

# HIGHER NITEC IN CIVIL & STRUCTURAL ENGINEERING DESIGN

## Core Modules

### Engineering Graphics

On completion of the module, students should be able to produce technical sketches, engineering detailed drawings, 3D solid modelling, and assembly drawings in accordance with ISO standards.

### Engineering Mathematics and Statics

On completion of the module, students should be able to apply knowledge of mathematics to solve engineering problems involving the use of algebra, indices, logarithms, trigonometry and basic statistics. Students would also be equipped with the fundamental knowledge of statics and be able to solve engineering problems involving equilibrium of bodies subjected to forces.

### Building Information Modelling

On completion of the module, students should be able to create 3D models, extract information, perform taking-off from BIM model and produce BIM components.

### Building Structures and External Works

On completion of the module, students should be able to produce foundation layout plans and schedules of footing and staircase, reinforced concrete drawings of floor, staircase and, structural components such as foundations, retaining walls and detailed drawings of external works such as drains, sewers, culverts, carriageway, drainage and sewerage systems.

### Reinforced Concrete Detailing and Design

On completion of the module, students should be able to create 3D models using BIM, to draw structural drawings for piling, pile caps, reinforced concrete core walls, prepare column schedules and detailed drawings of reinforced concrete beams and slabs, precast concrete components and precast beam and slab drawings.

### Steel Structure Detailing and Design

On completion of the module, students should be able to create 3D steel structure models using BIM software and to produce steel structure working drawings with detailed connections of steel members.

### Industry Attachment

Students will undertake a 6-month industry attachment at the civil structural consultancy companies in the building and construction sector to complement and reinforce the skills and knowledge acquired at ITE and to develop competencies in other specialised areas.