



**ENGINEERING TECHNOLOGY  
AND SCIENCE**  
DIVISION



# Division of Engineering Technology and Science

The Division of Engineering Technology and Science aims to produce graduates effective in the design and practical application of engineering technology solutions. As students, they are taught the ability to lead successfully, work efficiently, and communicate effectively in a team. Their experience during the engineering undergraduate program will instill ethical values and professional standards, therefore, helping them expand their knowledge and competencies through continuing education and other lifelong learning experiences. Thus, making them significant members of the community by contributing their skills and knowledge either locally or internationally.

*Employment prospects for HCT Engineering Technology and Science graduates are very strong and cover many local and international industrial sectors including:*

- Aviation
- Computing
- Construction
- Consulting
- Defense
- Energy
- Governance
- Health care
- Infrastructure support and maintenance
- Manufacturing
- Oil and gas
- Telecommunications

## Divisional Mission

*The Mission of the Division of Engineering Technology and Science is to “provide world class engineering programs empowering graduates with the desire for learning, discovery and innovation, and provide highly competent technologists and engineers to meet present and future industry needs nationally and globally”. The reputation and academic integrity of Engineering Technology and Science programs at HCT is high. Most of the Bachelor programs in Engineering Technology offer a sound Diploma exit option.*

## Senior Staff

Executive Dean – **Dr. Mohammad-Amin Al Jarrah**

Associate Dean – **Dr. Sameh Ghwanmeh**

## Degrees offered

*The current programs being offered by the Division of Engineering Technology and Science are: -*

Programs	Offered at:
Bachelor of Aeronautical Engineering Technology	Al Ain Women's College
Bachelor of Aviation Maintenance Engineering Technology: Airframe and Aeroengines	Abu Dhabi Men's College, Dubai Men's College
Bachelor of Aviation Maintenance Engineering Technology: Avionics	Abu Dhabi Men's College, Dubai Men's College
Bachelor of Chemical Engineering Technology	Abu Dhabi Men's College, Ruwais Men's College, Ruwais Women's College
Bachelor of Civil Engineering Technology	Abu Dhabi Men's College, Dubai Men's College
Bachelor of Electrical Engineering Technology	Al Ain Men's College, Al Ain Women's College, Abu Dhabi Men's College, Abu Dhabi Women's College, Dubai Men's College, Dubai Women's College, Fujairah Men's College, Fujairah Women's College, Ras Al Khaimah Men's College, Ras Al Khaimah Women's College, Sharjah Men's College, Sharjah Women's College, Western Region Colleges

<b>Bachelor of Industrial Engineering Technology</b>	Abu Dhabi Women's College, Dubai Women's College
<b>Bachelor of Logistics Engineering Technology</b>	Abu Dhabi Men's College
<b>Bachelor of Applied Science in Marine Engineering Technology</b>	Abu Dhabi Men's College
<b>Bachelor of Applied Science in Marine Transport</b>	Abu Dhabi Men's College
<b>Bachelor of Applied Science in Maritime Engineering Technology and Naval Architecture</b>	Abu Dhabi Men's College
<b>Bachelor of Mechanical Engineering Technology</b>	Al Ain Men's College, Abu Dhabi Men's College, Dubai Men's College, Fujairah Men's College, Fujairah Women's College, Ras Al Khaimah Men's College, Sharjah Men's College, Sharjah Women's College, Ruwais Men's College
<b>Bachelor of Mechatronics Engineering Technology</b>	Dubai Men's College, Ras Al Khaimah Men's College

### Admission Requirements

#### A. Direct admission:

1. Meet general admission criteria specified in Program Placement Procedures LP202.1
2. Pass a Physics Placement Test with a minimum score of 70.

#### B. Conditional admission:

1. If the physics placement test requirement is not met, admission is granted upon completion of the Pre-Physics course. Meanwhile student can proceed in his major as direct admission.

#### C. Admission upon completion of Foundation Program:

1. Foundation students are eligible to Engineering Technology admission upon completion of the Foundation program with Foundations Math 3 (FND M030) grade of C or better.
2. Pass a Physics Placement Test with a minimum score of 70 or completion of the Pre-Physics course.

### Diploma Exit Option

- **Optional Exit:** Engineering students may select the diploma track and can exit with a Diploma after completing the requirements outlined in the respective program with a minimum CGPA of 2.0.
- **Mandatory Exit:** After completion of 40 credits in Engineering core courses and Mathematics and Science required courses (Math, Chemistry and Physics), students must have a minimum CGPA of 2.0 excluding General Studies to progress into Year 3 of the program. Students who do not meet this requirement are required to follow the Diploma track.

### Completion Requirements

#### Bachelor Degree Completion Requirements

*Students seeking the Engineering Technology Bachelor degree must successfully complete the following minimum requirements:*

1. Minimum of 146 credits as shown below. Note: For Aviation and Maritime programs, the minimum number of credits is specified in their relevant section of the Catalogue.
  - a. Program required courses including a work placement of 16 weeks: see program completion requirements.
  - b. Minimum of 21 credits of Math and Science course credits. Note: For Industrial and Logistics programs, the minimum no. of Math and Science credits is 18.
  - c. Minimum of 33 credits of General Studies course requirements according to the General Studies breakdown and as advised in the recommended sequence of study for each program.
  - d. Major electives: see program elective requirements.
2. Minimum CGPA of 2.00.

#### Diploma Degree Completion Requirements

*Students seeking the Engineering Technology Diploma degree must successfully complete the following minimum requirements:*

1. Minimum number of credits as specified in the program of interest among which the following requirements needs to be met:
  - a. Program required courses including a work placement of 8 weeks.
  - b. Minimum of 15 credits of Math and Science course requirements.
  - c. Minimum of 24 credits in General Studies requirements according to the General Studies breakdown and as advised in the recommended sequence of study for each program
2. Minimum CGPA of 2.00

## Department of Aeronautical Engineering Technology (AET)

# Bachelor of Aeronautical Engineering Technology (BAEET)

### Program Mission

To provide highly qualified Aeronautical Engineers with state of the art knowledge, technical and leadership skills, who are committed to lifelong learning, the pursuit of excellence and innovation and to best serve the Aeronautics profession.

### Program Description

The Bachelor of Aeronautical Engineering Technology program provides an excellent, broad education with a focused area of specialization options to cater for the UAE's globally-oriented aircraft industry. Aeronautical Engineering Technology graduates are trained to support the design, development, and maintenance of aviation systems to the highest level of industry standards. HCT Aeronautical Engineers are trained to use state-of-the-art software and hardware to enhance their analytical and practical skills in aero-engineering to equip them with essential tools and skills to strengthen their career opportunities and facilitate their entry into the industrial world.

The Bachelor of Aeronautical 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. It also instills leadership qualities based on moral and ethical principles, coupled with sound and rational judgment. In addition, it is designed to prepare interested students for graduate studies in Aeronautical Engineering Technology and other areas of professional practice.

Students will have the option to graduate with a Diploma in Aeronautical Engineering Technology upon the successful completion of 80 credits inclusive of 8 weeks of Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Aeronautical Engineering Technology (BAEET) program are to:*

1. Provide Aeronautical Engineering Technology professionals with the technical knowledge and skills required by the industry to develop, design, and maintain aviation 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 aero-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 Student Outcomes

*Upon graduation, a HCT graduate in Bachelor of Aeronautical Engineering Technology (BAEET) should demonstrate:*

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of aeronautical engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to aeronautical engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined aeronautical engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader of a technical team.
- f. An ability to identify, analyze, and solve broadly-defined aeronautical engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Bachelor of Aeronautical Engineering Technology degree must successfully complete the following minimum requirements:

1. Minimum of 146 credits which are divided as follows:
  - a. Minimum of 80 credits of major requirements, including Work Placement for 16 weeks.
  - b. Minimum of 12 credits of major electives.
  - c. Minimum of 21 credits of Math and Science course requirements.
  - d. General Studies requirements of 33 credits according to the General Studies breakdown.
2. Minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 80		
AET 2103	Fundamentals of Flight	3
AET 2403	Applied Thermofluids	3
AET 2902	Sophomore Design Project	2
AET 3101	Aeronautical Engineering Lab	1
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	Aircraft 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 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 3806	Work Placement II	6
ELE 2153	Electrical Engineering Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2213	Mechanics of Materials	3
MCE 2223	Applied Dynamics	3
MCE 2303	Materials Selection and Testing	3
MCE 2311	Solid Modelling	1
MCE 4603	Control Systems	3
MTE 3603	Electronics Systems and Circuits	3

Course Credits

Major Elective Courses		
Required Credits: 12		
AET 4123	Aircraft Reliability and Maintenance Engineering	3
AET 4143	Human Factors	3
AET 4203	Composite Materials	3
AET 4213	Rotary Wing Aircraft	3
AET 4313	Manufacturing Processes	3
AET 4323	Non Destructive Testing	3
AET 4443	Computational Fluid Dynamics	3
AET 4453	Aerospace vehicles	3
AET 4503	Finite Element Analysis	3
AET 4863	Special Topics in Aeronautical Engineering	3
AET 4893	Directed Studies	3

Mathematics and Science Courses		
Required Credits: 21		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

General Studies		
Required Credits: 33		
English, Arabic or other Languages		15
Humanities or Arts: AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		9

<i>Total Required Credits</i>	<i>146</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BAEET</i>
<i>Major Code</i>	<i>AET</i>

# Diploma in Aeronautical Engineering Technology (DAEET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Aeronautical Engineering Technology (DAEET) program are to:

1. Provide Aeronautical Engineering Technology professionals with the technical knowledge and skills required by the industry to maintain aviation systems to highest level of industry standards.
2. Prepare graduates for a successful career with strong communication and teamwork skills and an understanding of the global, ethical and social implications of the aviation industry.
3. Provide graduates with strong commitment to lifelong learning, continuing education, and professional growth.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Aeronautical Engineering Technology (DAEET) should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of aeronautical engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to aeronautical engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined aeronautical engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Diploma Completion Requirements

Students seeking the Diploma in Aeronautical Engineering Technology must successfully complete the following minimum requirements:

1. A minimum of 80 credits, as follows:
  - 41 credits of major program requirements, including work placement for 8 weeks
  - Minimum of 15 credits of Math and Science course requirements

- Minimum of 24 credits of General Studies requirements according to the General Studies breakdown.
2. A minimum CGPA of 2.00

		Course Credits
<b>Core Courses</b>		
<b>Required Credits: 41</b>		
AET 2103	Fundamentals of Flight	3
AET 2403	Applied Thermofluids	3
AET 2902	Sophomore Design Project	2
AET 3503	Fixed And Rotary Wing Assemblies	3
AET 4613	Avionics Systems	3
EGN 1133	Design Thinking in Technology	3
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
ELE 2153	Electrical Engineering Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2213	Mechanics of Materials	3
MCE 2303	Material Selection and Testing	3
MCE 2311	Solid Modelling	1
MTE 3603	Electronics Systems and Circuits	3
<b>Mathematics and Science Required Courses</b>		
<b>Required Credits: 15</b>		
CHM1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3
<b>General Studies</b>		
<b>Required Credits: 24</b>		
English, Arabic or other Languages		9
Humanities or Arts : AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6
<b>Total Required Credits</b>		<b>80</b>
<b>Maximum Duration of Study</b>		<b>3 years</b>
<b>Cost Recovery Program</b>		<b>No</b>
<b>Minimum Duration of Study</b>		<b>2 years</b>
<b>Program Code</b>		<b>DAEET</b>
<b>Major Code</b>		<b>AET</b>

# Recommended Sequence of Study

## Bachelor of Aeronautical Engineering Technology

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	MTH 1113	Statistics for Engineering	3
PHY 1103	Physics I	3	MTH 1203	Calculus I	3
EGN 1133	Design Thinking in Technology	3	PHY 1203	Physics II	3
MTH 1103	Pre Calculus	3	LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 1 Summer Semester</b>					
<b>Required Credits: 6</b>					
AES 1013	Arabic Communications I	3			
CHM 1103	Engineering Chemistry	3			
<b>Year 2 Semester 3</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits:16</b>			<b>Required Credits:16</b>		
AES 1003	Emirati Studies	3	MTE 3603	Electronics Systems and Circuits	3
ELE 2153	Electrical Engineering Fundamentals	3	AET 2103	Fundamentals of Flight	3
MTH 2103	Calculus II	3	AET 2403	Applied Thermofluids	3
MCE 2203	Applied Statics	3	MCE 2213	Mechanics of Materials	3
MCE 2303	Material Selection and Testing	3	AET 2902	Sophomore Design Project	2
MCE 2311	Solid Modelling	1	EGN 3012	Project Management	2
<b>Year 2 Summer Semester (Diploma)</b>			<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits:6</b>			<b>Required Credits:6</b>		
AET 3503	Fixed and Rotary Wing Assemblies	3	EGN 2806	Work Placement I	6
AET 4613	Avionics Systems	3			
<b>Year 2 Summer Semester (Bachelor)</b>			<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Required Credits:6</b>			<b>Required Credits:6</b>		
MTH 2503	Linear Algebra and Differential Equations	3	EGN 2806	Work Placement I	6
MCE 2223	Applied Dynamics	3			
<b>Year 3 Semester 5</b>			<b>Year 3 Semester 6</b>		
<b>Required Credits: 17</b>			<b>Required Credits: 15</b>		
LSC 2183	English for Specific Purposes	3	LSS 2403	Innovation and Entrepreneurship	3
MTH 3013	Calculus III	3	AET 3603	Aircraft Dynamics and Stability	3
AET 3303	Aircraft Structures	3	AET 3423	Applied Aerodynamics-II	3
AET 3413	Applied Aerodynamics-I	3	AET 3513	Aircraft Design	3
EGN 2712	Applied Programing for Engineers	2	EGN 3212	Economics for Engineering	2
AET 3503	Fixed And Rotary Wing Assemblies	3	AET 3101	Aeronautical Engineering Lab	1
<b>Year 3 Summer Semester</b>					
<b>Required Credits: 6</b>					
EGN 3806	Work Placement II	6			
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 14</b>			<b>Required Credits: 14</b>		
AET 4433	Aircraft Propulsion	3	AES 3003	Professional Arabic	3
MCE 4603	Control Systems	3	AET 4613	Avionics systems	3
AET 4XX3	Major Elective	3	AET 4XX3	Major elective	3
AET 4XX3	Major Elective	3	AET 4XX3	Major elective	3
AET 4902	Capstone Design Project I	2	AET 4912	Capstone Design Project II	2

## Faculty

### AL AIN WOMEN'S COLLEGE

**Amanuel Melake**, PhD CFD in Turboengine Aerodynamics, RWTH Aachen University of Technology

**Feras Darwish**, PhD Mechanical Engineering, North Carolina A&T State University

**Hassan Jishi**, PhD Aerospace Engineering, Khalifa University

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

**Utsav KC**, PhD Aerospace Engineering, University of Texas at Austin



## Department of Aviation Maintenance Engineering Technology (AVET and AAET)

# Bachelor of Aviation Maintenance Engineering Technology: Airframe and Aeroengines (BAVET)

### Program Mission

Provide aviation graduates and professionals with the necessary knowledge, skills, attitude, and lifelong learning abilities to pursue excellence while meeting the international aviation standards to fulfil the needs of aviation community

### Program Description

The Bachelor of Aviation Maintenance Engineering Technology (BAVET) 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 Aviation 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 'B1.1' (Airframe and Aeroengines). 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 stated below). 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 aviation maintenance training modules required by the General Civil Aviation Authority (GCAA) and are 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 (Airframe and Aeroengines) upon the successful completion of 77 credits inclusive of 8 weeks of Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Aviation Maintenance Engineering Technology (Airframe and Aeroengines) 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 Student Outcomes

*Upon graduation, a HCT graduate in Bachelor of Aviation Maintenance Engineering Technology (Airframe and Aeroengines) program should demonstrate:*

- a. An ability to integrate and utilize theoretical and practical knowledge on mathematics, natural sciences and aviation maintenance engineering to offer engineering solutions.
- b. An ability to identify, explain, formulate and solve aviation maintenance engineering problems; select and apply appropriate analytical methods and modeling techniques.
- c. An ability to apply the acquired comprehensive theoretical and practical knowledge in accordance with the national and international aviation authorities' regulations and manufacturer's instructions.
- d. A comprehensive knowledge on the forensic, communal

- and environmental framework in which the aviation operations are conducted.
- e. An ability to analyze a system, a system component or a process; utilize advanced design methods to meet the defined requirements under realistic constraints.
  - f. An ability to identify and analyze problems, propose solutions based on research, proof and results from different sources and measurements; develop appropriate corrective action.
  - g. An ability to use computer software, information and communication technologies at a level required by aviation maintenance engineering technology.
  - h. An understanding of the need for lifelong learning; an ability to learn new developments in science and technology, access information, review literature, and make conclusions.
  - i. An ability to propose, build and lead team works in engineering projects related to aircraft maintenance technology.
  - j. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
  - k. An ability to communicate effectively in writing, orally, and graphically and an ability to identify and use appropriate technical literature.
  - l. An understanding of the need for and an ability to engage in self-directed continuing professional development.
  - m. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
  - n. A knowledge of the impact of engineering technology solutions in a societal and global context.
  - o. A commitment to quality, timeliness, and continuous improvement.

**Completion Requirements**

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

1. Minimum of 150 credits which are divided as follows:
  - a. Minimum of 99 credits of core requirements including 3 credit hours of Aviation Mathematics and Physics course (AVT 1003) and 16 weeks of work placement.
  - b. Minimum of 18 credits of Math and Science course requirements.
  - c. General Studies requirements of 33 credits according to the General Studies breakdown.
2. Minimum CGPA of 2.00.
3. Successfully complete 60% of the GCAA license exams.

