

BACHELOR OF CIVIL ENGINEERING TECHNOLOGY

Overview

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 areas in Civil Engineering including: Planning and design of buildings, bridges, transportation systems, water resources and supply, with attention to sustainability and 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. The Bachelor of 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 analysis, and manage technical tasks in support of both public and private sector organizations in Civil Engineering construction. Graduates have the ability to work professionally, accurately and efficiently; 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.

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

Program Goals

The goals of the Bachelor of Civil Engineering Technology program are:

1. Provide graduates 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. 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 Civil Engineering profession.
3. Provide graduates with a strong commitment to lifelong learning, continuing education, and professional growth.
4. Provide graduates with leadership qualities and a commitment to contribute actively to achieving the Abu Dhabi Vision 2030.

Program Learning Outcomes

Upon graduation, an HCT graduate in Bachelor of Civil 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 the Civil Engineering Technology.
2. An ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the Civil 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.

Structures Engineering

7. analyze, design and implement structural engineering solutions to challenges in structural systems while ensuring safety, economy and sustainability under regulatory and legal contractual compliance.

Transportation Engineering

7. develop and implement sustainable transportation solutions that enhance the efficiency and safety of urban and regional transportation systems, while considering the broader social, environmental, and ethical implications.

Water and Environmental Engineering

7. develop and implement engineering solutions for environmental challenges related to the areas of water management, waste management and environmental engineering while adhering to principles of sustainability and environmental stewardship.

Requirements

Completion Requirements

Bachelor of Civil Engineering Technology

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

Code	Title	Credit Hours
	Program Core Courses	75
	Program Concentration Courses including Electives	18
	Mathematics and Science Courses	9
	General Studies Courses	18
	Total Credits	120

Students seeking the exit with a Diploma of Civil 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 Civil Engineering Technology

Code	Title	Credit Hours
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Civil Engineering Core Courses

Required Credits: 75

CVE 1033	Applied Drafting and CAD: Precision Planning	3
MCE 1203	Statics: Application and Simulation	3
MCE 2243	Fundamentals of Fluid Mechanics	3
CVE 2183	Site Surveying and Geodetic Solutions	3
CVE 2303	Soil Mechanics	3
CVE 2603	Construction Materials	3
CVE 2913	Civil Sophomore Design Project	3
CVE 3203	Structural Analysis	3
CVE 3303	Highway Engineering	3
CVE 3483	Water Supply Engineering: Principles and Practices	3
CVE 3493	Fundamentals of Environmental Engineering and Sustainability	3
CVE 3523	Geotechnics and Substructure	3
CVE 3553	Concrete Design: Application and Simulation	3
CVE 3563	Steel Design: Application and Simulation	3
EGN 1003	Engineering Workshop and Solid Modeling	3
EGN 1273	Applied Programming for Engineers	3
EGN 2113	Economic and Financial Analysis for Engineers	3
EGN 2213	Project Management for Engineers	3
EGN 2403	Engineering Materials	3
EGN 3403	Innovation and Entrepreneurship for Engineers	3
EGN 3413	Sustainable Energy and Materials	3
EGN 4816	Apprenticeship I	6
EGN 4826	Apprenticeship II	6

Mathematics and Sciences Courses

Required Credits: 9

MTH 1163	Engineering Mathematics I	3
MTH 1263	Engineering Mathematics II	3
PHY 1103	Physics of Mechanics and Motion	3

General Studies Courses

Required Credits : 18

AES 1003	Emirati Studies	3
CVE 1133	Civil Sustainability Design Project	3
EGN 2203	Introduction to Data Science	3
EGN 3113	Artificial Intelligence	3
LSC 1103	Professional Written Communication	3
LSC 1503	Professional Spoken Communication	3

In addition to the above, students must complete one concentration within the Program (either Structures Engineering; or Transportation Engineering; or Water and Environmental Engineering) worth 18 credits.

Bachelor of Civil Engineering Technology: Diploma Exit

Code	Title	Credit Hours
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Civil Engineering Core Courses

Required credits: 42

CVE 1033	Applied Drafting and CAD: Precision Planning	3
EGN 1003	Engineering Workshop and Solid Modeling	3
MCE 1203	Statics: Application and Simulation	3
EGN 1273	Applied Programming for Engineers	3
CVE 2603	Construction Materials	3
CVE 2183	Site Surveying and Geodetic Solutions	3
CVE 2913	Civil Sophomore Design Project	3
CVE 2303	Soil Mechanics	3
MCE 2243	Fundamentals of Fluid Mechanics	3
EGN 2213	Project Management for Engineers	3
EGN 2403	Engineering Materials	3
EGN 2113	Economic and Financial Analysis for Engineers	3
EGN 2816	Apprenticeship	6

Mathematics and Sciences 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
CVE 1133	Civil Sustainability Design Project	3
LSC 1103	Professional Written Communication	3
EGN 3113	Artificial Intelligence	3
AES 1003	Emirati Studies	3
EGN 2203	Introduction to Data Science	3

Concentration Name: Structures Engineering

Total Credit Hours: 18

Concentration Curriculum:

Concentration Code : STE

Code	Title	Credit Hours
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CVE 4713	Concrete Design: Advanced Elements	3
CVE 4603	Construction Contract Management	3
CVE 4903	Civil Capstone Design Project I	3
CVE 4913	Civil Capstone Design Project II	3

Concentration Electives:

