

DEFINITIVE COURSE RECORD

Course Title	Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering)
Awarding Bodies	Pearson
Level of Award ¹	FHEQ Level 4
Professional, Statutory and Regulatory Bodies Recognition	Engineering Council Engineering Technician Standard (EngTech)
Credit Structure ²	120 Credits Level 4: 120 Credits
Mode of Attendance	Full-time and part-time
Standard Length of Course ³	1 year full-time
Intended Award	Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering)
Named Exit Awards	None
Entry Requirements ⁴	<ul style="list-style-type: none"> • A BTEC Level 3 qualification in engineering • A GCE Advanced level profile which demonstrates strong performance in a relevant subject or an adequate performance in more than one GCE subject. This profile is likely to be supported by GCSE grades at A* to C • Other related level 3 qualifications • An Access to Higher Education Certificate awarded by an approved further education institution • Related work experience • An international equivalent of the above
Delivering Institution(s)	University of Suffolk at West Suffolk College
UCAS Code	H301

This definitive record sets out the essential features and characteristics of the Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) course. The information provided is accurate for students entering level 4 in the 2018-19 academic year⁵.

Course Summary

The purpose of BTEC Higher Nationals in Engineering is to develop students as professional, self-reflecting individuals who are able to meet the demands of employers in the rapidly evolving engineering sector and adapt to a constantly changing world. The qualifications also aim to widen access to higher education and enhance the career prospects of those who undertake them.

¹ For an explanation of the levels of higher education study, see the [QAA Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies \(2014\)](#)

² All academic credit awarded as a result of study at the University adheres to the [Higher education credit framework for England](#).

³ Where the course is delivered both full-time and part-time, the standard length of course is provided for the full-time mode of attendance only. The length of the part-time course is variable and dependent upon the intensity of study.

⁴ Details of standard entry requirements can be found in the [Admissions Policy](#)

⁵ The University reserves the right to make changes to course content, structure, teaching and assessment as outlined in the [Admissions Policy](#).

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Objectives of the BTEC Higher Nationals in Engineering

The objectives of the BTEC Higher Nationals in Engineering are as follows:

- To provide students with the core knowledge, skills and techniques that all engineers require, irrespective of future specialism, to achieve high performance in the engineering profession;
- To build a body of specialist knowledge, skills and techniques in order to be successful in a range of careers in engineering at the Associate Engineer or Operational Engineer level;
- To develop the skills necessary to fault find and problem solve in a timely, professional manner, reflecting on their work and contributing to the development of the process and environment they operate within;
- To understand the responsibilities of the engineer within society, and work with integrity, regard for cost, sustainability and the rapid rate of change experienced in world class engineering;
- To provide opportunities for students to enter, or progress in, employment within the engineering sector, or progress to higher education qualifications such as degrees and honours degree in engineering or a closely related area, by balancing employability skills with academic attainment;
- To provide opportunities for students to make progress towards achieving internationally recognised registration with a Professional Body regulated by the Engineering Council;
- To allow flexibility of study and to meet local or specialist needs.

We aim to meet these objectives by:

- Providing a thorough grounding in engineering principles at Level 4 that leads to specialisms relating to individual professions within the engineering sector;
- Equipping individuals with the essential qualities of an engineer, including integrity, regard for cost and sustainability, as they apply to a range of roles and responsibilities within the sector;
- Enabling progression to a university degree by supporting the development of academic study skills and the selection of appropriate units for study at Level 4;
- Enabling progression to further professional qualifications in specific engineering disciplines by mapping the units studied to the requirements of the Professional Bodies applicable to that discipline;
- Supporting a range of study modes and timeframes for completion of the qualifications.

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Who is this qualification for?

The BTEC Higher National qualifications in Engineering are aimed at students wanting to continue their education through applied learning. Higher Nationals provide a wide-ranging study of the engineering sector and are designed for students who wish to pursue a career in engineering. In addition to the skills, knowledge and techniques that underpin the study of the sector, Pearson BTEC Higher Nationals in Engineering give students experience of the breadth and depth of the sector that will prepare them for employment, progression within employment or further study.

Course Aims

The Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) offers students a broad introduction to the subject area via a mandatory core of learning, while allowing for the acquisition of some sector-specific skills and experience through the specialist units in each pathway, with the opportunity to pursue a particular interest through the appropriate selection of optional units. This effectively builds underpinning core skills while preparing the student for more intense subject specialisation at Level 5. Students will gain a wide range of sector knowledge tied to practical skills gained in research, self-study, directed study and workplace activities.