Course Credits

**General Studies Courses**

**Required Credits: 33**

English, Arabic or other Languages	15
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

**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 2203	Workshop Practices and Safety	3
AVT 2213	Aircraft Materials	3
AVT 2223	Aircraft Hardware	3
AVT 2233	Maintenance Procedures and Abnormal Events	3
AVT 2243	Electrical Wiring Standards and Practices	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3
AVT 2806	Work Placement I for Aviation	6
AVT 2902	Sophomore Design Project	2
AVT 3103	Electronic Fundamentals	3
AVT 3113	Digital Techniques Electronic Instrument Systems	3
AVT 3203	Maintenance Practices Workshop	3
AVT 3403	Human Factors	3
AVT 3413	Aviation Legislation	3
AVT 3703	Gas Turbine Engine I	3
AVT 3712	Gas Turbine Engine I Workshop	2
AVT 3723	Gas Turbine Engine II	3
AVT 3733	Propeller	3
AVT 3806	Work Placement II for Aviation	6
AVT 4503	Aircraft Flight Control and Structures	3
AVT 4513	Aircraft Conditioning and Oxygen	3
AVT 4523	Aircraft Electrical Power	3
AVT 4532	Aircraft Systems Workshop	2
AVT 4543	Aircraft Avionics Systems for Mechanical	3
AVT 4553	Aircraft Fuel and Passenger Systems	3
AVT 4563	Aircraft Protection Systems	3
AVT 4573	Aircraft Hydraulic and Landing Gear	3
AVT 4583	Aircraft Instrument and Lighting	3
AVT 4902	Capstone Design Project I	2
AVT 4911	Capstone Design Project II	1
EGR 1133	Design Thinking in Technology	3

**Mathematics and Science 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	Linear Algebra and Differential Equations	3
PHY 1203	Physics II	3

Total Required Credits	150
Maximum Duration of Study	6 years
Cost Recovery Program	No
Minimum Duration of Study	4 years
Program Code	BAVET
Major Code	AVE

# Diploma in Aviation Maintenance Engineering Technology: Airframe and Aeroengines (DAVET) Exit Option

## License Requirement

After exiting the Aviation Maintenance Engineering Technology (Airframe and Aeroengines) program with the diploma, students could continue training for aviation maintenance licenses in accordance with GCAA regulations (CAR 66.25). The graduate would be required to complete an additional 10 modules in a self-study program, with the examinations carried out at HCT under the provisions of GCAA as an approved Examination Centre. The entire course must be completed within a 10 year period. Refer to [www.gcaa.gov.ae](http://www.gcaa.gov.ae) (E-Publications – (CAR's-CAR Part II-Chapter 7)) for full details and specific information.

## Program Educational Objectives

*The Program Educational Objectives of the Diploma in Aviation Maintenance Engineering Technology (Airframe and Aeroengines) 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 the commitment to contribute actively to achieving the regulatory authorities' mission.

## Program Student Outcomes

*Upon graduation, a HCT graduate in Diploma in Aviation Maintenance Engineering Technology (Airframe and Aeroengines) program should demonstrate:*

- a. An ability to integrate and utilize basic theoretical and practical knowledge on mathematics, natural sciences and aviation maintenance engineering in the workplace.
- b. An ability to identify, explain, formulate and solve basic aviation maintenance engineering problems;
- c. An ability to apply the acquired basic theoretical and practical knowledge in accordance with regulations and manufacturer's instructions.
- d. A basic knowledge on the communal and environmental framework in which the aviation operations are conducted.
- e. An ability to use computer software, information and communication technologies at a level required for basic aviation maintenance.
- f. An ability to conduct standard tests and measurements.

- g. An ability to communicate effectively in writing, orally, and graphically.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities
- j. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

*Students seeking the Diploma in Aviation Maintenance Engineering Technology (Airframe and Aeroengines) must successfully complete a minimum of 77 credits, as follows:*

- a. Program major requirements of 38 credits including 3 credit hours of Aviation Mathematics and Physics course (AVT 1003) and 8 weeks of work placement.
- b. Math and Science requirements of 15 credits.
- c. General Studies requirements of 24 credits according to the General Studies breakdown.

Course Credits

**Core Courses**

Required Credits: 38

AVT 1003	Aviation Mathematics and Physics	3
AVT 2103	DC Electrical Fundamentals	3
AVT 2113	AC Electrical Fundamentals and Electrical Machines	3
AVT 2203	Workshop Practices and Safety	3
AVT 2213	Aircraft Materials	3
AVT 2223	Aircraft Hardware	3
AVT 2233	Maintenance Procedures and Abnormal Events	3
AVT 2243	Electrical Wiring Standards and Practices	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3
AVT 2806	Work Placement I for Aviation	6
AVT 2902	Sophomore Design Project	2
EGN 1133	Design Thinking in Technology	3

**Mathematics and Science Courses**

Required Credits: 15

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

Course Credits

**General Studies Courses**

Required Credits: 24

English, Arabic or other Languages	9
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	6

<i>Total Required Credits</i>	<i>77</i>
<i>Maximum Duration of Study</i>	<i>3 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>2 years</i>
<i>Program Code</i>	<i>DAVET</i>
<i>Major Code</i>	<i>AVE</i>

# Recommended Sequence of Study

## Bachelor of Aviation Maintenance Engineering Technology (Airframe and Aeroengines)

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits:15</b>			<b>Required Credits:15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	LSS 1123	Basic Methods of Scientific Research and Development	3
PHY 1103	Physics I	3	PHY 1203	Physics II	3
EGN 1133	Design Thinking in Technology	3	MTH 1113	Statistics for Engineering	3
MTH 1103	Pre Calculus	3	MTH 1203	Calculus I	3
<b>Year 1 Summer Semester</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits:6</b>			<b>Required Credits:14</b>		
AVT 1003	Aviation Mathematics and Physics	3	AVT 2113	AC Electrical Fundamentals and Electrical Machines	3
CHM 1103	Engineering Chemistry	3	AVT 2223	Aircraft Hardware	3
<b>Year 2 Semester 3</b>			<b>Year 2 Summer Semester</b>		
<b>Required Credits:15</b>			<b>Required Credits:6</b>		
AES 1013	Arabic Communications I	3	AVT 2806	Work Placement I for Aviation	6
AVT 2103	DC Electrical Fundamentals	3	<b>Year 3 Semester 6</b>		
AVT 2203	Workshop Practices and Safety	3	<b>Required Credits: 15</b>		
AVT 2213	Aircraft Materials	3	LSS 2403	Innovation and Entrepreneurship	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3	AVT 3413	Aviation Legislation	3
<b>Year 2 Summer Semester</b>			<b>Year 3 Semester 5</b>		
<b>Required Credits:6</b>			<b>Required Credits: 14</b>		
AES 1003	Emirati Studies	3	AVT 3203	Maintenance Practices Workshop	3
MTH 2103	Calculus II	3	AVT 3103	Electronic Fundamentals	3
<b>Year 3 Summer Semester</b>			<b>Year 4 Semester 7</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 16</b>		
LSC 2183	English for Specific Purposes	3	AVT 4503	Aircraft Flight Control and Structures	3
MTH 2503	Linear Algebra and Differential Equations	3	AVT 4513	Aircraft Conditioning and Oxygen	3
<b>Year 4 Summer Semester</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 16</b>		
AVT 3806	Work Placement II for Aviation	6	AVT 4553	Aircraft Fuel and Passenger Systems	3
			AVT 4563	Aircraft Protection Systems	3
			AVT 4573	Aircraft Hydraulic and Landing Gear	3
			AVT 4583	Aircraft Instrument and Lighting	3
			AVT 4911	Capstone Design Project II	1
			AES 3003	Professional Arabic	3

# Bachelor of Aviation Maintenance Engineering Technology: Avionics (BAAET)

## Program Mission

Provide aviation graduates and professionals with the necessary knowledge, skills, attitude, and lifelong learning abilities to pursue excellence while meeting the international aviation standards to fulfil the needs of aviation community.

## Program Description

The Bachelor of Aviation Maintenance Engineering Technology (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 after completion of the second year (see diploma requirements and conditions stated below). 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 8 weeks of Work Placement.

## Program Educational Objectives

*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 Student Outcomes

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

- a. An ability to integrate and utilize theoretical and practical knowledge on mathematics, natural sciences and avionics maintenance engineering to offer engineering solutions.
- b. An ability to identify, explain, formulate and solve avionics maintenance engineering problems; select and apply appropriate analytical methods and modeling techniques.
- c. An ability to apply the acquired comprehensive theoretical and practical knowledge in accordance with the national and international aviation authorities' regulations and manufacturer's instructions.
- d. A comprehensive knowledge on the forensic, communal and environmental framework in which the aviation operations are conducted.
- e. An ability to analyze a system, a system component or a process; utilize advanced design methods to meet the defined requirements under realistic constraints.
- f. An ability to identify and analyze problems, propose

solutions based on research, proof and results from different sources and measurements; develop appropriate corrective action.

- g. An ability to use computer software, information and communication technologies at a level required by aviation maintenance engineering technology.
- h. An understanding of the need for lifelong learning; an ability to learn new developments in science and technology, access information, review literature, and make conclusions.
- i. An ability to propose, build and lead team works in engineering projects related to avionics maintenance technology.
- j. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- k. An ability to communicate effectively in writing, orally, and graphically and an ability to identify and use appropriate technical literature.
- l. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- m. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- n. A knowledge of the impact of engineering technology solutions in a societal and global context.
- o. A commitment to quality, timeliness, and continuous improvement.

### Completion Requirements

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

1. Minimum of 150 credits which are divided as follows:
  - a. Minimum of 99 credits of program core requirements including 3 credit hours of (AVT 1003) Aviation Mathematics and Physics course and 16 weeks of work placement.
  - b. Minimum of 18 credits of Math and science requirements.
  - c. 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. Successfully complete 60% of the GCAA license exams

Course Credits

**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
EGR 1133	Design Thinking in Technology	3

Course Credits

**Mathematics and Science 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	Linear Algebra and Differential Equations	3
PHY 1203	Physics II	3

**General Studies**

Required Credits: 33

English, Arabic or other Languages	15
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>150</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BAAET</i>
<i>Major Code</i>	<i>AAE</i>



# Diploma in Aviation Maintenance Engineering Technology: Avionics (DAAET) Exit Option

## License Requirement

After exiting the Aviation Maintenance Engineering Technology (Avionics) program with the diploma, students could continue training for aviation maintenance licenses in accordance with GCAA regulation (CAR 66.25). The graduate would be required to complete an additional 9 modules in a self-study program, with the examinations carried out at HCT under the provisions of GCAA as an approved Examination Centre. The entire course must be completed within a 10-year period. Refer to [www.gcaa.gov.ae](http://www.gcaa.gov.ae) (E-Publications – CAR's-CAR Part II- Chapter 7) for full details and specific information.

## Program Educational Objectives

*The Program Educational Objectives of the Diploma 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 the commitment to contribute actively to achieving the regulatory authorities' mission.

## Program Student Outcomes

*Upon graduation, a HCT graduate in Diploma in Aviation Maintenance Engineering Technology (Avionics) program should demonstrate:*

- a. An ability to integrate and utilize basic theoretical and practical knowledge on mathematics, natural sciences and aviation maintenance engineering in the workplace.
- b. An ability to identify, explain, formulate and solve basic aviation maintenance engineering problems.
- c. An ability to apply the acquired basic theoretical and practical knowledge in accordance with regulations and manufacturer's instructions.
- d. A basic knowledge on the communal and environmental framework in which the aviation operations are conducted.
- e. An ability to use computer software, information and communication technologies at a level required for basic aviation maintenance.
- f. An ability to conduct standard tests and measurements.

- g. An ability to communicate effectively in writing, orally, and graphically.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities.
- j. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

*Students seeking the Diploma in Aviation Maintenance Engineering Technology (Avionics) must successfully complete a minimum of 77 credits, as follows:*

- a. Program major requirements of 38 credits including 3 credit hours of (AVT 1003) Aviation Mathematics and Physics course and 8 weeks of work placement.
- b. Math and Science requirements of 15 credits.
- c. General Studies requirements of 24 credits according to the General Studies breakdown.

		Course Credits
<b>Core Courses</b>		
<b>Required Credits: 38</b>		
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
EGN 1133	Design Thinking in Technology	3

		Course Credits
<b>Mathematics and Science Courses</b>		
<b>Required Credits: 15</b>		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3

		Course Credits
<b>General Studies Courses</b>		
<b>Required Credits: 24</b>		
English, Arabic or other Languages		9
Humanities or Arts: AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6
<i>Total Required Credits</i>		<i>77</i>
<i>Maximum Duration of Study</i>		<i>3 years</i>
<i>Cost Recovery Program</i>		<i>No</i>
<i>Minimum Duration of Study</i>		<i>2 years</i>
<i>Program Code</i>		<i>DAAET</i>
<i>Major Code</i>		<i>AAE</i>

# Recommended Sequence of Study

## Bachelor of Aviation Maintenance Engineering Technology (Avionics)

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	LSS 1123	Basic Methods of Scientific Research and Development	3
PHY 1103	Physics I	3	PHY 1203	Physics II	3
EGN 1133	Design Thinking in Technology	3	MTH 1113	Statistics for Engineering	3
MTH 1103	Pre Calculus	3	MTH 1203	Calculus I	3
<b>Year 1 Summer Semester</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 14</b>		
AVT 1003	Aviation Mathematics and Physics	3	AVT 2113	AC Electrical Fundamentals and Electrical Machines	3
CHM 1103	Engineering Chemistry	3	AVT 2273	Aircraft Hardware for Avionics	3
<b>Year 2 Semester 3</b>			<b>Year 2 Summer Semester</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 6</b>		
AES 1013	Arabic Communications I	3	AVT 2806	Work Placement I for Aviation	6
AVT 2103	DC Electrical Fundamentals	3	<b>Year 3 Semester 6</b>		
AVT 2253	Workshop Practices and Safety for Avionics	3	<b>Required Credits: 15</b>		
AVT 2263	Aircraft Materials for Avionics	3	LSS 2403	Innovation and Entrepreneurship	3
AVT 2303	Aircraft Fundamentals and Basic Aerodynamics	3	AVT 3413	Aviation Legislation	3
<b>Year 2 Summer Semester</b>			<b>Year 3 Semester 5</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 14</b>		
AES 1003	Emirati Studies	3	AVT 3403	Human Factors	3
MTH 2103	Calculus II	3	AVT 3102	Semiconductor Fundamentals	2
<b>Year 3 Semester 5</b>			<b>Year 3 Summer Semester</b>		
<b>Required Credits: 14</b>			<b>Required Credits: 6</b>		
AVT 3123	Integrated Circuits and Servomechanisms	3	LSC 2183	English for Specific Purposes	3
AVT 3133	Digital Techniques	3	MTH 2503	Linear Algebra and Differential Equations	3
AVT 3143	Electronic Instrument Systems	3	<b>Year 4 Semester 7</b>		
<b>Year 3 Summer Semester</b>			<b>Required Credits: 16</b>		
<b>Required Credits: 6</b>			AVT 4602	Aircraft Conditioning and Oxygen for Avionics	2
LSC 2183	English for Specific Purposes	3	AVT 4613	Aircraft Radio and Navigation Systems	3
MTH 2503	Linear Algebra and Differential Equations	3	AVT 4623	Aircraft Electrical Power for Avionics	3
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 16</b>		
AVT 4633	Avionics Systems	3	AVT 4653	Aircraft Radar Systems	3
AVT 4643	Aircraft Fuel and Passenger Systems for Avionics	3	AVT 4663	Aircraft Protection Systems for Avionics	3
AVT 4902	Capstone Design Project I	2	AVT 4673	Aircraft Hydraulic and Landing Gear for Avionics	3
<b>Year 4 Summer Semester</b>			<b>Year 4 Summer Semester</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
AVT 3806	Work Placement II for Aviation	6	AVT 4683	Aircraft Autoflight Systems	3
<b>Year 4 Summer Semester</b>			<b>Year 4 Summer Semester</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
AVT 3806	Work Placement II for Aviation	6	AVT 4911	Capstone Design Project II	1
<b>Year 4 Summer Semester</b>			<b>Year 4 Summer Semester</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
AVT 3806	Work Placement II for Aviation	6	AES 3003	Professional Arabic	3

# Faculty

## ABU DHABI MEN'S COLLEGE

**Anthony Kukas**, Advanced Diploma in Management, TAFE NSW, Riverina Institute

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

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

**Evangelos Papageorgiou**, PhD Aeronautical Engineering, University of Southampton

**John Paproth**, Diploma Aircraft Maintenance Technology, Royal Australian Air Force

**Mahmoud Almawali**, Bachelor Mechanical Engineering, Rochville University

**Michael Crawley**, Bachelor Adult and Vocational Education, University of Tasmania

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

**Peter Fraser**, Bachelor Aviation, University of Western Sydney

**Richard Bonner**, Diploma Vocational Training Systems, Royal Australian Air Force

**Robert Cambrensis**, Certificate CELTA, University of Wollongong

**Serdar Dalkilic**, PhD Aviation, Anadolu University

**Tariq Shokair**, Bachelor Aircraft Maintenance Technology, Northrope University

**Waleed Bataineh**, Certificate Technical Management, Prince Faisal Technical College

## DUBAI MEN'S COLLEGE

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

**Colin Signorino**, Diploma Aircraft Engineering Technology, Royal Australian Air Force

**Douglas Lightle**, Masters Aeronautical Science, Embry-Riddle Aero University

**Frank Oval**, Bachelor Technical Management, Embry-Riddle Aero University

**Islam Zaki**, Masters Aviation Management, The University of Newcastle

**John Price**, Bachelor Information Technology, University of Phoenix

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

**Salvi Salvacion**, Bachelor Aeronautical Engineering, Patts College of Aeronautics

## Department of Chemical Engineering Technology (CHET)

# Bachelor of Chemical Engineering Technology (BCHET)

### Program Mission

The Bachelor of Chemical Engineering Technology program prepares graduates to be successful in the technical and managerial fields of Chemical Engineering Technology in order to be great leaders in their profession. The program also teaches them to embrace innovation and discovery, strive for lifelong learning, and constantly seek professional development.

### Program Description

The Bachelor of Chemical Engineering Technology program provides an excellent broad education with a focused area of specialization options to cater to the global and local industries.