Code	Title	Credit Hours
CVE 4733	Advanced Construction Technology	3
CVE 4773	Steel Design: Advanced Analysis and Optimization	3
CVE 4393	Spatial Solutions: GIS Applications for Engineers	3
CVE 4593	Sustainability in Civil Engineering Practices	3
CVE 4743	Construction Costing and Quantity Surveying	3

Concentration Name: Transportation Engineering

Total Credit Hours: 18

Concentration Curriculum:

Concentration Code: TRP

Code	Title	Credit Hours
CVE 4373	Planning Sustainable Urban Transportation Systems	3
CVE 4363	Road Infrastructure and Pavement Design	3
CVE 4903	Civil Capstone Design Project I	3
CVE 4913	Civil Capstone Design Project II	3

Concentration Electives:

Code	Title	Credit Hours
CVE 4393	Spatial Solutions: GIS Applications for Engineers	3
CVE 4383	Traffic Engineering & Intelligent Transport Systems (ITS)	3
CVE 4593	Sustainability in Civil Engineering Practices	3
CVE 4733	Advanced Construction Technology	3
CVE 4743	Construction Costing and Quantity Surveying	3

Concentration Name: Water and Environmental Engineering

Total Credit Hours: 18

Concentration Curriculum:

Concentration Code: WNE

Code	Title	Credit Hours
CVE 4543	Wastewater Management and Treatment	3
CVE 4483	Solid Waste Management and Practices	3
CVE 4903	Civil Capstone Design Project I	3
CVE 4913	Civil Capstone Design Project II	3

Concentration Electives:

Code	Title	Credit Hours
CVE 4473	Sustainable Solutions in Coastal Engineering	3
CVE 4563	Green Buildings and Sustainable Infrastructure Engineering	3
CVE 4593	Sustainability in Civil Engineering Practices	3
CVE 4603	Construction Contract Management	3
CVE 4743	Construction Costing and Quantity Surveying	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	BCVET
Major Code	CVE

Ideal Study Plan

Recommended Sequence of Study

Bachelor of Civil Engineering Technology

Year 1

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

Semester 2

CVE 1033	Applied Drafting and CAD: Precision Planning	3
LSC 1103	Professional Written Communication	3
EGN 1273	Applied Programming for Engineers	3
MCE 1203	Statics: Application and Simulation	3
MTH 1263	Engineering Mathematics II	3
Credit Hours		15

Year 2

Semester 3

CVE 2183	Site Surveying and Geodetic Solutions	3
AES 1003	Emirati Studies	3
CVE 2603	Construction Materials	3
EGN 2113	Economic and Financial Analysis for Engineers	3
EGN 2403	Engineering Materials	3
Credit Hours		15

Semester 4

EGN 2213	Project Management for Engineers	3
CVE 2913	Civil Sophomore Design Project	3
CVE 2303	Soil Mechanics	3
MCE 2243	Fundamentals of Fluid Mechanics	3
EGN 2203	Introduction to Data Science	3
Credit Hours		15

Year 3

Semester 5

CVE 3483	Water Supply Engineering: Principles and Practices	3
CVE 3303	Highway Engineering	3
CVE 3203	Structural Analysis	3
EGN 3403	Innovation and Entrepreneurship for Engineers	3
EGN 3113	Artificial Intelligence	3
Credit Hours		15

Semester 6

CVE 3493	Fundamentals of Environmental Engineering and Sustainability	3
CVE 3523	Geotechnics and Substructure	3
CVE 3563	Steel Design: Application and Simulation	3
CVE 3553	Concrete Design: Application and Simulation	3
EGN 3413	Sustainable Energy and Materials	3
Credit Hours		15

Year 4

Semester 7

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

Semester 8

EGN 4826	Apprenticeship II	6
CVE 4913	Civil Capstone Design Project II	3
Concentration Elective I		3
Concentration Elective II		3
Credit Hours		15
Total Credit Hours		120

Bachelor of Civil Engineering Technology: Diploma Exit

Year 1		Credit Hours
Semester 1		
CVE 1133	Civil Sustainability Design Project	3
EGN 1003	Engineering Workshop and Solid Modeling	3
PHY 1103	Physics of Mechanics and Motion	3
MTH 1163	Engineering Mathematics I	3
LSC 1503	Professional Spoken Communication	3
Credit Hours		15
Semester 2		
CVE 1033	Applied Drafting and CAD: Precision Planning	3
MCE 1203	Statics: Application and Simulation	3
EGN 1273	Applied Programming for Engineers	3
MTH 1263	Engineering Mathematics II	3
LSC 1103	Professional Written Communication	3
Credit Hours		15
Year 2		
Semester 3		
CVE 2603	Construction Materials	3
CVE 2183	Site Surveying and Geodetic Solutions	3
EGN 2403	Engineering Materials	3
EGN 2113	Economic and Financial Analysis for Engineers	3
AES 1003	Emirati Studies	3
Credit Hours		15
Semester 4		
CVE 2913	Civil Sophomore Design Project	3
CVE 2303	Soil Mechanics	3
MCE 2243	Fundamentals of Fluid Mechanics	3
EGN 2213	Project Management for Engineers	3
EGN 2203	Introduction to Data Science	3
Credit Hours		15
Year 3		
Semester 5		
EGN 2816	Apprenticeship	6
EGN 3113	Artificial Intelligence	3
Credit Hours		9
Total Credit Hours		69

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