Pearson BTEC Level 5 HND in Construction and the Built Environment (Civil Engineering)

Registration Number / Course Code: 252266 / 013N

BTEC Centre no. 75879

It is a matter of discretion for individual employers to recognize any qualification to which this course may lead.

Pearson BTEC course information:

◆ The BTEC Higher National Diploma (HND) is a Level 4 and Level 5 qualification made up of 240 credits. It is usually studied full-time over two years, or part-time over four years.

◆ Pearson would expect that HND student would have achieved at least 90 credits at Level 4 before progressing to Level 5 units. This allows for the students to submit the remaining 30 credits at Level 4 while undertaking their Level 5 study.

Assessment:

◆ 100% Assignment
◆ English proficiency: student must achieve IELTS 5.5 or PTE51 in advance of claim certificate

Curriculums:

N5E01 Individual Project
N5E02 Construction Technology
N5E03 Science & Materials
N5E04 Construction Practices & Management
N5E06 Construction Information (Drawing, Detailing, Specification)
N5E08 Mathematics for Construction
N5E20 Principles of Structural Design
N5E18 Civil Engineering Technology
N5E22 Group Project
N5E28 Further Mathematics for Construction
N5E29 Geotechnics & Soil Mechanics
N5E30 Advanced Structural Design
N5E35 Alternative Methods of Construction
N5E42 Highway Engineering
N5E47 Construction Data Management
Course Content
NSE01 – Individual Project
Formulate a project that will provide a solution to an identified problem. Manage a project within agreed timescales and specification; documenting the process throughout. Evaluate potential project management solutions. Produce a project report and deliver a presentation of the final project outcomes.

NSE02 Construction Technology
Explain the terminology used in construction technology. Describe the different techniques used to construct a range of substructures and superstructures, including their function and 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.

NSE03 Science & Materials
Review health and safety regulations and legislation associated with the storage, handling and use of materials on a construction site. Discuss the environmental and sustainability factors which can impact on and influence the material choices for a construction project. Present material choices for a given building using performance properties, experimental data, sustainability and environmental consideration. 4. Evaluate the performance of a given building in respect of its human comfort requirements.

NSE04 Construction Practices & Management
Describe the construction industry with reference to company structures and other activities. Explain different types of construction companies in the market and their relationships within the tendering process. Discuss the key stages in a construction project, and how Building Information Modelling informs the different stages. Analyse how the construction industry has developed suitable collaboration strategies in support of greater recognition of health & safety.

NSE06 Construction Information (Drawing, Detailing, Specification)
Evaluate different types of construction information in the context of diverse project types. Develop construction drawings, details, schedules and specifications in support of a given construction project. Interpret different types of construction information in order to explain a construction project. Assess ways in which construction professionals collaborate in the production of construction information.

NSE08 Mathematics for Construction
Identify the relevance of mathematical methods to a variety of conceptualized construction examples. Investigate applications of statistical techniques to interpret, organise and present data by using appropriate computer software packages. Use analytical and computational methods for solving problems by relating sinusoidal wave and vector functions to their respective construction applications. Illustrate the wide-ranging uses of calculus within different construction disciplines by solving problems of differential and integral calculus.
N5E20 Principles of Structural Design
Calculate bending moments and shear forces for simply supported steel and concrete beams. Determine deflection for simply supported steel beams. Calculate the axial load carrying capacity of steel and reinforced concrete columns. Explore design methods for steel, reinforced concrete beams and columns.

N5E18 Civil Engineering Technology
Explain the methods and techniques used in civil engineering for earthworks and substructures. Present a site safety plan, risk assessment and method statement for a given civil engineering activity. Evaluate a given civil engineering problem and propose a solution. Prepare a design proposal for a new infrastructure project.

N5E22 Group Project
Assess individual and group skills in order to allocate roles within a collaborative team. Prepare tender documentation; undertaking work appropriate to a defined role within a team. Evaluate own work, and the work of others, in a collaborative team. Plan a construction project, based on the Pearson-set theme, in collaboration with others to ensure good practice in resource management, staffing and project scheduling.

N5E28 Further Mathematics for Construction

N5E29 Geotechnics & Soil Mechanics
Review rock types, their formation and uses within civil engineering. Explore and classify soils to current codes of practice. Analyse soil properties determined by geotechnical procedures. Produce a proposal to address identified geotechnical weaknesses and problems.

N5E30 Advanced Structural Design
Explore deflection due to wind loadings, on fixed structures, and strategies to resist wind loading. Determine bending, shear and deflection for complex support conditions. Design complex columns and piled foundations based on calculation. Explore the design of tensile structures.

N5E35 Alternative Methods of Construction
Examine how the construction industry impacts on the environment, and how changes in the industry can create broader social and economic benefits. Explore alternative construction methods which are fit for purpose in a given context. Discuss government policy implications and health & safety constraints associated with alternative construction methods. Present a design proposal, utilising a selected alternative construction method.
N5E42 Highway Engineering
Evaluate how a new highway route is identified, planned and designed. Assess the methods of earthwork operations, bridges and tunnelling which are used in connection with the provision of highways. Justify the selection of pavement construction type for a given highway provision. Present a report that specifies improvement that can be made to a given highway infrastructure project, including maintenance techniques and planning.

N5E47 Construction Data Management
Assess the importance of information management within the construction industry. Evaluate the role of information management and how it can benefit and support intelligent information exchanges. Illustrate the information delivery cycle, in regard to BIM, and how the information management process aids the design, construction and occupation of an asset. Discuss the ways in which information can be captured, shared and managed throughout a project lifecycle.

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