The Bachelor of Chemical Engineering Technology curriculum covers the laws of chemistry, physics, and mathematics which form the basis of many industrial processes in areas such as energy, oil and gas, chemical processing, etc. The program prepares students for positions as engineers with the technical and managerial skills necessary to enter careers in the design, manufacturing, operation, and maintenance of chemical processes. Students will gain practical knowledge in heat and mass transfer in plants and process control design projects. The Bachelor of Chemical Engineering Technology curriculum produces high-quality engineers known for productivity, timeliness, dedication, and competence in the workplace.

Graduates typically have strengths in applied design, development, and implementation of chemical engineering systems. They 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 Chemical Engineering Technology and other related areas of professional practice.

Students will have the option to graduate with a Diploma in Chemical Engineering Technology upon the successful completion of 81 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Chemical Engineering Technology program are to:*

1. Provide chemical engineering professionals with the technical knowledge and skills required by the industry to perform 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 engineering profession.
3. Prepare graduates with strong commitment and strategic mindset to lifelong learning, continuing education, and professional growth.
4. Prepare graduates with leadership qualities and commitment to contribute actively in achieving Abu Dhabi Vision 2030.

### Program Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of chemical engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to chemical engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined chemical engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined chemical engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Bachelor of Chemical Engineering Technology degree must successfully complete the following requirements:

1. Minimum of 146 credits which are divided as follows:
  - a. Minimum of 77 credits of program core requirements including 16 weeks of work placement
  - b. Minimum of 15 credits of major electives.
  - c. Minimum of 21 credits of Math and Science course requirements
  - d. General Studies requirements of 33 credits according to the General Studies breakdown.
2. Minimum CGPA of 2.00.

		Course Credits
<b>Core Courses</b>		
<b>Required Credits: 80</b>		
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2133	Organic Chemistry	3
CHE 2202	Chemical Engineering Principles I	2
CHE 2213	Chemical Engineering Principles II	3
CHE 2253	Materials and Corrosion	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Petroleum Chemistry Testing	2
CHE 2453	Fluid Mechanics	3
CHE 2903	Sophomore Design Project	3
CHE 3313	Chemical Engineering Thermodynamics	3
CHE 3323	Mass Transfer	3
CHE 3403	Chemical Heat Transfer	3
CHE 3413	Unit Operation 1	3
CHE 3513	Equipment and Plant Design	3
CHE 3613	Chemical Reaction Engineering	3
CHE 4613	Chemical Engineering Modelling and Simulation	3
CHE 4623	Chemical Process Control	3
CHE 4902	Capstone Design Project I	2
CHE 4912	Capstone Design Project II	2
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 3806	Work Placement II	6
ELE 2153	Electrical Engineering Fundamentals	3

<b>Major Elective Courses</b>		
<b>Required Credits: 12</b>		
CHE 4293	Production Engineering (Offshore)	3
CHE 4403	Gas Processing	3
CHE 4413	Chemical Process HAZOP and Risk Analysis	3
CHE 4423	Optimization and Application in Refinery	3
CHE 4433	Petroleum and Petrochemical Processing	3
CHE 4443	Industrial Water and Effluent Treatment	3
CHE 4863	Special Topics in Chemical Engineering	3
CHE 4893	Directed Study	3

Course Credits

<b>Mathematics and Science Courses</b>		
<b>Required Credits: 21</b>		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

<b>General Studies</b>	
<b>Required Credits: 33</b>	
English, Arabic or other Languages	15
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>146</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BCHET</i>
<i>Major Code</i>	<i>CHE</i>

# Diploma in Chemical Engineering Technology (DCHET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Chemical Engineering Technology program are to:

1. Provide chemical engineering professionals with the technical knowledge and skills required by the industry to perform to industry standards.
2. Prepare graduates for a successful career with strong communication and teamwork skills, work ethics in the practice of engineering profession.
3. Prepare graduates with strong commitment to lifelong learning, continuing education, and professional growth.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Chemical Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of chemical engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to chemical engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined chemical engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Chemical Engineering Technology must successfully complete the following minimum requirements:

1. A minimum of 81 credits, as follows:
  - 42 credits of major requirements, including work placement for 8 weeks.
  - Minimum of 15 credits of Math and Science requirements.
  - Minimum of 24 credits of General Studies requirements according to the General Studies breakdown.
2. A minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 42		
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2133	Organic Chemistry	3
CHE 2202	Chemical Engineering Principles I	2
CHE 2213	Chemical Engineering Principles II	3
CHE 2253	Materials and Corrosion	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Petroleum Chemistry Testing	2
CHE 2903	Sophomore Design Project	3
EGN 1133	Design Thinking in Technology	3
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
ELE 2153	Electrical Engineering Fundamentals	3
MTE 2403	Thermofluid Systems	3
Mathematics and Science Courses		
Required Credits: 15		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3
General Studies Courses		
Required Credits: 24		
English, Arabic or other Languages		9
Humanities or Arts : AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6
<i>Total Required Credits</i>		<i>81</i>
<i>Maximum Duration of Study</i>		<i>3 years</i>
<i>Cost Recovery Program</i>		<i>No</i>
<i>Minimum Duration of Study</i>		<i>2 years</i>
<i>Program Code</i>		<i>DCHET</i>
<i>Major Code</i>		<i>CHE</i>

# Recommended Sequence of Study

## Bachelor of Chemical Engineering Technology

Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>		
<b>Required Credits:15</b>		
LSC 1103	Academic Reading and Writing I	3
LSS 1003	Life and Study Skills	3
PHY 1103	Physics I	3
EGN 1133	Design Thinking in Technology	3
MTH 1103	Pre Calculus	3
<b>Year 1 Summer Semester</b>		
<b>Required Credits:6</b>		
AES 1013	Arabic Communications	3
CHM 1103	Engineering Chemistry	3
<b>Year 2 Semester 3</b>		
<b>Required Credits:17</b>		
AES 1003	Emirati Studies	3
CHE 2202	Chemical Engineering Principles I	2
ELE 2153	Electrical Engineering Fundamentals	3
CHE 2113	Applied Chemistry	3
CHE 2123	Analytical Chemistry	3
CHE 2253	Materials and Corrosion	3
<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits: 5</b>		
EGN 3012	Project Management	2
MTE 2403	Thermofluid Systems	3
<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Required Credits: 6</b>		
MTH 2503	Linear Algebra and Differential Equations	3
CHE 2453	Fluid Mechanics	3
<b>Year 3 Semester 5</b>		
<b>Required Credits: 16</b>		
CHE 3313	Chemical Engineering Thermodynamics	3
MTH 3013	Calculus III	3
EGN 3012	Project Management	2
LSC 2183	English for Specific Purposes	3
EGN 2712	Applied Programming for Engineers	2
CHE 3403	Chemical Heat Transfer	3
<b>Year 3 Summer Semester</b>		
<b>Required Credits: 6</b>		
EGN 3806	Work Placement II	6
<b>Year 4 Semester 7</b>		
<b>Required Credits: 13</b>		
CHE 4613	Chemical Engineering Modelling and Simulation	3
CHE 4902	Capstone Design Project I	2
CHE 4xx3	Major Elective	3
CHE 4xx3	Major Elective	3
EGN 3212	Economics for Engineering	2

Course Code	Course Title	Course Credits
<b>Year 1 Semester 2</b>		
<b>Required Credits:15</b>		
LSC 2103	Academic Reading and Writing II	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 2 Semester 4</b>		
<b>Required Credits:17</b>		
CHE 2213	Chemical Engineering Principles II	3
CHE 2133	Organic Chemistry	3
MTH 2103	Calculus II	3
CHE 2413	Oil and Gas Processing Technologies	3
CHE 2422	Petroleum Chemistry Testing	2
CHE 2903	Sophomore Design Project	3
<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits: 6</b>		
EGN 2806	Work Placement I	6
<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Required Credits: 6</b>		
EGN 2806	Work Placement I	6
<b>Year 3 Semester 6</b>		
<b>Required Credits: 15</b>		
CHE 3323	Mass Transfer	3
CHE 3413	Unit Operation 1	3
CHE 3613	Chemical Reaction Engineering	3
LSS 2403	Innovation and Entrepreneurship	3
CHE 3513	Equipment and Plant Design	3
<b>Year 4 Semester 8</b>		
<b>Required Credits: 14</b>		
CHE 4623	Chemical Process Control	3
CHE 4912	Capstone Design Project II	2
CHE 4xx3	Major Elective	3
CHE 4xx3	Major Elective	3
AES 3003	Professional Arabic	3



# Faculty

## ABU DHABI MEN'S COLLEGE

**Abdul Rauf**, PhD Chemical Metallurgy, Catholic University of Leuven

**El Awad Osman**, Masters Chemical Engineering, University of Bradford

**Eugene O'Malley**, Masters Instrumental Analysis, Dublin City University

**Luis Palamiano**, Masters Environmental Engineering, National University of Singapore

**Marie Loridon**, PhD Organic and Bio-organic Chemistry, University Pierre and Marie Curie

**Meegalla Chandraratne**, PhD Computer Vision Bio Process, Lincoln University

**Muhammad Waqas Anjum**, PhD Bioscience Engineering, KU Leuven

**Thomas Adebayo**, PhD Petroleum Engineering, Covenant University

**Zin-Eddine Dadach**, PhD Chemical Engineering, Universite Laval

## WESTERN REGION COLLEGES

**Abdelrahim Minalla**, Masters Chemical Engineering, San Jose State University

**Amjad Shaikh**, PhD Chemical Engineering, University of Sheffield

**Kamal Al-Malah**, PhD Chemical Engineering, Oregon State University

**Padmaja Vootla**, Masters Environmental Engineering, Nagpur University

**Sathiyamoorthy Manickkam**, Masters Chemical Engineering, Bharathidasan University

## Department of Civil Engineering Technology (CVET)

# Bachelor of Civil Engineering Technology (BCVET)

### Program Mission

Working in partnership with industry, the Civil Engineering Technology Program provides quality education that prepares innovative engineers capable of serving the community and fulfilling personal ambitions with excellence.

### Program Description

The Bachelor of Civil Engineering Technology program covers different streams in Civil Engineering including planning and design of buildings, bridges, transportation systems, water resources and supply, with particular attention to protection of the environment. It prepares students for positions as engineers with the technical and managerial skills necessary to enter careers in planning, design, construction, operation and maintenance of infrastructure in a sustainable environment. Civil Engineering Technology provides an excellent broad education with specialized areas to serve the needs of the global UAE industry.

The curriculum produces high-quality engineers known for productivity, professionalism, and competence in the workplace. Graduates will have the ability to analyze and design systems, specify project methods and materials, perform cost estimates and analyses, and manage technical tasks in support of both public and private sector organizations in civil engineering construction.

The graduates will have the ability to work professionally and efficiently, and to gather and use information effectively. The program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment. The program stresses the effective use of technology, information resources and engineering tools. Additionally, the program is designed to prepare students for graduate studies in Civil Engineering Technology and other areas of professional practice.

*This program offers elective concentrations in:*

- **Structures Engineering**
- **Water and Environmental Engineering**
- **Transportation Engineering**

Students will have the option to graduate with a Diploma in Civil Engineering Technology upon the successful completion of 79 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Civil Engineering Technology Program are to provide graduates:*

1. With the technical knowledge and skills required by the industry to professionally develop, design, construct, operate, and maintain projects in areas of the built environment and global infrastructures.
2. Equipped for lifelong learning, professional development, and adhering to international Code of Ethics.
3. Capable to engage in sustainable activities through community and work-based opportunities.
4. With effective leadership, team building, and communication skills.

### Program Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of civil engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to civil engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined civil engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined civil engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Bachelor of Civil Engineering Technology degree must successfully complete the following requirements:

1. Minimum of 146 credits which are divided as follows:
  - a. Major requirements of 77 credits as specified by program core requirements.
  - b. Work placement I and II: 8 weeks for each work placement.
  - c. Elective requirement of 15 credits.
  - d. Minimum of 21 credits of Math and Science course requirements
  - e. General Studies requirements of 33 credits according to the General Studies breakdown.
2. Minimum CGPA of 2.00.

		Course Credits
<b>Core Courses</b>		
<b>Required Credits: 77</b>		
CVE 2001	Applied Drafting and CAD: Civil	1
CVE 2013	CAD tools in Civil Engineering	3
CVE 2103	Site Surveying	3
CVE 2113	Quantity Surveying and Estimating	3
CVE 2203	Engineering Mechanics	3
CVE 2213	Strength of Materials	3
CVE 2303	Soil Mechanics	3
CVE 2403	Fluid Mechanics and Hydraulics	3
CVE 2603	Construction Materials	3
CVE 2613	Civil Engineering Construction	3
CVE 2903	Sophomore Design Project	3
CVE 3203	Structural Analysis	3
CVE 3303	Highway Engineering	3
CVE 3403	Water Resources and Supply	3
CVE 3503	Foundation Engineering	3
CVE 3513	Concrete Design I	3
CVE 4413	Environmental Engineering	3
CVE 4503	Steel Design	3
CVE 4902	Capstone Design Project I	2
CVE 4912	Capstone Design Project II	2
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 3806	Work Placement II	6
<b>General Studies</b>		
<b>Required Credits: 33</b>		
English, Arabic or other Languages		15
Humanities or Arts: AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		9

		Course Credits
<b>Major Elective Courses</b>		
<b>Required Credits: 15</b>		
<b>Structures (STR)</b>		
CVE 4513	Concrete Design II	3
CVE 4523	Steel Design II	3
CVE 4533	Pre-stressed Concrete Design	3
CVE 4603	Construction Contract Management	3
CVE 4613	Concrete Technology	3
CVE 4803	Special Topics in Civil Engineering	3
CVE 4893	Directed Study	3
<b>Water and Environmental (WAE)</b>		
CVE 4403	Waste Water Engineering	3
CVE 4423	Solid Waste Management	3
CVE 4433	Sustainability in Civil Engineering	3
CVE 4443	Coastal Engineering	3
CVE 4453	Environmental Regulatory Compliance and Public Policy	3
CVE 4463	Green Buildings	3
CVE 4803	Special Topics in Civil Engineering	3
CVE 4893	Directed Study	3
<b>Transportation (TRN)</b>		
CVE 4303	Traffic Engineering	3
CVE 4313	Urban Transportation	3
CVE 4323	Transportation Planning	3
CVE 4333	GIS Applications in Civil Engineering	3
CVE 4343	Bridge Engineering	3
CVE 4353	Road Design and Construction	3
CVE 4803	Special Topics in Civil Engineering	3
CVE 4893	Directed Study	3
<b>Mathematics and Science Courses</b>		
<b>Required Credits: 21</b>		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3
<i>Total Required Credits</i>		<i>146</i>
<i>Maximum Duration of Study</i>		<i>6 years</i>
<i>Cost Recovery Program</i>		<i>No</i>
<i>Minimum Duration of Study</i>		<i>4 years</i>
<i>Program Code</i>		<i>BCVET</i>
<i>Major Code</i>		<i>CVE</i>

# Diploma in Civil Engineering Technology (DCVET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Civil Engineering Technology Program are to provide graduates:

1. With the technical knowledge and skills required by the industry to professionally develop, operate, and maintain projects in areas of the built environment and global infrastructures.
2. Equipped for lifelong learning, professional development, and adhering to international Code of Ethics.
3. Capable to engage in sustainable activities through community and work-based opportunities.
4. With team building and communication skills.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Civil Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of Civil Engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to Civil Engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team;
- e. An ability to identify, analyze, and solve narrowly defined Civil Engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Civil Engineering Technology must successfully complete the following minimum requirements:

1. A minimum of 79 credits, as follows:
  - 40 credits of major requirements, including work placement for 8 weeks
  - Minimum of 15 credits of Math and science requirements
  - Minimum of 24 credits in General Studies requirements according to the General Studies breakdown.
2. A minimum CGPA of 2.00.

