HIGHER NITEC IN CIVIL & STRUCTURAL ENGINEERING DESIGN (3 YEARS)

CERTIFICATION

Credits required for certification:

Sector Foundation Modules	:	18
Cluster Core	:	18
Specialisation Modules	:	21
Internship Programme	:	12
LifeSkills Modules	:	10
Cross-Disciplinary Core Modules	:	9
Electives	:	8
Total	:	96

COURSE STRUCTURE

Module Title	Credits
SECTOR FOUNDATION MODULES	
Workplace Safety, Health & Environment	3
Data & Digital Essentials	3
Electrical Fundamentals	3
IoT for Engineering	3
Sustainable Engineering	3
Green Building Technology	3
CLUSTER CORE MODULES	
Integrated Digital Delivery	3
Technical Drawing	3
Design for Manufacturing & Assembly	3
Building Information Modelling Application	3
Building Drawing & Design Specifications	3
BIM Management	3
SPECIALISATION MODULES	
Construction Technology & Administration	3
Reinforced Concrete Detailing & Design I	3
External Works	3
Steel Structure Design	3
Road Construction	3
Prefabrication Technology	3
Reinforced Concrete Detailing & Design II	3
INTERNSHIP PROGRAMME MODULES	

Module Title	Credits
Internship Programme 1	4
Internship Programme 2	8
ELECTIVES (GENERAL) AND LIFE SKILLS MODULES	
For details, click here	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Sector Foundation Modules

Workplace Safety, Health & Environment
On completion of the module, students should be able to apply Workplace Safety and Health (WSH) policies, Environmental Management System procedures and practices in the planning, preparation and execution of work activities to ensure a safe and reliable workplace environment.

Data & Digital Essentials
On completion of the module, students should be able to prepare data for analysis, use online tools for collaborative work and maintain information security when online.

Electrical Fundamentals
On completion of the module, students should be able to interpret circuit schematic and board layout, perform DC circuit connection and in-circuit measurement.

IoT for Engineering
On completion of the module, students should be able to set up an IoT, configure the controller to transmit sensor's collected data wirelessly to an IoT platform.

Sustainable Engineering
On completion of the module, students should be able to determine key contributors to environmental changes and the challenges involved in implementing sustainable initiatives, and propose effective strategies to promote sustainability and address environmental challenges across various industries.

Green Building Technology
On completion of the module, students should be able to interpret and determine green building features and performance; and to develop best practices for sustainable buildings in accordance with BCA Green Mark Framework.

Cluster Core Modules

Integrated Digital Delivery
On completion of the module, students should be able to identify key processes and implement Integrated Digital Delivery (IDD) technologies across projects and building life-cycle in accordance with BCA standard.

Technical Drawing
On completion of the module, students should be able to produce technical sketches, engineering drawings to support construction, operations and maintenance of buildings in accordance with International Standard Organisation (ISO) and Code of Practice (CP).

Design for Manufacturing & Assembly
On completion of the module, students should be able to prepare typical drawings and installation schedules for DfMA projects.

Building Information Modelling Application
On completion of the module, students should be able to create BIM components' details and BIM model of building.

Building Drawing & Design Specifications
On completion of the module, students should be able to produce assembly drawings of building components and create CAD layering in accordance with the industry standards.

BIM Management
On completion of the module, students should be able to produce execution plan, perform 4D BIM schedule, cost estimation of BIM model and clash detection using BIM tools.

Specialisation Modules

Construction Technology & Administration
On completion of the module, students should be able to interpret construction drawing and apply construction processes and technologies for project undertaken.

Reinforced Concrete Detailing & Design I
On completion of the module, students should be able to prepare schedules, detailed drawings of reinforced concrete structures such as slabs, beams, using computer-aided drafting software.

External Works
On completion of the module, students should be able to produce civil engineering drawings such as drainage and sewerage systems.

Steel Structure Design
On completion of the module, students should be able to produce steel structure drawings with detailed connections of steel members.

Road Construction
On completion of the module, students should be able to prepare detailed civil engineering drawings such as roads, culverts and carriageway.

Prefabrication Technology
On completion of the module, students should be able to produce drawings and connections details of precast concrete components.

Reinforced Concrete Detailing & Design II
On completion of the module, students should be able to produce details of reinforced concrete staircase, core walls and retaining walls.

Internship Programme Modules

Internship Programme 1
Students will undergo a 3-months internship with architectural design and building and construction companies where they will apply and integrate the technical, social and methodological competencies in carrying out related industry projects.

Internship Programme 2
Students will undergo a 6-month internship with architectural design and building and construction companies where they will apply and integrate the technical, social and methodological competencies in carrying out related industry projects.

Electives (General) and Life Skills Modules
For details, click here.