



University of Central Lancashire

Training 2000

Electrical and Electronic Engineering HNC

Level 4

Delivering high level, industry-led training courses is what we do. As an engineering provider of advanced technical and academic skills, we work closely with employers to nurture and develop the employees they need for the future.

The BTEC Level 4 HNC Qualification in Engineering is a higher level programme aimed at developing a greater understanding and technical capability of engineering processes.

We provide employees with more than just a qualification. We develop both their industry skills and knowledge for immediate application in the workplace which maximises return on investment.

www.training2000.co.uk | 01254 54659 | info@t2000.co.uk

Electrical and Electronic Engineering

Higher National Certificate information

Duration

2 years - one day per week

Where will I study?

Training 2000 Blackburn

Course cost

£2000 per academic year

Entry requirements

Ideally you will have completed a Level 3 qualification in engineering or equivalent.

Our HNC includes:

- Face-to-face tutorials
- Flexible day delivery to minimise effect on employer
- Opportunities to develop workplace projects within employers

What you'll learn

Year 1

Engineering Maths

- The aim of this unit is to develop students' skills in the mathematical principles and theories that underpin the engineering curriculum. Students will be introduced to mathematical methods and statistical techniques in order to analyse and solve problems within an engineering context.

Engineering Science

- This unit introduces students to the fundamental laws and applications of the physical sciences within engineering and how to apply this knowledge to find solutions to a variety of engineering problems. Among the topics included in this unit are: international system of units, interpreting data, static and dynamic forces, fluid mechanics and thermodynamics, material properties and failure, and A.C./D.C. circuit theories.

Engineering Design

- The aim of this unit is to introduce students to the methodical steps that engineers use in creating functional products and processes; from a design brief to the work, and the stages involved in identifying and justifying a solution to a given engineering need.

Managing a Professional Engineering Project

- This unit introduces students to the techniques and best practices required to successfully create and manage an engineering project designed to identify a solution to an engineering need. While carrying out this project students will consider the role and function of engineering in our society, the professional duties and responsibilities expected of engineers together with the behaviours that accompany their actions.

Mechanical Principles

- The aim of this unit is to introduce students to the essential mechanical principles associated with engineering applications. Topics included in this unit are: behavioural characteristics of static, dynamic and oscillating engineering systems including shear forces, bending moments, torsion, linear and angular acceleration, conservation of energy and vibrating systems; and the movement and transfer of energy by considering parameters of mechanical power transmission systems.

Year 2

Electrical Systems and Fault Finding

- This unit introduces students to the characteristics and operational parameters of a range of electrical system components that are used in a variety of applications; and how to fault find when they go wrong. On successful completion of this unit students will be able to follow electrical system circuit diagrams, understand the operation of the various components that make up the system and select the most suitable fault finding technique. Therefore, students will develop skills such as critical thinking, analysis, reasoning, interpretation, decision-making, information literacy, information and communication technology literacy, innovation, creativity, collaboration, and adaptability, which are crucial skills for gaining employment and developing academic competence for higher education progression.

Electrical and Electronic Principles

- The physical principles themselves build initially from our understanding of the atom, the concept of electrical charge, electric fields, and the behaviour of the electron in different types of material. This understanding is readily applied to electric circuits of different types, and the basic circuit laws and electrical components emerge. Another set of principles is built around semiconductor devices, which become the basis of modern electronics. An introduction to semiconductor theory leads to a survey of the key electronic components, primarily different types of diodes and transistors.

Electro, Pneumatic and Hydraulic Systems

- The aim of this module is to develop students' knowledge and appreciation of the applications of fluid power systems in modern industry. Students will investigate and design pneumatic, hydraulic, electro-pneumatic and electro-hydraulic systems. This unit offers the opportunity for students to examine the characteristics of fluid power components and evaluate work-related practices and applications of these systems.

Automation, Robotics and Programmable Logic Controllers (PLCs)

- The aim of this unit is for students to investigate how Programmable Logic Controllers (PLCs) and industrial robots can be programmed to successfully implement automated engineering solutions. Among the topics included in this unit are: PLC system operational characteristics, different types of programming languages, types of robots and cell safety features. On successful completion of this unit students will be able to program PLCs and robotic manipulators to achieve a set task, describe the types and uses of PLCs and robots available, write simple PLC programs, and program industrial robots with straightforward commands and safety factors.

Lean Manufacturing

- The aim of this unit is to introduce students to the principles and processes of lean manufacturing, so that they can become an effective and committed practitioner of lean in whatever industry sector they are employed in. To do this, the unit will explore the tools and techniques that are applied by organisations practicing lean. The students will consider both the benefits and challenges of using lean manufacturing, and become sufficiently knowledgeable about the most important process tools and techniques to be able to operate and use them.

How you'll be assessed?

All units are internally assessed. Each unit within the qualification has specified pass assessment and grading criteria, in addition to this there are generic merit and distinction grading descriptors that describe performance over and above a pass grade. These allow grades of pass, merit or distinction to be awarded for all units.

Other Level 4 HNC pathways

Operations Engineering

Manufacturing Engineering

Next steps

Level 5 Higher National Diploma in General Engineering

If a learner completes the HNC with us, they can top up to a HND in one year.

Interested? Apply now

www.training2000.co.uk

01254 54659

info@t2000.co.uk

Proud to be part of the



University of
Central Lancashire
UCLan