Course Credits

### Core Courses

#### Required Credits: 40

CVE 2001	Applied Drafting and CAD: Civil	1
CVE 2013	CAD tools in Civil Engineering	3
CVE 2103	Site Surveying	3
CVE 2113	Quantity Surveying and Estimating	3
CVE 2203	Engineering Mechanics	3
CVE 2213	Strength of Materials	3
CVE 2303	Soil Mechanics	3
CVE 2403	Fluid Mechanics and Hydraulics	3
CVE 2603	Construction Materials	3
CVE 2613	Civil Engineering Construction	3
CVE 2903	Sophomore Design Project	3
EGN 1133	Design Thinking in Technology	3
EGN 2806	Work Placement I	6

### Mathematics and Science Courses

#### Required Credits: 15

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

### General Studies

#### Required Credits: 24

English, Arabic or other Languages	9
Humanities or Arts	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	6

Total Required Credits	79
Maximum Duration of Study	3 years
Cost Recovery Program	No
Minimum Duration of Study	2 years
Program Code	DCVET
Major Code	CVE

# Recommended Sequence of Study

## Bachelor of Civil Engineering Technology

Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>		
<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3
LSS 1003	Life and Study Skills	3
PHY 1103	Physics I	3
EGN 1133	Design Thinking in Technology	3
MTH 1103	Pre Calculus	3
<b>Year 1 Summer Semester</b>		
<b>Required Credits: 6</b>		
AES 1013	Arabic Communications I	3
CHM 1103	Engineering Chemistry	3
<b>Year 2 Semester 3</b>		
<b>Required Credits: 16</b>		
AES 1003	Emirati Studies	3
CVE 2001	Applied Drafting and CAD: Civil	1
CVE 2603	Construction Materials	3
CVE 2203	Engineering Mechanics	3
CVE 2403	Fluid Mechanics and Hydraulics	3
MTH 2103	Calculus II	3
<b>Year 2 Summer Semester</b>		
<b>Required Credits: 6</b>		
CVE 2113	Quantity Surveying and Estimating	3
CVE 2013	CAD tools in Civil Engineering	3
<b>Year 3 Semester 5</b>		
<b>Required Credits: 15</b>		
LSC 2183	English for Specific Purposes	3
MTH 2503	Linear Algebra and Differential Equations	3
CVE 3203	Structural Analysis	3
CVE 3403	Water Resources and Supply	3
CVE 3503	Foundation Engineering	3
<b>Year 3 Summer Semester</b>		
<b>Required Credits: 6</b>		
EGN 3806	Work Placement II	6
<b>Year 4 Semester 7</b>		
<b>Required Credits: 16</b>		
EGN 3212	Economics for Engineering	2
CVE 4902	Capstone Design Project I	2
CVE 4XX3	Major Elective	3
CVE 4XX3	Major Elective	3
CVE 4XX3	Major Elective	3
AES 3003	Professional Arabic	3

Course Code	Course Title	Course Credits
<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>		
LSC 2103	Academic Reading and Writing II	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 2 Semester 4</b>		
<b>Required Credits: 15</b>		
CVE 2303	Soil Mechanics	3
CVE 2213	Strength of Materials	3
CVE 2103	Site Surveying	3
CVE 2903	Sophomore Design Project	3
CVE 2613	Civil Engineering Construction	3
<b>Year 2 Summer Semester</b>		
<b>Required Credits: 6</b>		
EGN 2806	Work Placement I	6
<b>Year 3 Semester 6</b>		
<b>Required Credits: 16</b>		
CVE 3303	Highway Engineering	3
EGN 2712	Applied Programing for Engineers	2
MTH 3013	Calculus III	3
EGN 3012	Project Management	2
CVE 3513	Concrete Design I	3
LSS 2403	Innovation and Entrepreneurship	3
<b>Year 4 Semester 8</b>		
<b>Required Credits: 14</b>		
CVE 4912	Capstone Design Project II	2
CVE 4413	Environmental Engineering	3
CVE 4503	Steel Design	3
CVE 4XX3	Major Elective	3
CVE 4XX3	Major Elective	3

# Faculty

## ABU DHABI MEN'S COLLEGE

**Akhtar Mian**, Post Graduate Diploma Geographic Information Sciences, Nelson Mandela Metropolitan University

**Anf Ziadat**, PhD Civil Engineering, South Dakota School Mines and Technology

**Badi Ali Ali**, Masters Geodetic Science, The Ohio State University

**Mamoon Hammad**, PhD Civil Engineering, Concordia University

**Milan Krasulja**, PhD Civil Engineering, University of Belgrade

**Nassir Eltinay**, Masters Architectural Engineer, The University of Kansas

**Sukina Alzyoud**, PhD Civil Engineering, Imperial College London

**Tarig Ahmed**, PhD Civil Engineering, University of London

**Vasko Alexandrov**, PhD Civil Engineering, University of Architecture, Civil Engineering and Geodesy

**Zafer Bukey**, Masters Industrial Engineering, University of Toronto

## DUBAI MEN'S COLLEGE

**Adel Al Wazeer**, PhD Civil Engineering, University of Maryland

**Elgaali Elgaali**, PhD Civil Engineering, University of Colorado

**Imad Chobaki**, PhD Civil and Structural Engineering, University of Salford

**Majid Akram**, PhD Civil Engineering, West Virginia University

**Orlando Taylor**, Masters Mechanical Engineering, University of Tennessee at Knoxville

**Samir Zaki Janho**, Masters Civil Engineering, The University of Kansas

**Thomas Riordan**, Masters Business Administration, University of Greenwich

## Department of Electrical Engineering Technology (ELET)

# Bachelor of Electrical Engineering Technology (BELET)

### Program Mission

The Electrical Engineering Technology (ELET) program provides highly qualified Electrical Engineers with state of the art knowledge, technical and leadership skills. The program also teaches them to embrace innovation and discovery, strive for lifelong learning, and constantly seek professional development to best serve the Electrical Engineering profession.

### Program Description

The Bachelor of Electrical Engineering Technology program provides an excellent broad education with a focused area of specializations options to cater for the global UAE industry. The program graduates are trained to support power generation, transmission, distribution, and control of electric energy systems and related equipment. HCT Electrical engineers are trained to use state of the art software and hardware to rapidly prototype and test potential product design. They gain experience in circuits, semiconductor devices, digital systems, programming, microcontrollers, power systems, industrial instrumentation, and system control.

The Bachelor of Electrical 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 electrical, electronics, communication and control engineering and other areas of professional practice.

*This program offers elective concentrations in:*

#### Power Engineering Technology

#### Communication Engineering Technology

#### Electronics Engineering Technology

#### Control and Instrumentation Engineering Technology

Students will have the option to graduate with a Diploma in Electrical Engineering Technology upon the successful completion of 80 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Electrical Engineering Technology program are to:*

- 1- Provide electrical engineering professionals with the technical knowledge and skills required by the industry to develop, design, and maintain electrical 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 Electrical 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 Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of electrical engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to electrical engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined electrical engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined electrical engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Bachelor of Electrical Engineering Technology degree must successfully complete the following requirements:

1. Minimum of 146 credits which are divided as follows:
  - a. Minimum of 77 credits of program core requirements including 16 weeks work placement.
  - b. Minimum of 15 credits of major Elective
  - c. Minimum of 21 credits of Math and Science course.
  - d. General Studies requirements of 33 credits according to the General Studies breakdown.
2. Minimum CGPA of 2.00.

Core Courses		
Required Credits: 77		
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 3806	Work Placement II	6
ELE 2114	Electrical Circuits	4
ELE 2181	Circuit Lab	1
ELE 2213	Digital Circuits	3
ELE 2303	Power Generation and Transmission	3
ELE 2314	Principles of Machines and Power	4
ELE 2403	Electronics I	3
ELE 2573	Electric Circuit Design and PCB Manufacturing	3
ELE 2603	Instrumentation and Control	3
ELE 2613	Industrial Automation	3
ELE 2903	Sophomore Design Project	3
ELE 3203	Communication Systems	3
ELE 3323	Electrical Machines	3
ELE 3333	Electrical Power Distribution	3
ELE 3413	Electronics II	3
ELE 3613	Signals and Systems	3
ELE 3614	Microcontroller Systems	4
ELE 4623	Control Systems	3
ELE 4902	Capstone Design Project I	2
ELE 4912	Capstone Design Project II	2

Course Credits

Elective Courses		
Required Credits: 15		
Power (PWR)		
ELE 4343	Power System Analysis (Core concentration)	3
ELE 4353	System Protection and Coordination (Core Concentration)	3
ELE 4363	Power Electronics (Core Concentration)	3
EGN 4333	Renewable Energy Systems (Elective)	3
ELE 4373	Electric Drives (Elective)	3
ELE 4383	Electrical Maintenance Operation (Elective)	3
ELE 4633	Digital Control Systems (Elective)	3
ELE 4643	Intelligent Systems (Elective)	3
ELE 4863	Special Topics in Electrical Engineering (Elective)	3
ELE 4893	Directed Study (Elective)	3
Electronics (ELS)		
ELE 4423	Embedded System Design (Core concentration)	3
ELE 4433	VLSI Design (Core concentration)	3
ELE 4653	Digital Signal Processing (Core concentration)	3
EGN 4333	Renewable Energy Systems (Elective)	3
ELE 4213	Digital Communication (Elective)	3
ELE 4363	Power Electronics (Elective)	3
ELE 4613	Programmable Devices (Elective)	3
ELE 4663	Robotics Technology (Elective)	3
ELE 4863	Special Topics in Electrical Engineering (Elective)	3
ELE 4893	Directed Study (Elective)	3
Communications (COM)		
ELE 4213	Digital Communication (Core concentration)	3
ELE 4223	Data Communication and Network (Core concentration)	3
ELE 4653	Digital Signal Processing (Core)	3
ELE 4233	Mobile Communications (Elective)	3
ELE 4243	Satellite Communications (Elective)	3
ELE 4253	Tetra Communications (Elective)	3
ELE 4613	Programmable Devices (Elective)	3
ELE 4863	Special Topics in Electrical Engineering (Elective)	3
ELE 4893	Directed Study (Elective)	3
Control and Instrumentation (ICS)		
ELE 4423	Embedded System Design (Core concentration)	3
ELE 4633	Digital Control (Core concentration)	3
ELE 4643	Intelligent System (Core concentration)	3
ELE 4393	Machine Control and Drives (Elective)	3
ELE 4443	Advanced Microprocessors (Elective)	3
ELE 4613	Programmable Devices (Elective)	3
ELE 4663	Robotic Technology (Elective)	3
ELE 4673	Advanced Control Systems (Elective)	3
ELE 4863	Special Topics in Electrical Engineering (Elective)	3
ELE 4893	Directed Study (Elective)	3



Course Credits

**Mathematics and Science Courses****Required Credits: 21**

CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

**General Studies Courses****Required Credits: 33**

English, Arabic or other Languages	15
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>146</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BELET</i>
<i>Major Code</i>	<i>ELE</i>

# Diploma in Electrical Engineering Technology (DELET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Electrical Engineering Technology program are to:

- 1- Provide electrical engineering professionals with the technical knowledge and skills required by the industry to develop, design, and maintain electrical 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 Electrical 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 Student Outcomes

Upon graduation, a HCT graduate in Diploma in Electrical Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of electrical engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to electrical engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Electrical Engineering Technology must successfully complete the following minimum requirements:

1. A minimum of 80 credits, as follows:
  - 41 credits of major requirements, including work placement for 8 weeks

- Minimum of 15 credits of Math and science requirements
  - Minimum of 24 credits of General Studies requirements according to the General Studies breakdown
2. A minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 41		
EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programming for Engineers	2
EGN 2806	Work Placement I	6
ELE 2114	Electrical Circuits	4
ELE 2181	Circuit Lab	1
ELE 2213	Digital Circuits	3
ELE 2303	Power Generation and Transmission	3
ELE 2314	Principles of Machines and Power	4
ELE 2403	Electronics I	3
ELE 2573	Electric Circuit Design and PCB Manufacturing	3
ELE 2603	Instrumentation and Control	3
ELE 2613	Industrial Automation	3
ELE 2903	Sophomore Design Project	3

## Mathematics and Science Courses

Required Credits: 15		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3

## General Studies Courses

Required Credits: 24		
English, Arabic or other Languages		9
Humanities or Arts		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6

Total Required Credits	80
Maximum Duration of Study	3 years
Cost Recovery Program	No
Minimum Duration of Study	2 years
Program Code	DELET
Major Code	ELE

# Recommended Sequence of Study

## Bachelor of Electrical Engineering Technology

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
Required Credits: 15			Required Credits: 15		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	MTH 1113	Statistics for Engineering	3
PHY 1103	Physics I	3	MTH 1203	Calculus I	3
EGN 1133	Design Thinking in Technology	3	PHY 1203	Physics II	3
MTH 1103	Pre Calculus	3	LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 1 Summer Semester</b>			<b>Year 2 Semester 4</b>		
Required Credits: 6			Required Credits: 16		
AES 1013	Arabic Communications I	3	ELE 2303	Power Generation and Transmission	3
CHM 1103	Engineering Chemistry	3	ELE 2403	Electronics I	3
<b>Year 2 Semester 3</b>			<b>Year 2 Summer Semester (Diploma)</b>		
Required Credits: 16			Required Credits: 6		
AES 1003	Emirati Studies	3	ELE 2613	Industrial Automation	3
ELE 2114	Electrical Circuits	4	ELE 2573	Electric Circuit Design and PCB Manufacturing	3
MTH 2103	Calculus II	3	<b>Year 2 Summer Semester (Bachelor)</b>		
ELE 2213	Digital Circuits	3	Required Credits: 6		
ELE 2181	Circuit Lab	1	ELE 2503	Linear Algebra and Differential Equations	3
EGN 2712	Applied Programing for Engineers	2	ELE 2613	Industrial Automation	3
<b>Year 2 Summer Semester (Diploma)</b>			<b>Year 2 Summer Semester (Bachelor)</b>		
Required Credits: 6			Required Credits: 6		
ELE 2613	Industrial Automation	3	ELE 2503	Linear Algebra and Differential Equations	3
ELE 2573	Electric Circuit Design and PCB Manufacturing	3	ELE 2613	Industrial Automation	3
<b>Year 2 Summer Semester (Bachelor)</b>			<b>Year 3 Semester 5</b>		
Required Credits: 6			Required Credits: 16		
MTH 2503	Linear Algebra and Differential Equations	3	MTH 3013	Calculus III	3
ELE 2613	Industrial Automation	3	ELE 3614	Microcontroller Systems	4
<b>Year 3 Semester 5</b>			<b>Year 3 Summer Semester</b>		
Required Credits: 16			Required Credits: 6		
MTH 3013	Calculus III	3	EGN 3806	Work Placement II	6
ELE 3614	Microcontroller Systems	4	<b>Year 4 Semester 7</b>		
ELE 3413	Electronics II	3	Required Credits: 16		
ELE 3613	Signals and Systems	3	ELE 4902	Capstone Design Project I	2
LSC 2183	English for Specific Purposes	3	EGN 3212	Economics for Engineering	2
<b>Year 3 Summer Semester</b>			<b>Year 4 Semester 8</b>		
Required Credits: 6			Required Credits: 14		
EGN 3806	Work Placement II	6	ELE 4912	Capstone Design Project II	2
<b>Year 4 Semester 7</b>			<b>Year 4 Summer Semester (Bachelor)</b>		
Required Credits: 16			Required Credits: 6		
ELE 4902	Capstone Design Project I	2	ELE 3333	Electrical Power Distribution	3
EGN 3212	Economics for Engineering	2	ELE 4XX3	Major Elective	3
ELE 4623	Control Systems	3	ELE 4XX3	Major Elective	3
ELE 4XX3	Major Elective	3	ELE 4XX3	Major Elective	3
ELE 4XX3	Major Elective	3	ELE 4XX3	Major Elective	3
AES 3003	Professional Arabic	3	<b>Year 3 Summer Semester (Bachelor)</b>		
<b>Year 3 Summer Semester (Bachelor)</b>			Required Credits: 6		
ELE 4912	Capstone Design Project II	2	ELE 3012	Project Management	2
ELE 3333	Electrical Power Distribution	3	ELE 3323	Electrical Machines	3
ELE 4XX3	Major Elective	3	ELE 3203	Communication Systems	3
ELE 4XX3	Major Elective	3	LSS 2403	Innovation and Entrepreneurship	3
ELE 4XX3	Major Elective	3	ELE 2573	Electric Circuit Design and PCB Manufacturing	3

# Faculty

## AL AIN MEN'S COLLEGE

**Ibrahim Rida**, PhD Electrical Engineering, Robert Gordon University  
**Sabih Al Lami**, PhD Electrical Engineering Tech, The University of Sheffield

## AL AIN WOMEN'S COLLEGE

**Mohamad Muflehi**, Masters Electronics, Sheffield Hallam University  
**Syed Saddique**, PhD Elec. and Computer Eng., University of Newcastle upon Tyne

## ABU DHABI MEN'S COLLEGE

**Amer Almashakibeh**, Masters Electrical Engineering, New Mexico State University  
**Bohari Abbas**, MEd Online Education, University of Southern Queensland  
**Ehab Bayoumi**, PhD Electrical Power Engineering, Cairo University  
**Hasan Abu Hilal**, PhD Electrical and Electronic Engineering, Eastern Mediterranean University  
**Ismaila Tijani**, PhD Engineering (Mechatronics), International Islamic University Malaysia  
**Konstantinos Voudouris**, PhD Electronic and Telecommunication, University of Bradford  
**Maad Shatnawi**, PhD Intelligent Systems, UAE University  
**Mahesh Nair**, Masters Electrical and Electronic Engineering, University of Southern Queensland  
**Nasr -Eddine Bouhenna**, Masters Systems Engineering, University of Southern Queensland  
**Omar Radaideh**, PhD Electrical Engineering, National Technical University of Ukraine (KPI)  
**Yahya Hamed**, Masters Electronic Engineering, Northrope University

## ABU DHABI WOMEN'S COLLEGE

**Emad Abd-Elrady**, PhD Electrical Engineering (Signal Processing), Uppsala University  
**Mohammad Al-Qudah**, Masters Electrical and Electronic Engineering, Middle East Technical University  
**Omar Altrad**, PhD Elec. and Computer Eng., Simon Fraser University  
**Preetha Sreekumar**, PhD Interdisciplinary Engineering, Masdar Institute  
**Ravichandran Danthakani**, Master of Engineering Electronics and Communication Engineering, Anna University  
**Said Kafumbe**, PhD Electrical and Electronic Engineering, Newcastle Upon Tyne University  
**Spiros Cofinas**, PhD Electrical and Electronics Engineering – Electrical Machines and Power Electronics, Victoria University of Manchester  
**Zine-Eddine Abid**, PhD Electrical Engineering, University of Minnesota

## DUBAI MEN'S COLLEGE

**Basim Al Lami**, PhD Microprocessor Technology, University of Liverpool  
**Farid Flitti**, PhD Computer Vision and Image Processing, Strasbourg 1 University  
**Geeta Abraham**, Masters Electronic Engineering, Indian Institute of Technology, Madras  
**Jamil Altit**, Masters Electrical Engineering, Kansas State University  
**Khaldoon Mhaidat**, PhD Electrical Engineering, Oregon Health and Science University  
**Sameh Ghwanmeh**, PhD Electrical and Computer Engineering, Liverpool John Moores  
**Scott Ritchie**, Post Graduate Diploma Building Services Engineering, Brunel University

## DUBAI WOMEN'S COLLEGE

**Ammar Nimer Asad Natsheh**, PhD Electrical and Electronic Engineering, Loughborough University  
**Asif Nawaz**, PhD Engineering, Electromagnetic field and Microwave technology, Beijing University of Posts and Telecommunications  
**Mohammed Aloqlah**, PhD Electrical Engineering, Case Western Reserve University  
**Qasem Bashayreh**, Masters Communication Engineering, Yarmouk University  
**Walid Zgallai**, PhD Electrical Engineering, City University

