

Course Information

Award:

Pearson BTEC Level 4 Higher National Certificate in Engineering - Electrical and Electronic Pathway

Location:

Luckyn Lane, Basildon

Awarding body:

Pearson

Professional body accreditation:

Accredited: N/A

Duration:

2 Years

Academic year:

Teaching Starts Week commencing 14th Sep 2020 – 29th May 2021

Part-time study:

Part-time, day release

Work placements:

N/A

Timetables:

Every Tuesday 0900-1700

Entry Requirements

- You will need a minimum of 64 UCAS points from one or more of the following:
- BTEC Level 3 Engineering
- AVCE/GNVQ in a related vocational area (Level 3)
- A-levels in maths and science subjects
- A related Access to Higher Education Certificate or other related Level 3 qualifications
- Related work experience supported by GCSEs at grades 9-4 (A** to C) or equivalent
- You will also need GCSE English and GCSE Maths at grade C (old specification) or grade 4 (new specification) or above OR a Level 2 equivalent such as functional skills.

Award:

Level 4 Higher National Certificate in Engineering

Entry requirements 2020-21:

As above

English First Language:

If English is not your first language you will need an IELTS score of 6.5, with a minimum score of 6.5 in each component (Reading, Writing, Listening and Speaking), or an equivalent English Language qualification.

Additional requirements:

None

Course Overview**Course Name**

HNC Electrical and Electronics

Course overview

The HNC Electrical and Electronics course is aimed at working technicians/engineers and is ideal for anyone who is interested in developing a multi-disciplined career in electrical/electronic engineering.

The course offers a good balance of academic theory and practical industry knowledge which is firmly aligned to your job requirements from day one. Through high-quality lectures, case study research and employer-based projects you will gain a unique blend of general skills along with specific industry knowledge in the field of engineering. The College also has an excellent range of specialist laboratories, workshops and equipment providing access to resources that support learning.

The ability to study part-time alongside your job, allows you to gain an industry-recognised qualification that is accepted around the world. The HNC becomes your passport to advancing your career in engineering. Studying and working at the same time does require good organisational and time management skills, but it allows you to apply your learning immediately to your job as well as to bring in real-life examples from your work into the learning environment to discuss with peers.

You can also study this course as part of a Higher Apprenticeship.

Module Information**Module map****U1 Engineering Design**

By the end of this unit students will be able to:

1. Plan a design solution and prepare an engineering design specification in response to a stakeholder's design brief and requirements.
2. Formulate possible technical solutions to address the student-prepared design specification.
3. Prepare an industry-standard engineering technical design report.
4. Present to an audience a design solution based on the design report and evaluate the solution/presentation

U2 Engineering Maths

By the end of this unit students will be able to:

1. Identify the relevance of mathematical methods to a variety of conceptualised engineering examples.
2. Investigate applications of statistical techniques to interpret, organise and present data by using appropriate computer software packages.
3. Use analytical and computational methods for solving problems by relating sinusoidal wave and vector functions to their respective engineering applications.
4. Examine how differential and integral calculus can be used to solve engineering problems.

U3 Engineering Science

By the end of this unit students will be able to:

1. Examine scientific data using both quantitative and computational methods.
2. Determine parameters within mechanical engineering systems.
3. Explore the characteristics and properties of engineering materials.
4. Analyse applications of A.C./D.C. circuit theorems, electromagnetic principles and properties.

U4 Managing a professional Engineering Project

By the end of this unit students will be able to:

1. Formulate and plan a project that will provide a solution to an identified engineering problem.
2. Conduct planned project activities to generate outcomes which provide a solution to the identified engineering problem.
3. Produce a project report analysing the outcomes of each of the project processes and stages.
4. Present the project report drawing conclusions on the outcomes of the project.

U15 Automation, Robotics and Programmable Logic Controllers (PLCs)

By the end of this unit students will be able to:

1. Describe the design and operational characteristics of a PLC system.
2. Design a simple PLC program by considering PLC information, programming and communication techniques.
3. Describe the key elements of industrial robots and be able to program them with straightforward commands to perform a given task.
4. Investigate the design and safe operation of a robot within an industrial application.

U19 Electrical and Electronic Principles

By the end of this unit students will be able to:

1. Apply an understanding of fundamental electrical quantities to evaluate simple circuits with constant voltages and currents.
2. Evaluate simple circuits with sinusoidal voltages and currents.
3. Describe the basis of semiconductor action, and its application to simple electronic devices.
4. Explain the difference between digital and analogue electronics, describing simple applications of each.

U20 Digital Principles

By the end of this unit students will be able to:

1. Explain and analyse simple combinational logic circuits.
2. Explain and analyse simple sequential logic circuits.

3. Describe and evaluate the technologies used to implement digital electronic circuits.
4. Describe and analyse a range of digital subsystems, hence establishing the building blocks for larger systems.

U22 Electronic Circuit and Devices

By the end of this unit students will be able to:

1. Determine the operational characteristics of amplifier circuits.
2. Investigate the types and effects of feedback on an amplifier's performance.
3. Examine the operation and application of oscillators.
4. Apply testing procedures to electronic devices and circuits.

Year 1 for part-time students

U2 Engineering Maths (15 Credits) Level 4

U3 Engineering Science (15 Credits) Level 4

U15 Automation, Robotics and Programmable Logic Controllers (PLCs) (15 Credits) Level 4

U19 Electrical and Electronic Principles (15 Credits) Level 4

Year 2 for part-time students

U1 Engineering Design (15 Credits) Level 4

U4 Managing a professional Engineering Project (15 Credits) Level 4

U20 Digital Principles (15 Credits) Level 4

U22 Electronic Circuit and Devices (15 Credits) Level 4

Maths and English skills development will be embedded into all units of the study programme through investigations, reports, calculations and project work.

Assessment & Feedback

Lectures, workshops, and weekly tutorials.

Assessment

You will learn through a combination of practical work, written assignments, online study and class-based teaching, supported by relevant theoretical study. You will be assessed by a range of methods including assignments, projects and practical exercises.

Independent study: You will need to undertake significant independent study outside of taught sessions.

Assessment methods: Assessment is on a continuous basis with up to four assignments in each unit. Assessment is via coursework and time constrained assignments which takes a variety of forms including written reports.

Course Costs:

Course Name: Pearson BTEC Level 4 Higher National Certificate in Engineering - Electrical and Electronic Pathway

Duration: 2 years (Part-Time)

Fees

For the academic year 2020-21, the tuition fees for this course are £3,250 per academic year.

Accommodation and living costs not included in the fees

This information can be obtained from our Accommodation Services home page

<https://www.southessex.ac.uk/higher-education/accommodation>

Sources of financial support:

If you receive funding from Student Finance you may be eligible to apply for additional benefits.

Details can be obtained from our Student Services home page

<https://www.southessex.ac.uk/higher-education/fees-and-funding>