Person BTEC Level 3 Diploma in Construction and the Built Environment (Building Services Engineering)

Course Code: HL3015

BTEC Centre no. 75879

Pearson BTEC Level 3 Diploma is potential for the qualification to prepare learners for employment in the appropriate vocational sector and it is suitable for those who have decided that they wish to enter a particular area of work. It is broadly equivalent to two GCE A Levels. Some learners may wish to gain the qualification in order to enter a specialist area of employment or to progress to a level 4 programme.

Other learners may want to extend the specialism they studied on the Pearson BTEC Level 3 Certificate, Pearson BTEC Level 3 Subsidiary Diploma or the Pearson BTEC Level 3 90-credit Diploma programme.

Study Duration

Number of modules: 12 modules
Length of study: 1 year in evening part-time mode

Assessment

100% Assignment, requires 6,000 words for each Assignment
12 Assignments is required, each unit carry one Assignment

Course Outcome

B3C01	Health, Safety and Welfare in Construction and the Built Environment
B3C02	Sustainable Construction
B3C03	Mathematics in Construction and the Built Environment
B3C04	Science and Materials in Construction and the Built Environment
B3C32	Building Services Control Systems
B3C33	Building Services Science
B3C35	Ventilation and Air Conditioning in Building Services Engineering
B3C37	Refrigeration Technology in Building Services Engineering
B3C38	Plumbing Technology in Building Services Engineering
B3C39	Electrical Principles in Building Services Engineering
B3C40	Electrical Installation Standards and Components in Building Services Engineering
B3C41	Electrical Installation Design in Building Services Engineering

Course Content

B3C01 Health, Safety and Welfare in Construction and the Built Environment

Know the responsibilities of employers and employees under current health, safety and welfare legislation. Know how to undertake risk assessments using appropriate principles and formats. Understand the control measures used to reduce risk and meet legal requirements. Know their own role in accident recording and reporting procedures.

B3C02 Sustainable Construction

Know the important features of the natural environment that need to be protected. Understand how the activities of the construction and built environment sector impact on the natural. Environment. Understand how the natural environment can be protected against the activities of the construction and built environment sector. Understand sustainable construction techniques that are fit for purpose.

B3C03 Mathematics in Construction and the Built Environment

Be able to use basic underpinning mathematical techniques and methods to manipulate and/or solve formulae, equations and algebraic expressions. Be able to select and apply mathematical techniques correctly to solve practical construction problems involving perimeters, areas and volumes. Be able to select and apply geometric and trigonometric techniques correctly to solve practical construction problems. Be able to select and apply graphical and statistical techniques correctly to solve practical construction problems.

B3C04 Science and Materials in Construction and the Built Environment

Know the basic factors that affect human comfort. Understand how forces act on structures. Know the performance criteria applicable to construction materials and the techniques used to produce such materials. Understand construction materials and the techniques used to prevent their deterioration.

B3C32 Building Services Control Systems

Know the purpose of building services control systems and the functions they perform. Understand the principles associated with building services control systems. Know the operational characteristics of control components and devices. Be able to develop appropriate control strategies, schemes and schematic drawings for building services systems.

B3C33 Building Services Science

Understand the nature of energy in solids, liquids and gases, and the fundamental principles of heat transfer in building services applications. Understand the principles of electricity and combustion as they apply to the provision of electrical power, natural gas and other fossil fuel energy systems. Understand the thermodynamic properties of solids, liquids and gases as they apply to changes of state in heating, air conditioning and refrigeration installations. Understand the principles of psychrometry as they apply to air conditioning systems.

B3C35 Ventilation and Air Conditioning in Building Services Engineering

Be able to establish ventilation, warm air heating and air conditioning requirements for buildings. Understand the operational characteristics of ventilation and air conditioning equipment, plant and materials. Be able to design ventilation, warm air heating and simple single zone air conditioning installations. Be able to size, select and specify ventilation and air conditioning systems, ductwork, plant and equipment.

B3C37 Refrigeration Technology in Building Services Engineering

Understand the principles that underpin basic refrigeration processes. Understand the properties and uses of different types of refrigeration systems. Be able to create project design proposals for selecting appropriate refrigeration technology. Understand the technical and operational requirements of safe, energy efficient system installation. Know the current legislation, British Standards, regulations and codes of practice applicable to safe refrigeration processes.

B3C38 Plumbing Technology in Building Services Engineering

Know how cold water is sourced, cleansed to the required standard and distributed to the consumer. Be able to design hot and cold water systems for installation in low-rise buildings. Understand the design and installation of above ground drainage systems. Understand the design and characteristics of gas installations.

B3C39 Electrical Principles in Building Services Engineering

Be able to apply appropriate procedures to determine quantities associated with electricity. Be able to use the principles of electricity and the behaviour of simple electrical components for different applications. Be able to solve problems relating to the use of single-phase and three-phase AC circuits and produce simple circuit designs to given specifications. Be able to apply the principles of transformers and rotating machines to demonstrate their practical applications.

B3C40 Electrical Installation Standards and Components in Building Services Engineering

Know the regulations and legislation applicable to electrical installations. Know the different wiring techniques used in electrical installations. Understand earthing and bonding principles. Understand the need for final circuits and circuit protection. Understand the requirements for special installations.

B3C41 Electrical Installation Design in Building Services Engineering

Know how to design electrical lighting and power requirements for buildings. Be able to design electrical lighting and power installations for specific applications. Know how to establish the data distribution, security and fire protection system requirements. Be able to design data distribution, security and fire protection installations for specific applications.