## FUJAIRAH MEN'S COLLEGE

**Antonio Abrahams**, Masters Elec. and Computer Eng., University of California

**Juan Johnson**, Master of Science Electrical Engineering, University of Virginia

**Mohammed Shah**, PhD Electrical and Electronic Engineering, Cranfield University

**Suresh Mathew**, M.Tech Industrial Electronics, Mysore University

## FUJAIRAH WOMEN'S COLLEGE

**Imad Abdel-Hafez**, Masters Electrical and Electronic Engineering, Bilkent University

## RAS AL KHAIMAH MEN'S COLLEGE

**Arif Al-Judi**, PhD Elec. and Computer Eng., University of Calgary

**Asad Hindash**, Masters Electrical Engineering, New Mexico State University

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**Simon Hissem**, Masters Electronic Engineering, University of Québec, Trois, Rivières

**Zaid Sami Abd-Alghany**, PhD Electrical and Electronic Engineering, Monash University

## RAS AL KHAIMAH WOMEN'S COLLEGE

**Jawdat Asous**, Masters Electrical and Electronic Engineering, National University of Malaysia

**Kapila Chandika Wavegedara**, PhD Wireless Communications, University of British Columbia

**Munther Gdeisat**, PhD Communication Engineering, Liverpool John Moores University

**Yacouba Moumouni**, PhD Electrical Engineering, University of Nevada

**Yasser Mahgoub**, PhD Electrical and Computer, Carleton University

## SHARJAH MEN'S COLLEGE

**Abdulrohman Qatawneh**, PhD Electrical Engineering, Technical University of Madrid

**Arif Karrani**, Bachelor Electrical Engineering, University of Arizona

**Aziz El Idrisi**, Masters Electrical Engineering, Oklahoma State University

**Gabriel Gannat**, PhD Numer'l Modelling Optical Dev, University of Glamorgan

**Haitham Tayyar**, PhD Electrical Engineering, University of British Columbia

**Ishaq Al Ahmad**, PhD Electrical Engineering, University of Windsor

**Mohammed Alqedra**, PhD Electrical Engineering, The University of Manitoba

**Nabil Afifi**, Master Telecommunication, Curtin University of Technology

**Naim Mohamed Rahmani**, PhD Electrical Engineering, Nancy I University

**Thomas Mc Neill**, PhD Engineering, University of South Australia

**Zimran Rafique**, PhD Electrical and Electronic Engineering, Auckland University of Technology

## SHARJAH WOMEN'S COLLEGE

**Azzedine Ferrah**, PhD Electrical and Electronic Engineering, University of Nottingham

**Ehsan Jarrar**, Masters Information Technology, Heriot Watt University

**Haris M. Khalid**, PhD Control Systems Engineering, King Fahd University of Petroleum and Minerals (KFUPM)

**Kamal Abuqaoud**, Masters Electrical Engineering, American University of Sharjah

**Mahmoud Qasaymeh**, PhD Electrical Engineering, Wichita State University

## WESTERN REGION COLLEGES

**Andreas Tsigopoulos**, PhD Communication Engineering, N and K University of Athens

**Georgios (George) Tompras**, PhD Physics, Aristotle University of Thessaloniki

**Muhammad Khalil Shahid**, PhD Mgt Science and Engineering, Beijing University of Posts and Telecommunications

**Shanubhog Raghu**, PhD Applied Electronics, Gulbarga University

**Tarig Faisal**, PhD Engineering, University of Malaya

## Department of Industrial Engineering Technology (IET)

# Bachelor of Industrial Engineering Technology (BINET)

### Program Mission

The Industrial Engineering Technology program provides students with state of the art industrial engineering education and skills that qualifies them to serve their society effectively through the practice of Industrial Engineering profession.

### Program Description

Bachelor of Industrial Engineering Technology provides an excellent broad education with multidisciplinary specializations to cater for the global UAE industry. The HCT Industrial Engineering Technology program aims to produce high-quality engineers with qualities of productivity, timeliness, dedication, and competence in the workplace. Graduates are expected to have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. Moreover, the program is designed to prepare interested students for graduate studies in Industrial Engineering Technology and other areas of professional practice. To this end, Industrial Engineering Technology students are trained to support the analysis, design, development and improvement of manufacturing and service systems from quality, productivity, financial and safety perspectives.

The Bachelor of Industrial Engineering Technology curriculum stresses the effective use of technology, information resources and engineering tools; students are trained to use state of the art software packages necessary to facilitate their efforts to optimize, statistically analyze and simulate existing systems, and to test and validate potential gains attainable from improving the system. In addition, the program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment.

*This program offers elective concentrations in:*

- **Manufacturing and Supply Chain**
- **Logistics and Transportation**

Students will have the option to graduate with a Diploma in Industrial Engineering Technology upon the successful completion of 78 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Industrial Engineering Technology program at HCT is to produce graduates who will:*

1. Integrate their attained knowledge and skills with their job

expertise to identify and solve problems, and to optimize the interactions among elements of the systems within their area of practice to enhance safety, quality and productivity.

2. Practice their roles in serving their organizations and community with firm commitment to social values and professional ethics.
3. Continue to improve their personal and professional abilities through self and administrated learning and training related to their job functions for continual professional growth.
4. Serve as future team leaders with effective professional communication and technical skills and contribute actively to achieving Abu Dhabi Vision 2030.

### Program Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of industrial engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to industrial engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined industrial engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined industrial engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Bachelor of Industrial Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 146 credits, as follows:
  - a. Minimum 95 credits of major requirements as follows:
    - Minimum of 80 credits of major requirements including Work Placement for 16 weeks.
    - Minimum of 15 credits of major electives.
  - b. Minimum of 18 credits of Math and science requirements.
  - c. Minimum of 33 credits of General Studies requirements according to the General Studies breakdown.
2. A minimum CGPA of 2.00.

Course Credits

### Core Courses

#### Required Credits: 80

EGN 1133	Design Thinking in Technology	3
EGN 2101	Computer Aided Drafting	1
EGN 2233	Engineering Mechanic Fundamentals	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 3333	Health, Safety & Environment	3
EGN 3806	Work Placement II	6
IET 2003	Introduction to Industrial Engineering	3
IET 2103	Technology Innovation and Integration	3
IET 2213	Work Measurement and Ergonomics	3
IET 2223	Quality Control	3
IET 2233	Introduction to Maintenance Management	3
IET 2413	Manufacturing Technologies and Materials	3
IET 2421	Engineering Measurements Lab	1
IET 2902	Sophomore Design Project	2
IET 3203	Operations Management	3
IET 3213	Lean Thinking and Six Sigma	3
IET 3233	Facilities Planning and Material Handling	3
IET 3303	Operations Research	3
IET 3313	Applied Engineering Statistics	3
IET 3613	Financial Analysis and Cost Accounting	3
IET 4103	Enterprise Information Management	3
IET 4303	Queuing Theory and Process Simulation	3
IET 4902	Capstone Design Project I	2
IET 4912	Capstone Design Project II	2
LGE 2003	Logistics Principles and Supply Chain Management	3

### Mathematics and Science 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	Linear Algebra and Differential Equations	3
PHY 1203	Physics II	3

### Major Electives

#### Required Credits: 15

#### General Electives

IET 4113	Energy Science and Technology	3
IET 4203	Decision and Risk Analysis	3
IET 4223	Human Resource Management	3
IET 4233	Service Systems Engineering	3
IET 4243	Total Quality Management	3
IET 4383	Performance Management	3
IET 4403	Industrial Robotics	3
IET 4413	Computer Integrated Manufacturing	3
IET 4603	Enterprise Resource Planning	3
IET 4783	ISO Standards and Excellence	3
IET 4803	Special Topics in Industrial Engineering	3
IET 4893	Directed Study	3

#### Manufacturing and Supply Chain (MSC)

IET 4133	Managerial Accounting	3
IET 4203	Decision and Risk Analysis	3
IET 4503	Introduction to Marketing	3
IET 4513	Purchasing and Contract Management	3
IET 4523	Warehouse and Inventory Management	3
IET 4553	Manufacturing in Supply Chain	3
IET 4563	Supply Chain Strategy and Management	3
IET 4573	Supply Chain Risk Management	3
IET 4623	Logistics and Transportation I	3
IET 4803	Special Topics in Industrial Engineering	3
IET 4893	Directed Study	3
LGE 3413	Sales and Distribution in Logistics	3

#### Logistics and Transportation (LGT)

IET 4203	Decision and Risk Analysis	3
IET 4583	Procurement and Inventory Management	3
IET 4593	Customer Relationship Management Systems	3
IET 4623	Logistics and Transportation I	3
IET 4653	Logistics and Transportation II	3
IET 4803	Special Topics in Industrial Engineering	3
IET 4893	Directed Study	3
LGE 4453	Management of Distribution Networks	3
MAR 4703	Shipping Management	3

### General Studies

#### Required Credits: 33

English, Arabic or other Languages	15
Humanities or Arts : AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

Total Required Credits	146
Maximum Duration of Study	6 years
Cost Recovery Program	No
Minimum Duration of Study	4 years
Program Code	BINET
Major Code	IET

# Diploma in Industrial Engineering Technology (DINET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Industrial Engineering program at HCT is to produce graduates who will:

1. Integrate their attained knowledge and skills with their job expertise to identify and solve problems, and to optimize the interactions among elements of the systems within their area of practice to enhance safety, quality and productivity.
2. Practice their roles in serving their organizations and community with firm commitment to social values and professional ethics.
3. Continue improve their personal and professional abilities through self and administrated learning and training related to their job functions for continual professional growth.
4. Serve as future team leaders with effective professional communication and technical skills and contribute actively to achieving Abu Dhabi Vision 2030.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Industrial Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of industrial engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to industrial engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined industrial engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Industrial Engineering Technology must successfully complete the following minimum requirements:

1. A minimum of 78 credits, as follows:
  - a. 39 credits of major requirements, including Work

Placement for 8 weeks.

- b. A minimum of 15 credits of Math and Science requirements.
  - c. Minimum of 24 credits of General Studies requirements according to the General Studies breakdown.
2. A minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 39		
EGN 1133	Design Thinking in Technology	3
EGN 2101	Computer Aided Drafting	1
EGN 2233	Engineering Mechanic Fundamentals	3
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
IET 2003	Introduction to Industrial Engineering	3
IET 2103	Technology Innovation and Integration	3
IET 2213	Work Measurement and Ergonomics	3
IET 2223	Quality Control	3
IET 2233	Introduction to Maintenance Management	3
IET 2413	Manufacturing Technologies and Materials	3
IET 2421	Engineering Measurements Lab	1
IET 2902	Sophomore Design Project	2
LGE 2003	Logistics Principles and Supply Chain Management	3

## Mathematics and Science Courses

Required Credits: 15		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3

## General Studies Courses

Required Credits: 24		
English, Arabic or other Languages		9
Humanities or Arts : AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6

Total Required Credits	78
Maximum Duration of Study	3 years
Cost Recovery Program	No
Minimum Duration of Study	2 years
Program Code	DINET
Major Code	IET

# Recommended Sequence of Study

## Bachelor of Industrial Engineering Technology (BINET)

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	MTH 1113	Statistics for Engineering	3
PHY 1103	Physics I	3	MTH 1203	Calculus I	3
EGN 1133	Design Thinking in Technology	3	PHY 1203	Physics II	3
MTH 1103	Pre Calculus	3	LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 1 Summer Semester</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 14</b>		
AES 1013	Arabic Communications I	3	LGE 2003	Logistics Principles and Supply Chain Management	3
CHM 1103	Engineering Chemistry	3	IET 2103	Technology Innovation and Integration	3
<b>Year 2 Semester 3</b>			<b>Year 2 Summer Semester</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 6</b>		
AES 1003	Emirati Studies	3	EGN 2806	Work Placement I	6
EGN 2101	Computer Aided Drafting	1	<b>Year 3 Semester 6</b>		
IET 2003	Introduction to Industrial Engineering	3	<b>Required Credits: 15</b>		
EGN 2233	Engineering Mechanic Fundamentals	3	IET 3303	Operations Research	3
IET 2413	Manufacturing Technologies and Materials	3	IET 3313	Applied Engineering Statistics	3
MTH 2103	Calculus II	3	IET 3613	Financial Analysis and Cost Accounting	3
<b>Year 2 Summer Semester</b>			<b>Year 3 Semester 6</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 15</b>		
IET 2213	Work Measurement and Ergonomics	3	IET 3213	Lean Thinking and Six Sigma	3
IET 2223	Quality Control	3	LSS 2403	Innovation and Entrepreneurship	3
<b>Year 3 Semester 5</b>			<b>Year 4 Semester 7</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 17</b>		
LSC 2183	English for Specific Purposes	3	IET 4XX3	Major Elective	3
MTH 2503	Linear Algebra and Differential Equations	3	IET 4902	Capstone Design Project I	2
IET 3203	Operations Management	3	IET 4303	Queuing Theory and Process Simulation	3
EGN 3212	Economics for Engineering	2	IET 4XX3	Major Elective	3
IET 3233	Facilities Planning and Material Handling	3	IET 4XX3	Major Elective	3
EGN 2712	Applied Programing for Engineers	2	AES 3003	Professional Arabic	3
<b>Year 3 Summer Semester</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 14</b>		
EGN 3806	Work Placement II	6	IET 4912	Capstone Design Project II	2
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 17</b>			<b>Required Credits: 14</b>		
IET 4XX3	Major Elective	3	IET 4103	Enterprise Information Management	3
IET 4902	Capstone Design Project I	2	EGN 3333	Health, Safety & Environment	3
IET 4303	Queuing Theory and Process Simulation	3	IET 4XX3	Major Elective	3
IET 4XX3	Major Elective	3	IET 4XX3	Major Elective	3
IET 4XX3	Major Elective	3			
AES 3003	Professional Arabic	3			



## Department of Logistics Engineering Technology (LGET)

# Bachelor of Logistics Engineering Technology (BLGET)

### Program Mission

The Bachelor of Logistics Engineering Technology program prepares graduates to be regional leaders and aspire them to be a global leader in creating and disseminating integrative knowledge in Logistics Engineering Technology.

### Program Description

Bachelor of Logistics Engineering Technology provides an excellent broad education with specializations to cater to the global UAE logistics industry. The HCT Logistics Engineering Technology program aims to produce high-quality engineers with qualities of productivity, timeliness, dedication, and competence in the workplace. Graduates are expected to have the ability to work logically, accurately and efficiently; to gather and use information effectively; and to continue enhancing their careers through lifelong learning. Moreover, the program is designed to prepare interested students for graduate studies in logistics engineering technology and other areas of professional practice. To this end, Logistics Engineering Technology students are trained to support the analysis, design, development and improvement of logistics systems in the manufacturing and service arenas.

The Bachelor of Logistics Engineering Technology curriculum stresses the effective use of technology, information resources and engineering tools; students are trained to use state of the art software packages necessary to facilitate their efforts to analyze and optimize existing systems, and to test and validate potential gains attainable from improving the system. In addition, the program instills leadership qualities based on moral and ethical principles coupled with sound and rational judgment.

Students will have the option to graduate with a Diploma in Logistics Engineering Technology upon the successful completion of 81 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

The Program Educational Objectives of the Bachelor of Logistics Engineering Technology program are to:

1. Provide logistics professionals with the technical knowledge and skills required by the industry to highest level of 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 engineering profession.
3. Teach graduates strong commitment to lifelong learning, continuing education, and professional growth.
4. Instill graduates with leadership qualities and commitment to contribute actively to their profession.

### Program Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of logistics engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to logistics engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined logistics engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined logistics engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

### Completion Requirements

Students seeking the Bachelor of Logistics Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 146 credits, as follows:
  - a. A minimum 95 credits of major requirements as follows:
    - Minimum of 83 core courses including Work Placement for 16 weeks
    - Minimum of 12 credits of major electives
  - b. A minimum of 18 credits of Math and science requirements
  - c. A minimum of 33 credits of General Studies requirements according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

Course Credits

Course Credits

**Core Courses**

**Required Credits: 83**

EGN 1133	Design Thinking in Technology	3
EGN 2101	Computer Aided Drafting	1
EGN 2233	Engineering Mechanic Fundamentals	3
EGN 2712	Applied Programing for Engineers	2
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3333	Health, Safety and Environment	3
EGN 3806	Work Placement II	6
IET 2103	Technology Innovation and Integration	3
IET 3203	Operations Management	3
IET 3233	Facilities Planning and Material Handling	3
IET 3303	Operations Research	3
IET 4513	Purchasing and Contract Management	3
IET 4523	Warehouse and Inventory Management	3
LGE 2003	Logistics Principles and Supply Chain Management	3
LGE 2013	Transportation Modes	3
LGE 2203	Introduction to Enterprise Information Management	3
LGE 2313	Managing People and Organizations	3
LGE 2902	Sophomore Design Project	2
LGE 3203	ERP I Principles	3
LGE 3212	ERP II Applications	2
LGE 3413	Sales and Distribution in Logistics	3
LGE 3503	Accounting for Managers	3
LGE 4303	Quality Control and Management	3
LGE 4423	Intermodal Freight Transport	3
LGE 4453	Management of Distribution Networks	3
LGE 4902	Capstone Design Project I	2
LGE 4911	Capstone Design Project II	1

**Major Elective Courses**

**Required Credits: 12**

LGE 4003	National Transport and Planning Law	3
LGE 4013	Hazardous Goods Management	3
LGE 4203	GIS in Logistics	3
LGE 4313	International Human Resource Management	3
LGE 4403	Port Management	3
LGE 4413	Airport Management	3
LGE 4433	Public Transport	3
LGE 4443	Airline Management	3
LGE 4463	Maritime Transport	3
LGE 4603	Transport and Economic Geography	3
LGE 4803	Special Topics in Logistics Engineering	3
LGE 4893	Directed Study	3
MAR 4703	Shipping Management	3

**Mathematics and Science 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	Linear Algebra and Differential Equations	3
PHY 1203	Physics II	3

**General Studies Courses**

**Required Credits: 33**

English, Arabic or other Languages	15
Humanities or Arts : AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>146</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BLGET</i>
<i>Major Code</i>	<i>LGE</i>

# Diploma in Logistics Engineering Technology (DLGET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Logistics Engineering Technology program are to:

1. Provide logistics professionals with the technical knowledge and skills required by the industry to highest level of 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 engineering profession.
3. Teach graduates strong commitment to lifelong learning, continuing education, and professional growth.
4. Instill graduates with leadership qualities and commitment to contribute actively to their profession.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Logistics Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of logistics engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to logistics engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined logistics engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Logistics Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 81 credits, as follows:
  - 42 credits of major requirements, including Work Placement for 8 weeks
  - A minimum of 15 credits of Math and science requirements
  - Minimum of 24 credits of General Studies requirements

according to the General Studies breakdown and as advised in the study plan of the program.

