

INSTITUT SUPERIEUR DE TECHNOLOGIES

Sarl au capital de 10 000 000

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Agréé par le FAFPA (ministère de l'emploi)

Diplômes reconnus par le CAMES

Vingt (20) ans au service de la formation des ressources humaines

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Bachelor of Engineering in Highway Engineering

1. TITLE OF PROGRAMME

The programme shall be Bachelor of Engineering in Highway Engineering **B.Eng. (BHE)**

2 PREAMBLE

2.1 Background

You will develop the ability to apply engineering and planning methods to the design, construction and maintenance of civil engineering structures and facilities. In doing this, you will gain both the academic and scientific capability to make a real contribution to modern construction operations. Highway engineering is a subset of transportation engineering, which itself is typically a component of civil engineering

The world of Highway Engineering has evolved to a point where all participants in this field are now part of an integrated process. If you want to engage with this process or ultimately drive it, then this course is right for you.

2.2 Justification

If you have the creative ambition to design and build the world of tomorrow, then our bachelor's degree in Highway Engineering can get you ready to join the game in as little as four years — or, in as few as 2 years if you enter the program with an associate degree in the discipline. Build upon the fundamentals learned in the associate degree program. This specialization builds your knowledge base of architectural design, engineering, and building science.

The program focuses on advanced design theory topics, structural engineering using wood, steel, masonry, concrete, advanced environmental and mechanical systems, green technology application, site planning, contracts and specifications, and construction law.

2.3 2.3 Target Group

The targeted group includes holders of:

Advanced Level Certificate of Education;
Diplomas in Engineering and other related Science and Technology fields;
Degrees in the Physical Sciences and other Related .

3. Programme Objectives

3.1. General Objectives

The foundation course will give you a general introduction to Highway Technology. It is clearly written and easy to understand, even if you have no experience of highways. The subjects it covers:

- ✓ Responsibility for public highways
- ✓ Investigation and design of highways
- ✓ Ground investigation
- ✓ Introduction to safety
- ✓ Planning and design of earthworks
- ✓ Earthworks methods and plant
- ✓ Principles of drainage
- ✓ Subsoil drainage
- ✓ Surface water drainage
- ✓ Pavement design
- ✓ Sub-bases and roadbases
- ✓ Bituminous materials
- ✓ Surfacing
- ✓ Quality control of surfacing
- ✓ Rigid pavements
- ✓ Footways
- ✓ Signs and markings

3.2. Specific Objectives

On this course you can:

- ✚ Have the opportunity to visit state of the art civil engineering works and manufacturing facilities.
- ✚ Work in computer labs using the latest 3D engineering modelling software
- ✚ Test the properties of engineering material and soils using our suite of engineering laboratories and testing equipment.
- ✚ Use modern GPS surveying equipment and related software applications
- ✚ Apply management software applications to industry based projects.
- ✚ Carry out analytical works through the long established links we have with companies and organisations in the midlands region.

Duration of the Programme: 4-5 years and one Year for advanced Diploma student

Programme Structure

Courses codes	Courses Names	Credit Units
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	Year one	
	Semester one	
CS 100	General English	3
BCEN 101	Engineering Mathematics I	3
BCEN 102	Communication skills for technology	3
BCCA 103	Information and communication technology	3
BOB 104	Engineering Mechanics	3
BHE105	Basic engineering science I	3
BHE106	Engineering technical drawing I	4
BHE107	Engineering chemistry	4
BHE108	Engineering geology	4
	Semester Two	
BHE120	Construction Technology and CAD	3
BHE121	Engineering Mathematics II	3
BHE122	Engineering technical drawing II	3
BHE123	Workshop technology and practice I	3
BHE124	Construction materials	3
BHE125	Construction Technology	3
BHE126	Basic engineering science II	4
BHE127	Concrete Technology	4
BHE128	Strength of Materials	4
		60
	Year Two	
	Semester one	
BBA210	Engineering Materials	3
BEN211	Engineering mathematics III	4
BHE212	Pavement management	4
BHE213	Economics for Highway Engineering	3
BEN214	Engineering Hydrology	4
BHE215	Workshop technology and practice II	4
BMEE216	transportation engineering	4
BMEE217	Soil Mechanics	4
		60

	Semester Two	
BEE220	Engineering Surveying II	5
BEN221	Workshop technology and practice III	5
BHE222	Engineering mathematics IV	4
BHE223	Hydraulics engineering	4
BHE224	The Highway Design and Maintenance Standards Model	4
BHE227	Theory of Structures	4
BHE225	Computer aided design	4
BHE226	Structural design I	60
	Year Three	
	Semester One	
BHE 321	Entrepreneurship Development	3
BHE 322	Building services	3
BHE 323	Highway Engineering Law	3
BHE 324	Structural design II	3
BHE 325	Advanced Plasticity Models	3
BHE 326	Civil Engineering Infrastructure Maintenance	3
BHE 327	Coastal Engineering	4
BHE 328	Basic quantity surveying I	4
BHE 320	Foundation Engineering	4
	Semester Two	
BHE 329	Structural Mechanics	3
BHE 339	Hydrology and Hydraulic design	3
BHE 338	Basic Quantity Surveying II	3
BHE 337	Picoscopic Modeling	3
BHE 336	Reinforced concrete design I	3
BHE 335	Contract law and arbitration	3
BHE 334	Geotechnical Engineering	4
BHE 333	Urban Engineering	4
BHE 329	Highway Engineering	4
		60
	Year Four	
	Semester One	
BHE 416	Research methods and communication skills	1
BHE 417	Reinforced Concrete Design II	1
BHE 418	Bridge and Special Structure	2
BHE 419	Highway Legislation and Administration	1
BHE 421	Construction Management	2

BHE 422	Engineering Professional and Ethics	1
BHE 423	Hydrology and Hydraulics Design	2
BHE 424	GIS and Remote sensing	2
BHE 425	Planning and Work Coordination	2
BHE 405	Pre stressed Concrete	2
	Semester Two	
BHE 406	Highway Infrastructure Planning and Design	2
BHE 407	Advanced Dynamic Structure	2
BHE 409	Software Engineering	2
BHE 410	Traffic and Transportation Engineering	2
BHE 411	Steel and timber structures	2
BHE 413	Highway Materials and Testing	2
BHE 415	Environmental Engineering and Hydraulics	2
BHE 416	Estimating and tendering	2
BHE 427	Structural Analysis and Design	2
BHE 484	Skewed Bridges	2
BHE 429	Internship	4
BHE 430	Project and Defense	20
		60
GCU		240