Pearson BTEC Level 1/2 Tech Award in Digital Engineering and Design

120 guided learning hours, assessed by 2 assignments and 1 exam

Qualification Purpose:

To introduce learners to Modelling in Digital engineering and design and it's use in industry e.g. construction, engineering and manufacturing. To understand how information from drawings, simulations, 3D models and advanced technologies are used in the design process. To develop basic practical software skills to model a design solution to meet a design brief

Destinations:

Further study at level 3 including technical qualifications such as T Levels, BTEC Nationals in Construction and Engineering, A Levels in Design Technology, and then on to degrees e.g. Building, Architecture, Architecture & Environmental Design, Engineering & Manufacturing, Digital Design & Construction (postgrad)

Entry, via further study, into technician and Professional-level careers including: Digital Engineering Technician, Building Services Technician/ Engineer, Civil Engineering Design Technician, Renewable Projects Engineer, Rail Design Technician, Transport Planning Technician, Architectural Technician/ Architect, Engineering Design and Draughtsperson, Engineering Technician, BREEAM Professional, Environmental Design Engineer

Knowledge Learning Objectives:

- Understand the Design Process and techniques including design communication including factors influencing the design process across construction, manufacturing and engineering
- Understand the role of data and digital technologies in design and modelling: Software for BIM, AR and VR technology including Digital Twin, visualisation, data sharing, common protocols. How technology such as IOT and 3D Printing can facilitate the design process.
- Know the applications of modern modelling in key sectors e.g. engineering, manufacturing , construction including understanding the underpinning principles of BIM, the basics of project collaboration and communication
- Explain the principles of BIM and collaborative working and its related outcomes as well as the technologies that support a BIM project.

- Identify the kinds of technical information embedded and used in construction, engineering or manufacturing projects e.g. object-based modelling, CAD
- Understand the kinds of metrics and performance outcomes used in, for example construction, engineering & manufacturing & how this may feed into the design and model
- Know that project teams are formed and work together to share information digitally in design and manufacturing

Practical Skills *(Major project synoptic external assignment):*

- Gain basic skills and familiarity in using software which may include Sketchup, AutoCAD, Autodesk, Revit
- Use data from a brief to design, using appropriate software, a basic 3d model of a manufactured component/ building/ built environment asset, producing basic images and visuals using the digital model
- Manipulate models and alter data within the model to refine the design
- Present the design solution outputted from the software, to stakeholders