2. A minimum CGPA of 2.00.

## Diploma in Logistics Engineering Technology Curriculum

Course Credits

Core Courses		
Required Credits: 42		
EGN 1133	Design Thinking in Technology	3
EGN 2101	Computer Aided Drafting	1
EGN 2233	Engineering Mechanic Fundamentals	3
EGN 2806	Work Placement I	6
EGN 3333	Health, Safety and Environment	3
IET 2103	Technology Innovation and Integration	3
IET 3203	Operations Management	3
IET 3233	Facilities Planning and Material Handling	3
IET 4523	Warehouse and Inventory Management	3
LGE 2003	Logistics Principles and Supply Chain Management	3
LGE 2013	Transportation Modes	3
LGE 2203	Introduction to Enterprise Information Management	3
LGE 2313	Managing People and Organizations	3
LGE 2902	Sophomore Design Project	2
Mathematics and Science Courses		
Required Credits: 15		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3
General Studies Courses		
Required Credits: 24		
English, Arabic or other Languages		9
Humanities or Arts: AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6
<b>Total Required Credits</b>		<b>81</b>
<b>Maximum Duration of Study</b>		<b>3 years</b>
<b>Cost Recovery Program</b>		<b>No</b>
<b>Minimum Duration of Study</b>		<b>2 years</b>
<b>Program Code</b>		<b>DLGET</b>
<b>Major Code</b>		<b>LGE</b>

# Recommended Sequence of Study

## Bachelor of Logistics Engineering Technology

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	MTH 1113	Statistics for Engineering	3
PHY 1103	Physics I	3	MTH 1203	Calculus I	3
EGN 1133	Design Thinking in Technology	3	PHY 1203	Physics II	3
MTH 1103	Pre Calculus	3	LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 1 Summer Semester</b>					
<b>Required Credits: 6</b>					
AES 1013	Arabic Communications I	3			
CHM 1103	Engineering Chemistry	3			
<b>Year 2 Semester 3</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 17</b>		
AES 1003	Emirati Studies	3	IET 3203	Operations Management	3
LGE 2003	Logistics Principles and Supply Chain Management	3	LGE 2313	Managing People and Organizations	3
MTH 2103	Calculus II	3	LGE 2013	Transportation Modes	3
EGN 2233	Engineering Mechanic Fundamentals	3	IET 2103	Technology Innovation and Integration	3
LGE 2203	Introduction to Enterprise Information Management	3	EGN 3333	Health, Safety and Environment	3
EGN 2101	Computer Aided Drafting	1	LGE 2902	Sophomore Design Project	2
<b>Year 2 Summer Semester</b>			<b>Year 2 Summer Semester</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
IET 3233	Facilities Planning and Material Handling	3	EGN 2806	Work Placement I	6
IET 4523	Warehouse and Inventory Management	3			
<b>Year 3 Semester 5</b>			<b>Year 3 Semester 6</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 2183	English for Specific Purposes	3	EGN 2712	Applied Programing for Engineers	2
MTH 2503	Linear Algebra and Differential Equations	3	LSS 2403	Innovation and Entrepreneurship	3
IET 3303	Operations Research	3	EGN 3012	Project Management	2
IET 4513	Purchasing and Contract Management	3	LGE 3413	Sales and Distribution in Logistics	3
LGE 3203	ERP I Principles	3	LGE 3503	Accounting for Managers	3
			LGE 3212	ERP II Applications	2
<b>Year 3 Summer Semester</b>					
<b>Required Credits: 6</b>					
EGN 3806	Work Placement II	6			
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 13</b>		
EGN 3212	Economics for Engineering	2	LGE 4XX3	Major Elective	3
LGE 4XX3	Major Elective	3	LGE 4XX3	Major Elective	3
LGE 4XX3	Major Elective	3	LGE 4911	Capstone Design Project II	1
LGE 4902	Capstone Design Project I	2	LGE 4303	Quality Control and Management	3
AES 3003	Professional Arabic	3	LGE 4453	Management of Distribution Networks	3
LGE 4423	Intermodal Freight Transport	3			

# Faculty

## ABU DHABI MEN'S COLLEGE

**Akhtar Mian**, Post Graduate Diploma Geographic Information Sciences, Nelson Mandela Metropolitan University

**Anf Ziadat**, PhD Civil Engineering, South Dakota School Mines and Technology

**Badi Ali Ali**, Masters Geodetic Science, The Ohio State University

**Mamoon Hammad**, PhD Civil Engineering, Concordia University

**Milan Krasulja**, PhD Civil Engineering, University of Belgrade

**Nassir Eltinay**, Masters Architectural Engineer, The University of Kansas

**Sukina Alzyoud**, PhD Civil Engineering, Imperial College London

**Tarig Ahmed**, PhD Civil Engineering, University of London

**Vasko Alexandrov**, PhD Civil Engineering, University of Architecture, Civil Engineering and Geodesy

**Zafer Bukey**, Masters Industrial Engineering, University of Toronto

## Department of Maritime Studies (MAR)

# Bachelor of Applied Science in Marine Engineering Technology

### Program Mission

The mission of the degree program is to give education and training to cadets to enable them to pursue a career as a marine engineering officer at sea.

The degree program includes the required academic component for the certificates of competency up to Chief Engineer's level. These certificates will be issued by the Federal Transport Authority once the cadets have sufficient seagoing experience.

### Program Description

This programme educates students in the field of Marine Engineering Technology, to prepare them to work in a wide range of maritime related industries in the UAE including: the offshore industry; shipyards; classifications societies; ship design consultancies; ship owners, and ports.

### Program Student Outcomes

*Upon graduation, a HCT graduate in Bachelor of Applied Science in Marine Engineering Technology should have the ability to:*

- Demonstrate the competency to undertake the tasks, duties and responsibilities of a ship's chief engineer
- Demonstrate a knowledge base in relevant marine related topics suitable for a career as a marine professional
- Effectively lead, work and communicate in a team
- Expand knowledge and capabilities through continuing education or other lifelong learning experiences

### Completion Requirements

*Students seeking the Bachelor of Applied Science in Marine Engineering Technology must successfully complete the following requirements:*

- Minimum of 166 credits which are divided as follows:
  - Major requirements of 97 credits as specified by program core requirements.
  - General Engineering Core Courses: 6 credits.
  - Sea Time Courses: 30 credits.
  - General Studies requirements of 33 credits according to the General Studies breakdown.
- Minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 97		
MET 1113	Fabrication and Repair I	3
MET 1122	Introduction to Marine Engineering	2
MET 1132	Marine Chemistry	2
MET 2303	Mathematics for Marine Engineering	3
MET 2313	Marine Engineering Knowledge	3
MET 2403	Fluid Mechanics for Marine Engineering	3
MET 2413	Applied Marine Mechanics I	3
MET 2423	Ship Stability	3
MET 2433	Fabrication and Repair II	3
MET 2442	Marine Material Technology I	2
MET 3603	Applied Marine Mechanics II	3
MET 3613	Ship Construction	3
MET 3623	Marine Engineering Control I	3
MET 3633	Marine Electrical Systems I	3
MET 3643	Diesel Engine Maintenance	3
MET 4804	Engineering Knowledge - Diesel	4
MET 4814	Engineering Knowledge - Steam	4
MET 4823	Marine Air-conditioning and Refrigeration	3
MET 4833	Marine Engineering Control II	3
MET 4843	Marine Electrical Systems II	3
MET 5005	Leadership for Chief Engineers	5
MET 5014	Marine Machinery Operations	4
MET 5024	Advanced Ship Regulation and Survey	4
MET 5903	Marine Material Technology II	3
MET 5914	Ship Design and Technology	4
MET 5924	Advanced Marine Engineering Knowledge	4
MET 5934	Marine Engineering Project	4
MTR 2003	Marine Physical Science	3
MTR 2012	Shipboard Operational Leadership	2
MTR 2102	Ship Regulation and Survey	2
MTR 2103	Ship Operational Safety	3
General Engineering Core Courses		
Required Credits: 6		
EGN 1103	Engineering Measurements & CAD Intro	3
EMC 3023	Thermodynamics I	3
Sea Time Core Courses		
Required Credits: 30		
MET 1210	Marine Engineering Seatime I	10
MET 3510	Marine Engineering Seatime II	10
MET 4710	Marine Engineering Seatime III	10

Course Credits

<b>General Studies Courses</b>	
<b>Required Credits: 33</b>	
English, Arabic or other Languages-MTR 1003	15
Humanities or Arts	3
Information Technology or Mathematics-LSM 1103	3
Natural Sciences-PHY 1103	3
The Social or Behavioural Sciences	9

<i>Total Required Credits</i>	<i>166</i>
<i>Maximum Duration of Study</i>	<i>7 years</i>
<i>Cost Recovery Program</i>	<i>Yes</i>
<i>Minimum Duration of Study</i>	<i>5 years</i>
<i>Program Code</i>	<i>MAREG</i>
<i>Major Code</i>	<i>MET</i>

## Recommended Sequence of Study

### Bachelor of Applied Science in Marine Engineering Technology

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 22</b>			<b>Required Credits: 10</b>		
EGN 1103	Engineering Measurements and CAD Introduction	3	MET 1210	Marine Engineering Seetime I	10
PHY 1103	Physics I	3			
LSM 1103	Technical Mathematics	3			
MET 1113	Fabrication and Repair I	3			
MET 1122	Introduction to Marine Engineering	2			
MET 1132	Marine Chemistry	2			
MTR 1003	Maritime English Communication	3			
LSS 1003	Life and Study Skills	3			
<b>Year 1 Summer</b>			<b>Year 2 Semester 3</b>		
Personal Survival Techniques			<b>Required Credits: 19</b>		
Fire Prevention and Fire Fighting			LSC 1503	Academic Spoken Communication	3
Elementary First Aid			MTR 2003	Marine Physical Science	3
Personal Safety & Social Responsibilities			MTR 2012	Shipboard Operational Leadership	2
Security Awareness Training			MTR 2102	Ship Regulation and Survey	2
			MTR 2103	Ship Operational Safety	3
			MET 2303	Mathematics for Marine Engineering	3
			MET 2313	Marine Engineering Knowledge	3
			<b>Year 2 Semester 4</b>		
			<b>Required Credits: 20</b>		
			EMC 3023	Thermodynamics I	3
			MET 2403	Fluid Mechanics for Marine Engineering	3
			MET 2413	Applied Marine Mechanics I	3
			MET 2423	Ship Stability	3
			MET 2433	Fabrication and Repair II	3
			MET 2442	Marine Material Technology I	2
			LSC 1103	Academic Reading and Writing I	3
			<b>Year 2 Summer</b>		
			Advanced Fire Fighting		
			Proficiency in Survival Craft & Rescue Boats		
			Medical First Aid		

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*Recommended Sequence of Study Bachelor of Applied Science in Marine Engineering Technology Cont...*

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 3 Semester 5</b>			<b>Year 3 Semester 6</b>		
<b>Required Credits: 10</b>			<b>Required Credits: 21</b>		
MET 3510	Marine Engineering Seatime II	10	MET 3603	Applied Marine Mechanics II	3
			MET 3613	Ship Construction	3
			MET 3623	Marine Engineering Control I	3
			MET 3633	Marine Electrical Systems I	3
			MET 3643	Diesel Engine Maintenance	3
			AES 1003	Emirati Studies	3
			LSC 2233	Intercultural Communications in English	3
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 10</b>			<b>Required Credits: 20</b>		
MET 4710	Marine Engineering Seatime III	10	MET 4804	Engineering Knowledge - Diesel	4
			MET 4814	Engineering Knowledge - Steam	4
			MET 4823	Marine Air-conditioning and Refrigeration	3
			MET 4833	Marine Engineering Control II	3
			MET 4843	Marine Electrical Systems II	3
			LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 5 Semester 9</b>			<b>Year 5 Semester 10</b>		
<b>Required Credits: 18</b>			<b>Required Credits: 16</b>		
MET 5903	Marine Material Technology II	3	MET 5005	Leadership for Chief Engineers	5
MET 5914	Ship Design and Technology	4	MET 5014	Marine Machinery Operations	4
MET 5924	Advanced Marine Engineering Knowledge	4	MET 5024	Advanced Ship Regulation and Survey	4
MET 5934	Marine Engineering Project	4	LSC 2213	English for Leadership	3
LSS 2403	Innovation and Entrepreneurship	3			



# Bachelor of Applied Science in Marine Transport

Course Credits

## Program Mission

The mission of the degree program is to give education and training to cadets to enable them to pursue a career as a navigating officer at sea. The degree includes the required academic component for the certificates of competency up to Master's level. These certificates will be issued by the Federal Transport Authority once the cadets have sufficient seagoing experience.

## Program Description

Accredited by the Commission for Academic Accreditation (CAA) UAE. This program provides students with the necessary education and training to become a navigating (deck) officer onboard ships. It covers the academic components required by the Standards of Training, Certification and Watch Keeping for Seafarers (STCW) international convention of the International Maritime Organization (IMO) up to Master's level.

The program also includes practical seagoing service with guided study, and provided sufficient sea service is obtained by the end of the third year. Students can apply to the Federal Transport Authority for the Certificate of Competency as Officer of the Watch. In order to obtain higher level Certificates of Competency, students will be required to complete the degree program in full and, undertake further seagoing service and apply to the Federal Transport Authority.

## Program Student Outcomes

Upon graduation, a HCT graduate in Bachelor of Applied Science in Marine Transport should have the ability to:

- Demonstrate the competency to undertake the tasks, duties and responsibilities of a ship's master
- Demonstrate a knowledge base in relevant marine related topics suitable for a career as a marine professional
- Effectively lead, work and communicate in a team
- Expand knowledge and capabilities through continuing education or other lifelong learning experiences

## Completion Requirements

Students seeking the Bachelor of Applied Science in Marine Transport must successfully complete the following requirements:

- Minimum of 160 credits which are divided as follows:
  - Marine Transport Core Courses: 97 credits.
  - Seagoing Service Core Courses: 30 credits.
  - General Studies: 33 credits
- Minimum CGPA of 2.00.

### Marine Transport Core Courses

Required Credits: 97		
MTR 1013	Fundamentals of Marine Navigation	3
MTR 1023	Maritime Industry Overview	3
MTR 1033	Nautical Knowledge	3
MTR 2003	Marine Physical Science	3
MTR 2012	Shipboard Operational Leadership	2
MTR 2102	Ship Regulation and Survey	2
MTR 2103	Ship Operational Safety	3
MTR 2203	Near-Coastal Navigation	3
MTR 2303	Ship Characteristics and Maintenance	3
MTR 2314	Marine Navigational Watchkeeping	4
MTR 2324	Marine Electronic Navigation	4
MTR 2332	Ship Manoeuvring and Control	2
MTR 3013	Marine Weather Watchkeeping	3
MTR 3023	Marine Transport Operations	3
MTR 3033	Electronic Chart Display and Information System	3
MTR 3103	Ship Stability and Stress	3
MTR 3113	Ocean Navigation	3
MTR 4024	Leadership in Shipboard Management	4
MTR 4114	Marine Environmental Dynamics	4
MTR 4124	Advanced Techniques in Marine Navigation	4
MTR 4133	Ship Design and Seaworthiness	3
MTR 5003	Ship Operations Project	3
MTR 5004	Shipboard Commercial Operations	4
MTR 5014	Maritime Law and Ship Protection	4
MTR 5023	Ship Administration	3
MTR 5024	Marine Transport Management	4
MTR 5105	Ship Stability and Dynamics	5
MTR 5124	Shipboard Command Operations	4
MTR 5125	Marine Navigation Management	5

### Seagoing Service Core Courses

Required Credits: 30		
MTR 1210	Shipboard Support-Level Experience	10
MTR 3010	Shipboard Operational-Level Experience	10
MTR 4010	Shipboard Management-Level Experience	10

### General Studies

Required Credits: 33		
English, Arabic or other Languages		15
Humanities or Art		3
Information Technology or Mathematics		3
Natural Sciences		3
The Social or Behavioural Sciences		9

<i>Total Required Credits</i>	<i>160</i>
<i>Maximum Duration of Study</i>	<i>7</i>
<i>Cost Recovery Programme</i>	<i>Yes</i>
<i>Minimum Duration of Study</i>	<i>5</i>
<i>Programme Code</i>	<i>MARTS</i>
<i>Major Code</i>	<i>MTR</i>

# Recommended Sequence of Study

## Bachelor of Applied Science in Marine Transport

Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>		
<b>Required Credits: 18</b>		
LSS 1003	Life and Study Skills	3
LSM 1103	Technical Mathematics	3
MTR 1103	Maritime English Communication	3
MTR 1013	Fundamentals of Marine Navigation	3
MTR 1023	Maritime Industry Overview	3
MTR 1033	Nautical Knowledge	3
<b>Year 1 Summer</b>		
<b>Required Credits: 3</b>		
	Personal Survival Techniques	
	Fire Prevention and Fire Fighting	
	Elementary First Aid	
	Personal Safety & Social Responsibilities	
	Security Awareness Training	
PHY 1103	Physics 1	3
<b>Year 2 Semester 3</b>		
<b>Required Credits: 19</b>		
LSC 1103	Academic Reading and Writing I	3
LSC 1503	Academic Spoken Communication	3
MTR 2003	Marine Physical Science	3
MTR 2012	Shipboard Operational Leadership	2
MTR 2102	Ship Regulation and Survey	2
MTR 2103	Ship Operational Safety	3
MTR 2203	Near-Coastal Navigation	3
<b>Year 2 Summer</b>		
<b>Required Credits:</b>		
	Advanced Fire Fighting	
	Proficiency in Survival Craft & Rescue Boats	
	Medical First Aid	
<b>Year 3 Semester 5</b>		
<b>Required Credits: 10</b>		
MTR 3010	Shipboard Operational-Level Experience	10
<b>Year 3 Summer</b>		
<b>Required Credits:</b>		
	Global Maritime Distress and Safety System	

