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BTEC HND Building Services Engineering Top-Up (Heating, Ventilation and Air Conditioning)

Location	Stockport College
Course Type	University Level
Department	Building Services
Start Date	Monday 15th September 2025
Duration	Full-time, 1 Year
Time	-
Fee	£ 0.00
Course Code	SFP-HC6H-3200

Course Overview

Following on from the Level 4 HNC Building Services Engineering, the Level 5 units prepare students to move on to specific areas of building services engineering at Level 6 or to enter employment with the qualities and abilities necessary for roles that require personal responsibility and decision making. Students will be able to develop and apply their own ideas to their studies, to deal with uncertainty and complexity, to explore solutions, demonstrate critical evaluation and use both theory and practice in a wide range of construction situations. By the end of Level 5, students will have a sound understanding of the principles in this area of specialist study and will know how to apply those principles more widely.

The understanding of more advanced mathematics is important in the civil engineering and building services engineering industries. Students will be introduced to additional topics that will be relevant to them as they progress to the next level of their studies; advancing their knowledge of mathematical theory gained in the Level 4. Modern high-rise and multi-zone buildings have complex requirements for heating, cooling and ventilation. Their scale, number of occupants and need for better performance and efficiency, mean that the design and installation of systems for heating, cooling and ventilation are critical. The Advanced HVAC Design & Installation unit supports students to build an understanding of the broad application of technologies and design techniques used to satisfy the requirements in large commercial or complex/multi-zone buildings. The study of thermofluids is critical to the design, specification and operation of building services engineering systems. By the end of the programme, students will also have an advanced knowledge of the formulae required to undertake calculations related to thermofluids and acoustics, applying the results to the design and specification of equipment, plant and environments.

Course Requirements

Successful applicants should have completed the Level 4 HNC Building Services Engineering (Heating, Ventilation and Air Conditioning) and have met the entry requirements for level 4 which includes:

64 UCAS points from either:

- A Level 3 vocational qualification
- GCE A Levels
- A Access to higher Education Diploma in a related area

Applicants should also have GCSE grades C/4 or above in English and Maths or equivalent L2 qualifications.

What You Will Learn

On successful completion of the Further Maths unit, students will be able to use applications of number theory in practical construction situations, solve systems of linear equations relevant to construction applications using matrix methods, approximate solutions of contextualised examples with graphical and numerical methods, and review models of construction systems using ordinary differential equations. As a HVAC specialist you will study hydraulic and control strategies for heating, sustainable technologies, ventilation systems for forced air and passive ventilation, complex distribution and plan strategies for air conditioning, and related design and installation factors. Students will explore the key features of thermofluids, heat transfer, thermodynamics, fluid mechanics and combustion, and their calculation and application. Understanding how to calculate and manage heat transfer will give students key knowledge that will enable them to work on a range of different systems for heating and refrigeration. Students will also develop an understanding of the issues associated with acoustics and the operation of building services systems. They will explore the causes of noise and vibration, learn how to calculate noise levels and develop strategies to manage the acoustic environment.

Assessment

You will be assessed using a range of methods including written assignments, reports, and presentations.

Progression

On successful completion, students may be eligible to study a Level 6 top up Degree in a related field and/or pursue professional qualifications.

Career Options

On completion, students may develop their career in this sector by entering or continuing employment in roles such as: Heating and Ventilation Engineer, Electrician, Plumber, Building Surveyor, Building Services Engineer, Mechanical Engineer, Maintenance Engineer.

Mandatory Units

At Level 5 you will study:

Group Project
Personal Professional Development
Further Mathematics for Construction
Advanced Heating, Ventilation and Air Conditioning Design & Installation
Thermofluids and Acoustics
plus 3 units

Extra Costs Involved

No.

Exam Validation Body

Pearson Education Ltd.

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Hours Per Week

12 hours full-time course.

How Long To Complete

1 year full-time with two full days attendance per week.

Programme Structure

You will study 8 units and gain 120 credits over the duration of the programme.

Contact Details

For further information please email HEenquiries@tcg.ac.uk

Disclaimer

Although every care has been taken to ensure that the information contained within this document is accurate, there may be changes to this programme and provision. We will endeavour to keep prospective and current students updated where appropriate and when the information becomes available.