credit Hours		138

Faculty and Academic Staff

Al Ain Men's

Abdulkadir Yavuz, PhD Aeronautical Engineering, Istanbul Technical University, Turkey.

Abdulwehab Ibrahim, PhD Mechanical Engineering, Universiti Teknologi Petronas, Malaysia

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