Course Code	Course Title	Course Credits
<b>Year 1 Semester 2</b>		
<b>Required Credits: 10</b>		
MTR 1210	Shipboard Support-Level Experience	10
<b>Year 2 Semester 4</b>		
<b>Required Credits: 19</b>		
AES 1003	Emirati Studies	3
LSC 2233	Intercultural Communications in English	3
MTR 2303	Ships Characteristics and Maintenance	3
MTR 2314	Marine Navigational Watchkeeping	4
MTR 2324	Marine Electronic Navigation	4
MTR 2332	Ship Manoeuvring and Control	2
<b>Year 3 Semester 6</b>		
<b>Required Credits: 18</b>		
LSS 2403	Innovation and Entrepreneurship	3
MTR 3013	Marine Weather Watchkeeping	3
MTR 3023	Marine Transport Operations	3
MTR 3033	Electronic Chart Display and Information System	3
MTR 3103	Ship Stability and Stress	3
MTR 3113	Ocean Navigation	3

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*Recommended Sequence of Study Bachelor in Applied Science in Marine Transport Cont...*

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
Required Credits: 10			Required Credits: 18		
MTR 4010	Shipboard Management-Level Experience	10	LSS 1123	Basic Methods of Scientific Research and Development	3
			MTR 4024	Leadership in Shipboard Management	4
			MTR 4114	Marine Environmental Dynamics	4
			MTR 4124	Advanced Techniques in Marine Navigation	4
			MTR 4133	Ship Design and Seaworthiness	3
<b>Year 4 Summer</b>			<b>Year 5 Semester 10</b>		
Required Credits:			Required Credits: 17		
Mandatory Sea Service			LSC 2213	English for Leadership	3
<b>Year 5 Semester 9</b>			MTR 5105	Ship Stability and Dynamics	5
Required Credits: 18			MTR 5124	Shipboard Command Operations	4
MTR 5003	Ships Operations Project	3	MTR 5125	Marine Navigation Management	5
MTR 5004	Shipboard Commercial Operations	4			
MTR 5014	Maritime Law and Ship Protection	4			
MTR 5023	Ship Administration	3			
MTR 5024	Marine Transport Management	4			
<b>Year 5 Summer</b>					
Required Credits:					
Medical Care Course					

# Bachelor of Applied Science in Maritime Engineering Technology and Naval Architecture

## Program Mission

The mission of the program is to provide knowledge and skills to students in the field of Maritime Engineering and Naval Architecture, to prepare them to contribute to a wide range of maritime related industries in the UAE including: ship building and repair yards; regulatory authorities; classifications societies; ship design consultancies; ship owners, and ports.

## Program Description

This program educates students in the field of Maritime Engineering Technology and Naval Architecture, to prepare them to work in a wide range of maritime related industries in the UAE including: the offshore industry; shipyards; classifications societies; ship design consultancies; ship owners, and ports.

## Program Student Outcomes

*Upon graduation, a HCT graduate in Bachelor of Applied Science in Maritime Engineering Technology and Naval Architecture should have the ability to:*

- Carry out a wide range of maritime engineering and ship design functions
- Analyze the performance of ships and maritime structures
- Conduct ship surveys
- Effectively lead, work and communicate in a team
- Expand knowledge and capabilities through continuing education or other lifelong learning experiences
- Serve the community, whether locally, nationally, or globally

## Completion Requirements

Students seeking the Bachelor of Applied Science in Maritime Engineering Technology and Naval Architecture must successfully complete the following requirements:

- Minimum of 135 credits which are divided as follows:
  - Major requirements of 32 credits as specified by program core requirements
  - Elective courses requirement of 12 credits
  - Mathematics and Science requirement of 18 credits
  - General Engineering requirement of 40 credits
  - General Studies requirements of 33 credits according to the General Studies breakdown
- Minimum CGPA of 2.00.

Course Credits

### Maritime Engineering Technology and Naval Architecture Core Courses

Required Credits: 32		
MAR 2203	Naval Architecture	3
MAR 3103	Marine Machinery Systems	3
MAR 3202	Ship Production	2
MAR 3303	Resistance and Propulsion	3
MAR 3402	Ship Structures I	2
MAR 3503	Design of Ships and Maritime Structures	3
MAR 4805	Maritime Design Project I	5
MAR 4833	Seakeeping and Maneuvering	3
MAR 4865	Maritime Design Project II	5
MAR 4883	Maritime Transportation	3

### Maritime Engineering Technology and Naval Architecture Elective Courses

Required Credits: 12		
MAR 4423	Coastal Engineering and Maritime Structures	3
MAR 4433	Offshore Engineering	3
MAR 4443	Ship Production II	3
MAR 4453	Ship Repair	3
MAR 4463	Port Engineering	3
MAR 4803	Ship Structures II	3
MAR 4853	Marine Surveying	3
MAR 4903	Marine Safety	3

### Mathematics and Science Required Courses

Required Credits: 18		
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

**General Engineering Core Courses****Required Credits: 40**

EEC 2073	Electrical Engineering Fundamentals	3
EGN 1103	Engineering Measurements and CAD Introduction	3
EGN 3103	Project Management	3
EGN 3203	Engineering Economics	3
EMC 2003	Computer Aided Drafting	3
EMC 2013	Materials Selection and Testing	3
EMC 2023	Statics and Dynamics	3
EMC 2033	Manufacturing Technology	3
EMC 2043	Mechanics of Materials	3
EMC 2053	Fluid Mechanics	3
EMC 3003	Industrial Plant Maintenance	3
EMC 3023	Thermodynamics I	3
ERK 3004	Work Placement	4

**General Studies Courses****Required Credits: 33**

English, Arabic or other Languages	15
Humanities or Arts	3
Information Technology or Mathematics - MTH 1113 Statistics for Engineering	3
Natural Sciences - PHY 1103 Physics I	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>135</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>MENBP</i>
<i>Major Code</i>	<i>MAR</i>

# Recommended Sequence of Study

## Bachelor of Applied Science in Maritime Engineering Technology and Naval Architecture (MENBP)

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 18</b>			<b>Required Credits: 18</b>		
AES 1013	Arabic Communications I	3	LSC 2103	Academic Reading and Writing II	3
LSC 1103	Academic Reading and Writing I	3	LSS 1123	Basic Methods of Scientific Research and Development	3
LSS 1003	Life and Study Skills	3	EMC 2003	Computer Aided Drafting	3
EGN 1103	Engineering Measurements and CAD Introduction	3	MTH 1113	Statistics for Engineering	3
MTH 1103	Pre Calculus	3	MTH 1203	Calculus I	3
PHY 1103	Physics I	3	PHY 1203	Physics II	3
<b>Year 2 Semester 3</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits: 18</b>			<b>Required Credits: 18</b>		
LSC 2183	English for Specific Purposes	3	EMC 2013	Materials Selection and Testing	3
AES 1003	Emirati Studies	3	EMC 2043	Mechanics of Materials	3
EEC 2073	Electrical Engineering Fundamentals	3	EMC 2053	Fluid Mechanics	3
EMC 2023	Statics and Dynamics	3	EMC 3003	Industrial Plant Maintenance	3
EMC 2033	Manufacturing Technology	3	EMC 3023	Thermodynamics I	3
MTH 2103	Calculus II	3	MTH 2503	Linear Algebra and Differential Equations	3
<b>Year 3 Semester 5</b>			<b>Year 3 Semester 6</b>		
<b>Required Credits: 18</b>			<b>Required Credits: 17</b>		
EGN 3203	Engineering Economics	3	MAR 3303	Resistance and Propulsion	3
MTH 3013	Calculus III	3	MAR 3202	Ship Production	2
EGN 3103	Project Management	3	MAR 3402	Ship Structures I	2
MAR 2203	Naval Architecture	3	MAR 3503	Design of Ships and Maritime Structures	3
MAR 3103	Marine Machinery Systems	3	ERK 3004	Work Placement	4
AES 3003	Professional Arabic	3	LSS 2403	Innovation and Entrepreneurship	3
<b>Year 4 Semester 7</b>			<b>Year 4 Semester 8</b>		
<b>Required Credits: 14</b>			<b>Required Credits: 14</b>		
MAR 4805	Maritime Design Project I	5	MAR 4865	Maritime Design Project II	5
MAR 4833	Seakeeping and Maneuvering	3	MAR 4883	Maritime Transportation	3
MAR 4XX3	Elective Course	3	MAR 4XX3	Elective Course	3
MAR 4XX3	Elective Course	3	MAR 4XX3	Elective Course	3

## Faculty

### ABU DHABI MEN'S COLLEGE

**Lalin De Silva**, Masters Maritime Education and Training (Nautical),  
World Maritime University

**Jamal Al-Sadi**, PhD Mechanical Engineering, University of Ontario  
Institute of Technology

**Saud Zanbarkji**, Master High Sea's, Arab Academy for Science and  
Technology and Maritime Transport

## Department of Math and Natural Sciences

### Mission Statement

The Department of Mathematics and Natural Sciences are committed to serving the needs of the Engineering departments by providing quality education. Emphasis is on using the latest digital courseware, innovation and the application of scientific and technical knowledge to solve real-world problems. The courses are designed to cover both, the conceptual and the practical aspects of learning by providing the students with the right tools that will allow them to enter a career in higher education, industry or government.

### Description

The Math and Natural Sciences offer courses in Math, Physics and Chemistry. These courses are part of the core curriculum and fulfil the requirements in the various degrees offered within the Division of Engineering Technology and Science. Emphasis is on innovation and the application of scientific and technical knowledge to solve human problems.

### Program Educational Objectives

*The Program Educational Objectives of the Department of Mathematics and Natural Sciences are:*

1. Develop a firm understanding of the fundamental principles and application of Physics, Mathematics, and Chemistry.
2. Ability to apply basic statistics, calculus, differential equations, and linear techniques
3. Ability to identify, analyze, and solve applied science problems.
4. Develop the students' ability to communicate and work in teams

# Faculty

## AL AIN MEN'S COLLEGE

- Eyad Adnan**, Masters Mathematics, University of Karachi  
**Ghassan Malkawi**, PhD Mathematics, Universiti Utara Malaysia  
**Riyad Hussein**, PhD Physics, University of Strathclyde

## AL AIN WOMEN'S COLLEGE

- Andrew Nyondo**, Masters Mathematics, University of London  
**Bogdan Schiopu**, Masters Management, Universitatea Petrol, Gaze Ploiesti  
**Haroun Barghouthy**, Masters Physics, University of Jordan

## ABU DHABI MEN'S COLLEGE

- Abdel-Razzaq Mugdadi**, PhD Mathematical Sciences, Northern Illinois University  
**Aykut Ulge**, Masters Mechanical Engineering, Bosphorus University  
**Brittany Mitchell**, Masters Atmospheric and Space Science, University of Michigan  
**Dorian Bridi**, PhD Engineering Physics, Vienna University of Technology  
**Hyun Yeun**, PhD Mathematics, The University of Sheffield  
**Jamal Fakih**, Master of Science Civil Engineering, University of Toledo  
**Kattayat Sandhya**, Masters Physics, University of Calicut  
**Khaled Manasrah**, PhD Mathematics, Southern Illinois University  
**Khaled Shawakfeh**, PhD Chemistry, Temple University  
**Manuel Eusebio**, PhD Science Education (Mathematics), De la Salle University  
**Manuela Zarifeh**, Masters Civil Engineering, Concordia University  
**Marianne Tarun**, PhD Materials Science and Engineering, Washington State University  
**Nabila Azzam**, PhD Mathematics, University of Manchester  
**Osman Elawad**, PhD Science-Material Physics, University of Claude Bernard  
**Renuka Seenivasan**, PhD Physics, Bharathidasan University  
**Roque Batulan**, PhD Mathematics Education, Centro Escolar University  
**Ziad Raffi**, Masters Statistics, Business and Computer University

## ABU DHABI WOMEN'S COLLEGE

- Amil Karimov**, PhD Mathematics, Leningrad State University  
**Samaila Waje**, PhD Physics, Universiti Putra Malaysia

## DUBAI MEN'S COLLEGE

- Ghada Ali**, Masters Information Technology, University of Southern Queensland  
**Gomathy Krishnan**, Masters Physics, Madurai Kamaraj University  
**Hala El Minawi**, Masters Mathematics, University of Alberta  
**Lakshmi Priya Krishnan**, Masters Mathematics, University of Madras  
**Mohammad Marashdeh**, PhD Fuzzy Mathematics, National University of Malaysia (UKM)  
**Neha Gupta**, Masters Physics, Guru Nanak Dev University  
**Osama Abdelbagi**, Masters Energy, Heriot Watt University  
**Safa Ismail**, Masters Mathematics, University of Calgary  
**Salti Samarah**, PhD Mathematics, University of Connecticut

## DUBAI WOMEN'S COLLEGE

- John Brown (Teye)**, PhD Computational Analysis and Modelling, Louisiana Technology University

## FUJAIRAH MEN'S COLLEGE

- Smitha Josey**, Masters Physics, Mahatma Gandhi University  
**Suhas Poyyilveetil**, PhD Physics, Indian Institute of Technology, Madras

## FUJAIRAH WOMEN'S COLLEGE

- Christina Apostolopoulou**, PhD Pure Mathematics-Algebra

(Representation Theory), University of Antwerp

- Jess Claire Sanchez**, Masters of Applied Mathematics, University of South Eastern Philippines  
**Roy Forrest**, PhD Physics, University of Surrey

## RAS AL KHAIMAH MEN'S COLLEGE

- Cristina Vargancsik**, Masters Mathematics, Alexandru Ioan Cuza University  
**Hicham Itani**, Masters Applied Mathematics, Southern Methodist University  
**Rami Alahmad**, PhD Applied Mathematics, University of Alabama at Birmingham  
**Stojan Rendevski**, PhD Physics, SC and Methodius University of Skopje  
**Wael Sharaf**, Masters Mathematics, The Lebanese University  
**Walid El-Jammal**, EdD Education, Wilmington University, Delaware

## RAS AL KHAIMAH WOMEN'S COLLEGE

- Ahmad Abdelhadi**, PhD Physics, Clemson University  
**Douglas Daniels**, Masters Mathematics, The University of Mississippi

## SHARJAH MEN'S COLLEGE

- Abdelghani Taouti**, Masters Telecommunication Engineering, Victoria University  
**Hafida Sehil**, PhD Physics, University of Rennes 1  
**Hamidullah Farhat**, PhD Theoretical Nuclear Physics, Hampton University  
**Leesal Iype**, PhD Physics, Mahatma Gandhi University  
**Shafiek Ally**, Masters Education, University of Southern Queensland

## SHARJAH WOMEN'S COLLEGE

- Alina Barbulescu**, PhD Mathematics, Alexandru Ioan Cuza University  
**Amer Al-Jarrah**, PhD Applied Radiation Physics, University Sains Malaysia  
**Ihab Abdelwahed**, Masters Mathematical Science, Tennessee State University  
**Neveen Amin Farag**, Masters Engineering Mathematics, Mansoura University  
**Sajan Samuel**, Masters Mathematics, Annamalai University  
**Seema Karkain**, PhD Chemistry, University of South Florida  
**Suhaila Alhosany**, Masters Mathematics, Southern University, Baton Rouge  
**Tamar Krikorian**, Masters Applied Mathematics, Ryerson University

## WESTERN REGION COLLEGES

- Gratchia Mkrtrchian**, PhD Applied Science, G. S Petrov Plastics Institute  
**Henrieta Clara**, Masters Mathematics, Manuel L. Quezon University



## Department of Mechanical Engineering Technology (MCET)

# Bachelor of Mechanical Engineering Technology (BMCET)

### Program Mission

Mechanical Engineering Technology program serves its students, alumni, industry and society by fulfilling the missions of discovery and innovation. This is achieved through effective application of state of the art engineering methods and professional standards relevant to the practice of mechanical engineering profession.

### Program Description

The Bachelor of Mechanical Engineering Technology program provides an excellent broad education with a focused area of specialization options 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.

*This program offers elective concentrations in:*

- **Power**
- **Design and Manufacturing**

Students will have the option to graduate with a Diploma in Mechanical Engineering Technology upon the successful completion of 80 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Mechanical Engineering Technology program are to:*

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 Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of mechanical engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to mechanical engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined mechanical engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined mechanical engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

**Completion Requirements**

Students seeking the Bachelor of Mechanical Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 146 credits, as follows:
  - a. A minimum 92 credits of major requirements as follows:
    - Minimum of 74 core courses including Work Placement for 16 weeks
    - Minimum of 18 credits of major electives
  - b. A minimum of 21 credits of Math and Science requirements
  - c. A minimum of 33 credits of General Studies requirements according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

Course Credits

**Core Courses****Required Credits: 74**

EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programing for Engineers	2
EGN 2806	Work Placement I	6
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
EGN 3806	Work Placement II	6
ELE 2153	Electrical Engineering 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 2332	Geometric Dimensioning and Tolerancing	2
MCE 2403	Thermodynamics	3
MCE 2903	Sophomore Design Project	3
MCE 3203	Applied Mechanical Vibration	3
MCE 3303	Manufacturing Technology II	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 3601	Engineering Measurements Lab	1
MCE 4603	Control Systems	3
MCE 4902	Capstone Design Project I	2
MCE 4912	Capstone Design Project II	2

**General Studies Courses****Required Credits: 33**

English, Arabic or other Languages	15
Humanities or Arts : AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

**Major Elective Courses**

Course Credits

**Required Credits: 18****Power Concentration (MPR)****Concentration Core**

MCE 3343	Industrial Plant Maintenance	3
MCE 4403	Refrigeration and Air Conditioning System	3
MCE 4413	Turbomachinery	3
MCE 4423	Power Plant Engineering	3

**Concentration Electives**

EGN 4333	Renewable Energy Systems	3
MCE 4433	Internal Combustion Engines	3
MCE 4443	Computational Fluid Dynamics	3
MCE 4453	Desalination Engineering	3
MCE 4463	Energy Conservation and Management	3
MCE 4503	Finite Element Analysis	3
MCE 4863	Special Topics in Mechanical Engineering	3
MCE 4893	Directed Study	3

**Design and Manufacturing Concentration (DMF)****Concentration Core**

MCE 4303	Computer Integrated Manufacturing	3
MCE 4313	Advanced Geometric Dimensioning and Tolerancing	3
MCE 4513	Integrated Design for Manufacture and Assembly	3

**Concentration Electives**

MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3
MCE 4323	Non Destructive Testing	3
MCE 4333	Production Planning and Control	3
MCE 4613	Robotics and Automation	3
MCE 4623	Introduction to Mechatronics	3
MCE 4863	Special Topics in Mechanical Engineering	3
MCE 4893	Directed Study	3

**Mathematics and Science Courses****Required Credits: 21**

CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

<i>Total Required Credits</i>	146
<i>Maximum Duration of Study</i>	6 years
<i>Cost Recovery Program</i>	No
<i>Minimum Duration of Study</i>	4 years
<i>Program Code</i>	BM CET
<i>Major Code</i>	MCE

# Diploma in Mechanical Engineering Technology (DMCET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Mechanical Engineering Technology program are to:

1. Provide Mechanical Engineering professionals who are equipped with the technical knowledge and skills required by the industry to maintain mechanical systems to highest level of industry standards.
2. Prepare graduates for a successful career 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 the commitment to contribute actively to achieving the Abu Dhabi Vision 2030.

