Pearson BTEC Level 4 Higher National Certificate in Quantity Surveying

1. Construction Design Project (Pearson-set)

The success of any project relies on the development of a good design and the technical information to allow the project to be built. The aim of this unit is to help students to appreciate and be aware of the design process and the information required to communicate the design itself, specify and quantify materials, provide instructions for the assembly and erection, and facilitate precise costing and project management. Topics included in this unit are: project phases; construction drawing; detailing; Computer Aided Design (CAD); Building Information Modelling (BIM); schedules; specifications; bills of quantities; information collaboration. On successful completion of the unit, students will be able to analyse scenarios, make decisions and produce drawings and specifications to achieve appropriate, creative and innovative home design proposals

2. The Construction Environment

The construction industry is one of the major contributors to CO2 emissions. Also, the way that buildings are designed, constructed and maintained means they have an ongoing impact on the environment. Similarly, as a major employer, the industry has an ongoing impact on the working conditions of those in the sector and the way that people are educated, trained and supported through their careers. In this unit, students will explore the make-up and the impact of the construction industry on the environment and society. By exploring the roles and relationships of individuals and organisations in the construction sector, students will gain an overview of the organisational and the personal ways in which the sector works to continue to improve the built environment and limit its impact on the environment, while maintaining economic sustainability and growth.

3. 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. The topics covered in this unit include: health and safety; storage and use of materials; handling and problems associated with misuse and unprotected use; environmental and sustainable

consideration in material choices; human comfort performance parameters. Material choice is developed through the understanding of testing procedures to establish conformity to standards and define performance properties. The performance of materials to satisfy regulations and provide appropriate comfort levels is addressed through design and calculations.

4. Measurement & Estimating

The overall aim of this unit is to give students an understanding of the quantity surveying techniques of measurement and the estimation of rates for the compilation of tender information. This is a vital activity in achieving a successful outcome for a contracting company in tendering and winning work. Topics included in this unit are: estimating techniques; standard methods of measurement; taking-off dimensions; preparation of bills of quantities; estimating data collection; the assembly of an estimate for a work package.

5. Law & Legal Framework in QS

The quantity surveyor must act in accordance with appropriate legislation for all stakeholders. This ensures that they take a fair, equal and consistent approach in their professional dealings with clients and main contractors. Throughout the course of a project, a quantity surveyor will be called on to undertake different types of work in support of the specific stage of the project and the overall project goals. This will range from contract preparation and tendering, to cost management and, in some cases, mediation of disputes. In this unit, students will become familiar with the key legal frameworks and processes that inform and govern the activities of quantity surveying.

6. Digital Applications for Construction Information

Achieving successful projects in the built environment requires a range of different types of information to describe the project, quantify the materials, provide clear instructions for assembly and erection, and allow for accurate costing and management. Throughout the process of design, construction and post-occupancy management, information is critical. Central to construction information is the production of construction drawings. Theseprovide the geometric definition of a project through the use of graphic conventions. Most other forms of construction information will rely, to a greater or lesser degree,on reference to construction drawings. Therefore, the production of accurate and clearly defined construction drawings is a critical part of the overall construction information package. Digital applications play a key role in the production of construction drawings. They

provide a way to manage drawing information and make changes with greater efficiency and can be shared readily through a variety of digital communication systems. In this unit students will develop the skills to needed produce accurate and consistent construction information using industry-standard software. On completion of the unit,students will be able to produce a construction information package. Successful achievement of the unit, may also lead to vendor certification.

7. Surveying, Measuring & Setting Out

In practice, surveying functions are divided between the 'Land Surveyor' to establish the positional reference and provide topographic data, and the 'Civil Engineer' to provide control of construction (setting out) and monitoring. Since there is dependence and commonality between them, this unit covers both contexts equally. In this unit, students will explore the techniques used to set up controls and conductinitial surveys, including communication of results and methods of setting out the built environment. Students will be able to identify and analyse the sources of error and mitigation techniques used in common aspects of surveying.

8. Quantity Surveying Practice

The quantity surveyor plays an important role in the design and construction team. They are involved initially in the client's feasibility studies when a project requires to be budgeted so that the client is aware of the cost of a project. A design is then produced, based on the feasibility study, and the quantity surveyor supports the tendering and procurement of a main contractor to undertake the work. This may be via the use of a bill of quantities (BoQ) produced by the quantity surveyor or through a specification for the project. The function of the quantity surveyor then moves on to the construction stage of a project. Here they are involved with the payments made to contractors from the client. This process is known as the valuation of the works and is undertaken on a regular time interval, or pre-determined stages of the project. The quantity surveyor will visit a site, measure the work produced to date and certify a payment for the client to make. Further functions of a quantity surveyor are to formulate the final costs for a client in the form of a final account. This may involve the resolution of any disputes and or claims made by the main contractor to a mutual agreement.