

BACHELOR OF INDUSTRIAL ENGINEERING TECHNOLOGY

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. Industrial engineers focus on the safety, efficiency and productivity at a manufacturing plant or business. They come up with ways to improve procedures and help establish standards for production and procedure. 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.

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

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, an HCT graduate with a 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.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to Industrial Engineering.
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.

Advanced Manufacturing Systems & Business Excellence Concentration

7. An ability to integrate advanced manufacturing technologies, data analytics, and sustainability principles to design, optimize, and manage smart, efficient, and environmentally responsible industrial systems.

Logistics Engineering and Integrated Supply Chain Concentration

7. An ability to design, implement, and manage integrated logistics and supply chain systems by applying advanced technologies, sustainable practices, and regulatory standards to optimize transportation, warehousing, procurement, and resource planning.

Upon graduation, an HCT graduate with a Diploma 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.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to Industrial Engineering.
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.

Requirements Completion Requirements

Bachelor of Industrial Engineering Technology

Students must successfully complete a minimum of 120 credits, including:

Code	Title	Credit Hours
Program Core Courses		75
Program Concentration and Elective Courses		18
Mathematics and Science Courses		9
General Studies courses		18
Total Credits		120
Students seeking the exit with a Diploma of Industrial Engineering Technology degree must successfully complete the following minimum requirements		
Program Core Courses		42
Mathematics and Science Courses		9
General Studies Courses		18
Total Credits		69

Bachelor of Industrial Engineering Technology

Code	Title	Credit Hours
Industrial Engineering Core Courses		
Required Credits: 75		
EGN 1003	Engineering Workshop and Solid Modeling	3
EGN 1273	Applied Programming for Engineers	3
ELE 1253	Fundamentals of Electrical Engineering	3
IET 1203	Principles of Industrial Engineering and Systems Design	3
EGN 2113	Economic and Financial Analysis for Engineers	3
MCE 2113	Strength of Materials: Selection and Testing	3
IET 2123	Quality Control and Reliability Engineering	3
IET 2113	Logistics Principles and Supply Chain Management	3
EGN 2213	Project Management for Engineers	3
MCE 3123	Manufacturing Technology and Application	3
IET 2203	Operations Management	3
IET 2913	Sophomore Design Project	3
EGN 3403	Innovation and Entrepreneurship for Engineers	3
IET 3103	Work Design and Ergonomics	3
IET 3123	Operations Research: Techniques and Application	3
IET 3113	Engineering Statistics: Application and Simulation	3
MCE 4303	Computer Integrated Manufacturing	3
IET 3263	Facilities Design and Material Handling Systems	3
IET 3253	Transportation Systems	3
IET 3243	Modelling and Simulation of Industrial and Logistics Systems	3
IET 3223	Managerial Accounting for Strategic Decision Making	3
EGN 4816	Apprenticeship I	6
EGN 4826	Apprenticeship II	6
Mathematics and Science Courses		
Required Credits: 9		
MTH 1163	Engineering Mathematics I	3
PHY 1103	Physics of Mechanics and Motion	3
MTH 1263	Engineering Mathematics II	3
General Studies Courses		

Required Credits: 18		
LSC 1503	Professional Spoken Communication	3
LSC 1103	Professional Written Communication	3
AES 1003	Emirati Studies	3
EGN 2203	Introduction to Data Science	3
EGN 3113	Artificial Intelligence	3
IET 1133	Sustainability Design Project for Industrial Engineering	3

Note: To graduate, students need to complete at least one concentration worth 18 credits.