## Program Student Outcomes

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

- a. An ability to apply the knowledge, techniques, skills, and modern tools of mechanical engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to mechanical engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined mechanical engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Mechanical Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 80 credits, as follows:
  - a. 41 credits of major requirements, including Work Placement for 8 weeks
  - b. Minimum of 15 credits of Math and science

requirements

- c. Minimum of 24 credits of General Studies requirements according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

Course Credits

Core Courses		
Required Credits: 41		
EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programing for Engineers	2
EGN 2806	Work Placement I	6
ELE 2153	Electrical Engineering Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2213	Mechanics of Materials	3
MCE 2303	Material Selection and Testing	3
MCE 2311	Solid Modelling	1
MCE 2323	Manufacturing Technology I	3
MCE 2332	Geometric Dimensioning and Tolerancing	2
MCE 2403	Thermodynamics	3
MCE 2903	Sophomore Design Project	3
MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3

Mathematics and Science Courses		
Required Credits: 15		
CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
PHY 1203	Physics II	3

General studies Courses		
Required Credits: 24		
English, Arabic or other Languages		9
Humanities or Arts : AES 1003 Emirati Studies		3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering		3
Natural Sciences: PHY 1103 Physics I		3
Social or Behavioral Sciences		6

Total Required Credits	80
Maximum Duration of Study	3 years
Cost Recovery Program	No
Minimum Duration of Study	2 years
Program Code	DMCET
Major Code	MCE

# Recommended Sequence of Study

## Bachelor of Mechanical Engineering Technology

Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>		
<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3
LSS 1003	Life and Study Skills	3
PHY 1103	Physics I	3
EGN 1133	Design Thinking in Technology	3
MTH 1103	Pre Calculus	3
<b>Year 1 Summer Semester</b>		
<b>Required Credits: 6</b>		
AES 1013	Arabic Communications I	3
CHM 1103	Engineering Chemistry	3
<b>Year 2 Semester 3</b>		
<b>Required Credits: 16</b>		
AES 1003	Emirati Studies	3
ELE 2153	Electrical Engineering Fundamentals	3
MTH 2103	Calculus II	3
MCE 2203	Applied Statics	3
MCE 2303	Material Selection and Testing	3
MCE 2311	Solid Modelling	1
<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits: 6</b>		
MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3
<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Required Credits: 6</b>		
MTH 2503	Linear Algebra and Differential Equations	3
MCE 2223	Applied Dynamics	3
<b>Year 3 Semester 5</b>		
<b>Required Credits: 15</b>		
LSC 2183	English for Specific Purposes	3
MTH 3013	Calculus III	3
MCE 3403	Fluid Mechanics	3
MCE 3503	Mechanical Design	3
MCE 3303	Manufacturing Technology II	3
<b>Year 3 Summer Semester</b>		
<b>Required Credits: 6</b>		
EGN 3806	Work Placement II	6
<b>Year 4 Semester 7</b>		
<b>Required Credits: 16</b>		
EGN 3012	Project Management	2
MCE 4603	Control Systems	3
MCE 4XX3	Major Elective	3
MCE 4XX3	Major Elective	3
MCE 4XX3	Major Elective	3
MCE 4902	Capstone Design Project I	2

Course Code	Course Title	Course Credits
<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>		
LSC 2103	Academic Reading and Writing II	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 2 Semester 4</b>		
<b>Required Credits: 16</b>		
EGN 2712	Applied Programming for Engineers	2
MCE 2403	Thermodynamics	3
MCE 2903	Sophomore Design Project	3
MCE 2213	Mechanics of Materials	3
MCE 2323	Manufacturing Technology I	3
MCE 2332	Geometric Dimensioning and Tolerancing	2
<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits: 6</b>		
EGN 2806	Work Placement I	6
<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Required Credits: 6</b>		
EGN 2806	Work Placement I	6
<b>Year 3 Semester 6</b>		
<b>Required Credits: 15</b>		
LSS 2403	Innovation and Entrepreneurship	3
MCE 3513	Machine Elements and Mechanisms	3
EGN 3212	Economics for Engineering	2
MCE 3413	Applied Heat Transfer	3
MCE 3203	Applied Mechanical Vibration	3
MCE 3601	Engineering Measurements Lab	1
<b>Year 4 Semester 8</b>		
<b>Required Credits: 14</b>		
AES 3003	Professional Arabic	3
MCE 4XX3	Major Elective	3
MCE 4XX3	Major Elective	3
MCE 4XX3	Major Elective	3
MCE 4912	Capstone Design Project II	2

# Faculty

## AL AIN MEN'S COLLEGE

**Abdulwehab Ibrahim**, PhD Mechanical Engineering, Universiti Teknologi PETRONAS

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**Hasan Fawad**, PhD Mechanical Engineering, Ghulam Ishaq Khan Institute of Engineering Sciences and Technology

**Sathyan Krishnan**, PhD Mechanical Engineering, University of South Australia

## Department of Mechatronics Engineering Technology (MTET)

# Bachelor of Mechatronics Engineering Technology (BMTET)

### Program Mission

Mechatronics Engineering Technology program serves its students and alumni, industry and society by fulfilling the missions of discovery and innovation, effective application of state of the art engineering methods and professional standards relevant to the practice of Mechatronics engineering profession.

### Program Description

The Bachelor of Mechatronics Engineering Technology program provides an excellent broad education with a focused area of specializations options to cater for the global UAE industry. Mechatronics engineering technology graduates are trained to support design, development, and maintenance of mechatronics systems, develop effective solutions of industrial needs, and manufacture and maintain state of the art automated systems. HCT Mechatronics 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 Mechatronics 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 mechatronics engineering and other areas of professional practice.

Students will have the option to graduate with a Diploma in Mechatronics Engineering Technology upon the successful completion of 80 credits inclusive of the 8 week Work Placement.

### Program Educational Objectives

*The Program Educational Objectives of the Bachelor of Mechatronics Engineering Technology program are to:*

1. Provide Mechatronics engineering professionals with the technical knowledge and skills required by the industry to develop, design, and maintain mechatronics 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 Mechatronics 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 Student Outcomes

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

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of mechatronics engineering to broadly-defined engineering technology activities.
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to mechatronics engineering technology problems that require the application of principles and applied procedures or methodologies.
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes.
- d. An ability to design systems, components, or processes for broadly-defined mechatronics engineering technology problems appropriate to program educational objectives.
- e. An ability to function effectively as a member or leader on a technical team.
- f. An ability to identify, analyze, and solve broadly-defined mechatronics engineering technology problems.
- g. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- h. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- i. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.
- j. A knowledge of the impact of engineering technology solutions in a societal and global context.
- k. A commitment to quality, timeliness, and continuous improvement.

### Completion Requirements

*Students seeking the Bachelor of Mechatronics Engineering Technology degree must successfully complete the following minimum requirements:*

1. A minimum of 146 credits, as follows:
  - a. A minimum 92 credits of major requirements as follows:

- Minimum of 80 core courses including Work Placement for 16 weeks
  - Minimum of 12 credits of major electives
- b. A minimum of 21 credits of Math and science requirements
- c. A minimum of 33 credits in General Studies requirements according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

Course Credits

**Core Courses****Required credits: 80**

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 3806	Work Placement II	6
ELE 2153	Electrical Engineering 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 3203	Applied Mechanical Vibrations	3
MCE 3503	Mechanical Design	3
MCE 4603	Control Systems	3
MTE 2403	Thermofluid Systems	3
MTE 2602	Mechatronics Measurements and Troubleshooting	2
MTE 2903	Sophomore Design Project	3
MTE 3503	Electronics Product Design	3
MTE 3603	Electronics Systems and Circuits	3
MTE 3611	Electronics Systems and Circuits Lab	1
MTE 3623	Microcontroller Systems	3
MTE 3633	Sensors and Actuators	3
MTE 4603	Robotics Technology	3
MTE 4613	Industrial Control Systems	3
MTE 4902	Capstone Design Project I	2
MTE 4912	Capstone Design Project II	2

Course Credits

**Major Elective Courses****Required Credits: 12**

MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3
MTE 4503	Design of Mechatronic Systems	3
MTE 4623	Industrial Automation	3
MTE 4633	Process Control	3
MTE 4643	Digital Control Systems	3
MTE 4653	Real Time Embedded Systems	3
MTE 4863	Special Topics in Mechatronics Engineering	3
MTE 4893	Directed Study	3

**Mathematics and Science courses****Required credits: 21**

CHM 1103	Engineering Chemistry	3
MTH 1103	Pre Calculus	3
MTH 1203	Calculus I	3
MTH 2103	Calculus II	3
MTH 2503	Linear Algebra and Differential Equations	3
MTH 3013	Calculus III	3
PHY 1203	Physics II	3

**General Studies courses****Required credits: 33**

English, Arabic or other Languages	15
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	9

<i>Total Required Credits</i>	<i>146</i>
<i>Maximum Duration of Study</i>	<i>6 years</i>
<i>Cost Recovery Program</i>	<i>No</i>
<i>Minimum Duration of Study</i>	<i>4 years</i>
<i>Program Code</i>	<i>BMTET</i>
<i>Major Code</i>	<i>MTE</i>

# Diploma in Mechatronics Engineering Technology (DMTET) Exit Option

## Program Educational Objectives

The Program Educational Objectives of the Diploma in Mechatronics Engineering Technology program are to:

1. Provide Mechatronics engineering professionals with the technical knowledge and skills required by the industry to maintain mechatronics systems to highest level of industry standards.
2. Prepare graduates for a successful career with strong communication and teamwork skills and an understanding of the global, ethical and social implications of the industry and Mechatronics Engineering profession.
3. Provide graduates with strong commitment to lifelong learning, continuing education, and professional growth.
4. Provide graduates with the commitment to contribute actively to achieving the Abu Dhabi Vision 2030.

## Program Student Outcomes

Upon graduation, a HCT graduate in Diploma in Mechatronics Engineering Technology should demonstrate:

- a. An ability to apply the knowledge, techniques, skills, and modern tools of mechatronics engineering to narrowly defined engineering technology activities.
- b. An ability to apply a knowledge of mathematics, science, engineering, and technology to mechatronics engineering technology problems that require limited application of principles but extensive practical knowledge.
- c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments.
- d. An ability to function effectively as a member of a technical team.
- e. An ability to identify, analyze, and solve narrowly defined mechatronics engineering technology problems.
- f. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- g. An understanding of the need for and an ability to engage in self-directed continuing professional development.
- h. An understanding of and a commitment to address professional and ethical responsibilities, including a respect for diversity.
- i. A commitment to quality, timeliness, and continuous improvement.

## Completion Requirements

Students seeking the Diploma in Mechatronics Engineering Technology degree must successfully complete the following minimum requirements:

1. A minimum of 80 credits, as follows:
  - 41 credits of major requirements, including Work Placement for 16 weeks
  - A minimum of 15 credits of Math and science requirements

- A minimum of 24 credits in General Studies requirements according to the General Studies breakdown and as advised in the study plan of the program.
2. A minimum CGPA of 2.00.

### Core Courses

#### Required credits: 41

EGN 1133	Design Thinking in Technology	3
EGN 2712	Applied Programming for Engineers	2
EGN 2806	Work Placement I	6
ELE 2153	Electrical Engineering Fundamentals	3
MCE 2203	Applied Statics	3
MCE 2213	Mechanics of Materials	3
MCE 2303	Material Selection and Testing	3
MCE 2311	Solid Modelling	1
MCE 2323	Manufacturing Technology I	3
MCE 3343	Industrial Plant Maintenance	3
MCE 3613	Fluid Power	3
MTE 2403	Thermofluid systems	3
MTE 2602	Mechatronics Measurements and Troubleshooting	2
MTE 2903	Sophomore Design Project	3

### Mathematics and Science courses

#### Required credits: 15

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

### General Studies courses

#### Required credits: 24

English, Arabic or other Languages	9
Humanities or Arts: AES 1003 Emirati Studies	3
Information Technology or Mathematics: MTH 1113 Statistics for Engineering	3
Natural Sciences: PHY 1103 Physics I	3
Social or Behavioral Sciences	6

Total Required Credits	80
Maximum Duration of Study	3 years
Cost Recovery Program	No
Minimum Duration of Study	2 years
Program Code	DMTET
Major Code	MTE



# Recommended Sequence of Study

## Bachelor of Mechatronics Engineering Technology

Course Code	Course Title	Course Credits	Course Code	Course Title	Course Credits
<b>Year 1 Semester 1</b>			<b>Year 1 Semester 2</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 15</b>		
LSC 1103	Academic Reading and Writing I	3	LSC 2103	Academic Reading and Writing II	3
LSS 1003	Life and Study Skills	3	MTH 1113	Statistics for Engineering	3
PHY 1103	Physics I	3	MTH 1203	Calculus I	3
EGN 1133	Design Thinking in Technology	3	PHY 1203	Physics II	3
MTH 1103	Pre Calculus	3	LSS 1123	Basic Methods of Scientific Research and Development	3
<b>Year 1 Summer Semester</b>			<b>Year 2 Semester 3</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 16</b>		
AES 1013	Arabic Communications I	3	AES 1003	Emirati Studies	3
CHM 1103	Engineering Chemistry	3	ELE 2153	Electrical Engineering Fundamentals	3
<b>Year 2 Semester 3</b>			<b>Year 2 Semester 4</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 16</b>		
MTH 2103	Calculus II	3	EGN 2712	Applied Programming for Engineers	2
MCE 2203	Applied Statics	3	MTE 2403	Thermofluid Systems	3
MCE 2303	Material Selection and Testing	3	MCE 2213	Mechanics of Materials	3
MCE 2311	Solid Modelling	1	MCE 2323	Manufacturing Technology I	3
<b>Year 2 Summer Semester (Diploma)</b>			<b>Year 2 Summer Semester (Diploma)</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
MCE 3343	Industrial Plant Maintenance	3	EGN 2806	Work Placement I	6
MCE 3613	Fluid Power	3	<b>Year 2 Summer Semester (Bachelor)</b>		
<b>Year 2 Summer Semester (Bachelor)</b>			<b>Required Credits: 6</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
MTH 2503	Linear Algebra and Differential Equations	3	EGN 2806	Work Placement I	6
MCE 2223	Applied Dynamics	3	<b>Year 3 Semester 5</b>		
<b>Year 3 Semester 5</b>			<b>Required Credits: 15</b>		
<b>Required Credits: 16</b>			<b>Required Credits: 15</b>		
LSC 2183	English for Specific Purposes	3	LSS 2403	Innovation and Entrepreneurship	3
MTH 3013	Calculus III	3	MTE 3503	Electronics Product Design	3
MTE 3603	Electronics Systems and Circuits	3	MTE 3623	Microcontroller Systems	3
MCE 3503	Mechanical Design	3	MCE 4603	Control Systems	3
MCE 3203	Applied Mechanical Vibration	3	MTE 3633	Sensors and Actuators	3
MTE 3611	Electronics Systems and Circuits Lab	1	<b>Year 3 Summer Semester</b>		
<b>Year 3 Summer Semester</b>			<b>Required Credits: 6</b>		
<b>Required Credits: 6</b>			<b>Required Credits: 6</b>		
EGN 3806	Work Placement II	6	<b>Year 4 Semester 7</b>		
<b>Year 4 Semester 7</b>			<b>Required Credits: 14</b>		
<b>Required Credits: 15</b>			<b>Required Credits: 14</b>		
EGN 3212	Economics for Engineering	2	AES 3003	Professional Arabic	3
EGN 3012	Project Management	2	MTE 4912	Capstone Design Project II	2
MTE 4603	Robotics Technology	3	MTE 4XX3	Major Elective	3
MTE 4XX3	Major Elective	3	MTE 4XX3	Major Elective	3
MTE 4XX3	Major Elective	3	MTE 4613	Industrial Control Systems	3
MTE 4902	Capstone Design Project I	2			

# Faculty

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**George Alexopoulos**, Masters Mechanical Engineering, National Technical University of Athens

**Madhat Abdeljawad**, PhD Aerospace Engineering, University of Queensland

**Mohammad-Amin Al Jarrah**, PhD Aeronautics and Astronautics, Stanford University

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**Lanka Udawatta**, PhD Engineering Technology, Saga University

**Mesfin Gizaw Zewge**, PhD STEP Compliant Approach for Turn-Mill Operations, Universiti Teknologi Petronas

**Mohammad Al Wedian**, Masters Industrial Automation Engineering, Yarmouk University

**Mohammed Khalik**, Masters Mechanical Engineering, University of Technology, Iraq

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