

# (Hong Kong) Continuous Professional Education Centre (香港)持續專業教育・培訓中心

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## **Pearson BTEC Level 4 HNC in Construction and the Built Environment (Civil Engineering)**

### **Individual Project**

The aim of this unit is to support students in using and applying the knowledge and skills they have developed through other areas of their studies to complete and present an individual project. In addition, this unit will provide students with key study skills that will support them in further study.

### **Construction Technology**

This unit will explain the terminology used in construction technology, describe the different techniques used to construct a range of substructures and superstructures, including their function, design selection criteria, identify the different types of civil engineering/infrastructure technology used in support of buildings, illustrate the supply and distribution of a range of building services and how they are accommodated within the building and understand and application of innovative approaches and technology in a real life.

### **Science & Materials**

This unit aims to support students to make material choices to achieve the desired outcomes of a brief. This is approached from the perspective of materials being fit for purpose; as defined by testing standards and properties, but also by consideration of the environmental impact and sustainability. Awareness of health & safety is considered alongside the need to meet legislative requirements.

### **Construction Practice & Management**

The unit compares and investigates small, medium and large construction companies within the market place and how construction processes, for development, have evolved.

### **Construction Information (Drawing, Detailing Specification)**

Through this unit students will develop their awareness of different types of construction information and their uses in the process. Students will engage in the production, reading and editing of construction information, in order to understand how this information informs different stages of the process. Using industry standard tools and systems, students will consider the ways that information may be shared and, through this, the value of collaboration in the information process.

### **Mathematics for Construction**

The aim of this unit is to use analytical and computational methods to solve construction related problems, investigate applications of statistical techniques to interpret, organize and present data by using appropriate computer software packages, illustrate the wide-ranging uses of calculus within different construction disciplines by solving problems of differential and integral calculus, use mathematical methods to solve vector analysis, arithmetic progression and dimensional analysis examples and understand linear differential equation, Laplace, Fourier, Z-Transfer Functions and application of Eigenvalues and vectors.

### **Principles of Structural Design**

Topics included in this unit are: methods and techniques used to determine bending moments and shear forces in simply supported steel and reinforced concrete beams; deflection in simply supported steel beams; and axial load carrying capacity of steel and reinforced concrete columns.

### **Tender & Procurement**

The aim of this unit is to define what constitutes a tender and the information required for this process, explain the procedures and contractual arrangements for procurement (contract formation, breach of contract, torts and remedy), analyse the factors that affect the selection of construction procurement methods and documentation, calculate an estimate for a work (including time, cost, quality and associated matters) and financial appraisal on construction projects and related economics issues.