

INDUSTRIAL ENGINEERING TECHNOLOGY: BACHELOR

Overview

Program Mission

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

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 & Supply Chain and Logistics & Transportation. Students will have the option to graduate with a Diploma in Industrial Engineering Technology upon the successful completion of 79 credits inclusive of the 8 week Work Placement.

Program Goals

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 Learning Outcomes

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

1. An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to Industrial Engineering Technology;
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the Industrial Engineering Technology;
3. An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature;
4. An ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes;
5. An ability to function effectively as a member as well as a leader on technical teams.
6. An ability to develop and evaluate a business plan to transform an engineering design (systems, products ,services and solutions) into a business opportunity utilizing entrepreneurial skills and knowledge

Requirements

Completion Requirements

Bachelor of Industrial Engineering Technology

Students must successfully complete a minimum of 146 credits, including:

Code	Title	Credit Hours
Program Core Courses		80
Program Elective Courses		15
Mathematics and Science Courses		18
General Studies course		33
Total Credit Hours		146

Code	Title	Credit Hours
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Industrial Engineering 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 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 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 Required Courses

Required Credits: 18

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

General Electives

(for students not completing a Concentration)

Required Credits: 15

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

General Studies

Required Credits: 33

English, Arabic or other Languages

Required Credits: 12

LSC 1103, AES 1013, AES 1033 and LSC 2193

Humanities or Art

Required Credits: 3

AES 1003

Information Technology and Mathematics

Required Credits: 6

ICT 2013 and MTH 1113

The Natural Sciences

Required Credits: 3

PHY 1103

The Social or Behavioral Sciences

Required Credits: 9

LSS 1003, LSS 1123 and BUS 2403

Concentrations**Concentration Name: Logistics and Transportation**

Total Credit Hours: 15

Concentration Curriculum:

Concentration Electives:

Code	Title	Credit Hours
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

Concentration code: LGT

Concentration Name: Manufacturing and Supply Chain

Total Credit Hours: 15

Concentration Curriculum:

Concentration Electives:

Code	Title	Credit Hours
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

Concentration code: MSC

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

Ideal Study Plan

Recommended Sequence of Study

Year 1		Credit Hours
Semester 1		
EGN 1133	Design Thinking in Technology	3
LSC 1103	Professional Communication and Reporting	3
LSS 1003	Life and Future Skills	3
MTH 1103	Pre Calculus	3
PHY 1103	Physics I	3
Credit Hours		15
Semester 2		
AES 1033	Islamic Culture	3
EGN 2233	Engineering Mechanic Fundamentals	3
MTH 1113	Statistics for Engineering	3
MTH 1203	Calculus I	3
PHY 1203	Physics II	3
Credit Hours		15
Summer		
AES 1013	Arabic Communications I	3
CHM 1103	Engineering Chemistry	3
Credit Hours		6
Year 2		
Semester 3		
AES 1003	Emirati Studies	3
EGN 2101	Computer Aided Drafting	1
IET 2413	Manufacturing Technologies and Materials	3
MTH 2103	Calculus II	3
IET 2003	Introduction to Industrial Engineering	3
IET 2213	Work Measurement and Ergonomics	3
Credit Hours		16
Semester 4		
ICT 2013	Computational Thinking and Coding	3
IET 2103	Technology Innovation and Integration	3
IET 2223	Quality Control	3
IET 2233	Introduction to Maintenance Management	3
IET 2421	Engineering Measurements Lab	1
IET 2902	Sophomore Design Project	2
LGE 2003	Logistics Principles and Supply Chain Management	3
Credit Hours		18
Summer		
EGN 2806	Work Placement I	6
Credit Hours		6
Year 3		
Semester 5		
EGN 2712	Applied Programing for Engineers	2
EGN 3012	Project Management	2
EGN 3212	Economics for Engineering	2
IET 3203	Operations Management	3
IET 3233	Facilities Planning and Material Handling	3
LSS 1123	Basic Research Methods	3
MTH 2503	Introduction to Differential Equations	3
Credit Hours		18
Semester 6		
IET 3213	Lean Thinking and Six Sigma	3
IET 3303	Operations Research	3
IET 3313	Applied Engineering Statistics	3
IET 3613	Financial Analysis and Cost Accounting	3
LSC 2193	Applied Skills Capstone	3
Credit Hours		15

Summer		
EGN 3806	Work Placement II	6
Credit Hours		6
Year 4		
Semester 7		
BUS 2403	Innovation and Entrepreneurship	3
IET 4303	Queuing Theory and Process Simulation	3
IET 4902	Capstone Design Project I	2
3 x Elective Courses		9
Credit Hours		17
Semester 8		
EGN 3333	Health Safety and Environment	3
IET 4103	Enterprise Information Management	3
IET 4912	Capstone Design Project II	2
2 x Elective Courses		6
Credit Hours		14
Total Credit Hours		146

Faculty and Academic Staff

Abu Dhabi Women's

Umesh M Bhushi, Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India

Sasikumar Perumal, Industrial Engineering, National Institute of Technology, Tiruchirappalli, Tamil Nadu, India.

Nagayya C Hiremath, Industrial Engineering and Management, Indian Institute of Technology, Kharagpur, India

Sharjah Women's

Ibrahim Garbie, Ph.D Industrial Engineering, University of Houston, United States.

Raghu Panduranga, Ph.D Mechanical Engineering, North Carolina A&T State University, United States.

Mustapha Ibrahim, Ph.D, Industrial Engineering, Eastern Mediterranean University, n. Cyprus, via Mersin 10, Turkey.