Bachelor of Industrial Engineering Technology: Diploma Exit

Code	Title	Credit Hours
Industrial Engineering Core Courses		
Required Credits: 42		
EGN 1003	Engineering Workshop and Solid Modeling	3
EGN 1273	Applied Programming for Engineers	3
ELE 1253	Fundamentals of Electrical Engineering	3
IET 1203	Principles of Industrial Engineering and Systems Design	3
EGN 2113	Economic and Financial Analysis for Engineers	3
MCE 2113	Strength of Materials: Selection and Testing	3
IET 2123	Quality Control and Reliability Engineering	3
IET 2113	Logistics Principles and Supply Chain Management	3
EGN 2213	Project Management for Engineers	3
MCE 3123	Manufacturing Technology and Application	3
IET 2203	Operations Management	3
IET 2913	Sophomore Design Project	3
EGN 2816	Apprenticeship	6
Mathematics and Science Courses		
Required Credits: 9		
MTH 1163	Engineering Mathematics I	3
PHY 1103	Physics of Mechanics and Motion	3
MTH 1263	Engineering Mathematics II	3
General Studies Courses		
Required Credits: 18		
LSC 1503	Professional Spoken Communication	3
LSC 1103	Professional Written Communication	3
AES 1003	Emirati Studies	3
EGN 2203	Introduction to Data Science	3
EGN 3113	Artificial Intelligence	3
IET 1133	Sustainability Design Project for Industrial Engineering	3

Concentration Name: Advanced Manufacturing Systems and Business Excellence

Total Credit Hours: 18

Concentration Curriculum:

Concentration Code: AMS

Code	Title	Credit Hours
IET 4903	Capstone Design Project I	3
IET 4913	Capstone Design Project II	3
IET 4123	Lean Production Systems and Six Sigma	3
IET 4143	Smart Manufacturing & Industry 4.0	3

Concentration Electives:

Code	Title	Credit Hours
IET 4213	Big Data Systems & Technology	3
IET 4253	Sustainability and Circular Economy	3
IET 4263	Industrial Automation	3
IET 4273	Blockchain for Supply Chain & Data Security	3
MCE 4703	Advanced Manufacturing and 3D Printing	3
IET 4363	Enterprise Resource Planning Systems	3

Concentration Name: Integrated Supply Chain and Logistics Management

Total Credit Hours: 18

Concentration Curriculum:

Concentration Code : SCM

Code	Title	Credit Hours
IET 4163	Intermodal Freight Transportation	3
IET 4903	Capstone Design Project I	3
IET 4913	Capstone Design Project II	3
IET 4153	Strategic Supply Chain Design and Optimization	3

Concentration Electives:

Code	Title	Credit Hours
IET 4313	Port Operations and Maritime Transport	3
IET 4323	Smart Warehousing and Automated Inventory Systems	3
IET 4333	Airport Logistics and Cargo Operations	3
IET 4343	Sustainable Supply Chains and Regulated Goods Management	3
IET 4353	Procurement and Supplier Management(Industry Component)	3
IET 4363	Enterprise Resource Planning Systems	3

Description	Data
Total Required Credits	120
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

Bachelor of Industrial Engineering Technology

Year 1

Semester 1		Credit Hours
LSC 1503	Professional Spoken Communication	3
MTH 1163	Engineering Mathematics I	3
PHY 1103	Physics of Mechanics and Motion	3
EGN 1003	Engineering Workshop and Solid Modeling	3
IET 1133	Sustainability Design Project for Industrial Engineering	3
Credit Hours		15

Semester 2

LSC 1103	Professional Written Communication	3
MTH 1263	Engineering Mathematics II	3
EGN 1273	Applied Programming for Engineers	3
ELE 1253	Fundamentals of Electrical Engineering	3
IET 1203	Principles of Industrial Engineering and Systems Design	3
Credit Hours		15

Year 2

Semester 3

AES 1003	Emirati Studies	3
EGN 2113	Economic and Financial Analysis for Engineers	3
MCE 2113	Strength of Materials: Selection and Testing	3
IET 2123	Quality Control and Reliability Engineering	3
IET 2113	Logistics Principles and Supply Chain Management	3
Credit Hours		15

Semester 4

EGN 2203	Introduction to Data Science	3
EGN 2213	Project Management for Engineers	3
MCE 3123	Manufacturing Technology and Application	3
IET 2203	Operations Management	3
IET 2913	Sophomore Design Project	3
Credit Hours		15

