

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 based 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, 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 138 credits, including:

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

| Code | Title | Credit Hours |
|------|-------|--------------|
|------|-------|--------------|

Industrial Engineering Core Courses

| Required Credits: 87 | | |
|----------------------|--|----|
| EGN 1001 | Engineering Workshop | 1 |
| EGN 1133 | Design Thinking in Technology | 3 |
| EGN 2101 | Computer Aided Drafting | 1 |
| EGN 2233 | Engineering Mechanics 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 3812 | Work Placement | 12 |
| 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: 12

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

Industrial Engineering Electives

Required Credits: 6

| | | |
|----------|--|---|
| EGN 4873 | Data Analytics | 3 |
| EGN 4883 | Introduction to Artificial intelligence | 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 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 4593 | Customer Relationship Management Systems | 3 |
| IET 4603 | Enterprise Resource Planning | 3 |
| IET 4783 | ISO Standards and Excellence | 3 |
| IET 4803 | Special Topics in Industrial Engineering | 3 |

General Studies

Required Credits: 33

English, Arabic or other Languages

Required Credits: 12

LSC 1103, AES 1013, AES 1033 and LSC 2223

Humanities or 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

| Description | Data |
|---------------------------|---------|
| Total Required Credits | 138 |
| 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**

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

Credit Hours 16**Semester 2**

| | | |
|----------|------------------------------------|---|
| EGN 2233 | Engineering Mechanics Fundamentals | 3 |
| ICT 2013 | Computational Thinking and Coding | 3 |
| MTH 1113 | Statistics for Engineering | 3 |
| MTH 2103 | Calculus II | 3 |
| PHY 1203 | Physics II | 3 |

Credit Hours 15**Summer**

| | | |
|----------|-----------------------|---|
| AES 1013 | Arabic Communications | 3 |
| CHM 1103 | Engineering Chemistry | 3 |

Credit Hours 6**Year 2****Semester 3**

| | | |
|----------|--|---|
| EGN 2101 | Computer Aided Drafting | 1 |
| IET 2003 | Introduction to Industrial Engineering | 3 |
| IET 2103 | Technology Innovation and Integration | 3 |
| IET 2213 | Work Measurement and Ergonomics | 3 |
| IET 2233 | Introduction to Maintenance Management | 3 |
| IET 2413 | Manufacturing Technologies and Materials | 3 |

Credit Hours 16**Semester 4**

| | | |
|----------|--|---|
| IET 2223 | Quality Control | 3 |
| IET 2421 | Engineering Measurements Lab | 1 |
| IET 2902 | Sophomore Design Project | 2 |
| IET 3203 | Operations Management | 3 |
| IET 3233 | Facilities Planning and Material Handling | 3 |
| LGE 2003 | Logistics Principles and Supply Chain Management | 3 |

Credit Hours 15

| | | |
|---------------------------|--|------------|
| Summer | | |
| EGN 2806 | Work Placement I | 6 |
| Credit Hours | | 6 |
| Year 3 | | |
| Semester 5 | | |
| AES 1033 | Islamic Culture | 3 |
| EGN 2712 | Applied Programming for Engineers | 2 |
| IET 3213 | Lean Thinking and Six Sigma | 3 |
| IET 3303 | Operations Research | 3 |
| LSS 1123 | Basic Research Methods | 3 |
| Credit Hours | | 14 |
| Semester 6 | | |
| EGN 3012 | Project Management | 2 |
| EGN 3212 | Economics for Engineering | 2 |
| EGN 3812 | Work Placement | 12 |
| Credit Hours | | 16 |
| Summer | | |
| IET 3313 | Applied Engineering Statistics | 3 |
| LSC 2223 | Future Skills Capstone | 3 |
| Credit Hours | | 6 |
| Year 4 | | |
| Semester 7 | | |
| AES 1003 | Emirati Studies | 3 |
| BUS 2403 | Innovation and Entrepreneurship | 3 |
| EGN 3333 | Health Safety and Environment | 3 |
| IET 3613 | Financial Analysis and Cost Accounting | 3 |
| IET 4902 | Capstone Design Project I | 2 |
| Credit Hours | | 14 |
| Semester 8 | | |
| IET 4103 | Enterprise Information Management | 3 |
| IET 4303 | Queueing Theory and Process Simulation | 3 |
| IET 4912 | Capstone Design Project II | 2 |
| 2 x Elective Courses | | 6 |
| Credit Hours | | 14 |
| Total Credit Hours | | 138 |

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

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

Dubai Women's

Walid Smew, Doctorate, Industrial Engineering, Dublin City University, Ireland

Sharjah Women's

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

Mohamed Sobih, Ph.D. in Mechanical Engineering, The University of Manchester, UK.

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