Year 3

Semester 5

EGN 3113	Artificial Intelligence	3
EGN 3403	Innovation and Entrepreneurship for Engineers	3
IET 3103	Work Design and Ergonomics	3
IET 3123	Operations Research: Techniques and Application	3
IET 3113	Engineering Statistics: Application and Simulation	3
Credit Hours		15

Semester 6

MCE 4303	Computer Integrated Manufacturing	3
IET 3263	Facilities Design and Material Handling Systems	3
IET 3253	Transportation Systems	3
IET 3243	Modelling and Simulation of Industrial and Logistics Systems	3
IET 3223	Managerial Accounting for Strategic Decision Making	3
Credit Hours		15

Year 4

Semester 7

EGN 4816	Apprenticeship I	6
IET 4903	Capstone Design Project I	3
Concentration Core I		3
Concentration Core II		3
Credit Hours		15

Semester 8

EGN 4826	Apprenticeship II	6
IET 4913	Capstone Design Project II	3

Concentration Elective I	3
Concentration Elective II	3
Credit Hours	15
Total Credit Hours	120

Bachelor of Industrial Engineering Technology: Diploma Exit

Year 1		Credit Hours
Semester 1		
LSC 1503	Professional Spoken Communication	3
MTH 1163	Engineering Mathematics I	3
PHY 1103	Physics of Mechanics and Motion	3
EGN 1003	Engineering Workshop and Solid Modeling	3
IET 1133	Sustainability Design Project for Industrial Engineering	3
Credit Hours		15
Semester 2		
LSC 1103	Professional Written Communication	3
MTH 1263	Engineering Mathematics II	3
EGN 1273	Applied Programming for Engineers	3
ELE 1253	Fundamentals of Electrical Engineering	3
IET 1203	Principles of Industrial Engineering and Systems Design	3
Credit Hours		15
Year 2		
Semester 3		
AES 1003	Emirati Studies	3
EGN 2113	Economic and Financial Analysis for Engineers	3
MCE 2113	Strength of Materials: Selection and Testing	3
IET 2123	Quality Control and Reliability Engineering	3
IET 2113	Logistics Principles and Supply Chain Management	3
Credit Hours		15
Semester 4		
EGN 2203	Introduction to Data Science	3
EGN 2213	Project Management for Engineers	3
MCE 3123	Manufacturing Technology and Application	3
IET 2203	Operations Management	3
IET 2913	Sophomore Design Project	3
Credit Hours		15
Year 3		
Semester 5		
EGN 3113	Artificial Intelligence	3
EGN 2816	Apprenticeship	6
Credit Hours		9
Total Credit Hours		69

Katerina Mitkovska Trendova, Doctor of Technical Sciences (Industrial Engineering and Management), University Ss. Cyril and Methodius, Macedonia

Michael Nkasu, Doctorate (Industrial and Systems Engineering), University of Bradford, United Kingdom

Sameera Iqbal, Doctorate (Operations and Logistics Management), University Utara Malaysia, Malaysia

Sharjah Campus

Nader Santarisi, Doctorate, Industrial Engineering, University of Iowa, United States.

Mohamed Sobih, Doctorate, Mechanical Engineering, The University of Manchester, UK.

Mustapha Ibrahim, Doctorate, Industrial Engineering, Eastern Mediterranean University, North Cyprus, Turkey.

Yousef AbuNahleh, Doctorate, Industrial Engineering, RMIT University, Australia.

Faculty and Academic Staff

Abu Dhabi Campus

Sasikumar Perumal, Doctorate, Industrial Engineering, National Institute of Technology, Trichy, India.

Nagayya C Hiremath, Doctorate, Industrial Engineering, Indian Institute of Technology, Kharagpur, India.

Mohammad Obeidat, Doctorate, Industrial Engineering, University of Central Florida, United States.

Hussni Al Hajjar, Doctorate (Management Information Systems), University of Bradford, United Kingdom