This qualification aims to:

- Develop a range of skills and techniques, personal qualities and attributes essential for successful performance in working life and thereby enable learners to make an immediate contribution to employment at the appropriate professional level;
- Prepare for a range of technical and management careers in mechanical engineering;
- Communication engineering equipping individuals with knowledge, understanding and skills for success in employment in the mechanical engineering-based industry;
- Provide specialist studies relevant to individual vocations and professions in which learners are working or intend to seek employment in mechanical engineering and its related industries;
- Enable progression to or count towards an undergraduate degree or further professional qualification in mechanical engineering or related area;
- Provide a significant educational base for progression to Incorporated Engineer level.

Course Learning Outcomes

The following statements define what students graduating from the Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) course will have been judged to have demonstrated in order to achieve the award.

1. A knowledge and use of essential scientific principles to produce routine solutions to familiar mechanical engineering problems and using this knowledge to model and analyse routine mechanical engineering systems, processes and products.

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2. Mechanical scientific principles which underpin the design and operation of engineering systems and provide an overview as the basis for further study in specialist areas of mechanical engineering.
3. An extended range of mechanical principles which underpin the design and operation of mechanical engineering systems including circuit and networks.
4. Project work that is of a technical nature and supportive of engineering orientation of the Mechanical Engineering Higher National programme, in particular integrated exercises involving a technical investigation, which incorporates a financial appreciation.
5. Knowledge of the calculation of costs associated with engineered products and services.
6. Fundamental analytical knowledge and techniques used for analysis, modelling and solution of realistic engineering problems within mechanical engineering.
7. A knowledge of routine mathematical methods essential to mechanical engineering including an awareness of the functionality of standard methods.
8. Use analytical and computational methods for solving problems.
9. Analyses application of electromagnetic principles and properties.
10. Determine parameters within mathematical engineering systems.
11. Examine scientific data using computational methods.
12. Create and modify CAD drawings.
13. Produce complex schematic drawings.
14. Investigate fundamental thermodynamic systems and their properties.
15. Examine the principles of heat transfer to industrial applications.
16. Determine the performance of internal combustion engines.

Course Design

Qualifications in engineering within the UK are referenced against the Engineering Council, UK specifications which sets standards at Levels 3, 6 and 8.

The Pearson BTEC Higher Nationals in Engineering are set at Level 4 and 5 and have been written with reference to the Engineering Council specification for Level 3 and 6.

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Holders of a BTEC Higher National in Engineering meet the academic requirements for the Engineering Council Engineering Technician Standard (EngTech).

Course Structure

The Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) comprises of modules at levels 4.

A link to the module specifications for each of these modules is included within the course handbook, available to students on-line at the beginning of each academic year.

	Module	Credits	Unit Type ⁶
Level 4			
	Engineering Design	15	MC
	Engineering Maths	15	MC
	Engineering Science	15	MC
	Managing a Professional Engineering Project	15	MC
	Mechanical Principles	15	MC
	Fundamentals of Thermodynamics and Heat Engines	15	MC
	Electro, Pneumatic and Hydraulic Systems	15	M
	CAD for Maintenance Engineers	15	M

Awards

On successful completion of the course, students will be awarded a Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering).

To achieve a Pearson BTEC Higher National Certificate qualification a student must have:

- Completed units equivalent to 120 credits at level 4;
- Achieved at least a pass in 105 credits at level 4.

A student can still be awarded a HNC if they have not achieved a minimum of a Pass in one of the 15 credit units but they have otherwise fulfilled all the conditions.

The calculation of the overall qualification grade is based on the student's performance in all units to the value of 120 credits. Students are awarded a Pass, Merit or Distinction qualification grade using the points gained through all 120 credits, at Level 4.

All units in valid combination must be attempted (120 credits). At least 105 credits must be Pass or above. All 120 credits count in calculating the grade.

Course Delivery

The course is delivered at University of Suffolk at West Suffolk College. Students studying part-time on Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) are likely to

⁶ Units designated as mandatory core (MC) must be taken and passed in order to achieve the award. For further information, see the [Framework and Regulations for Higher National Awards](#)

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have approximately 210 contact hours per year. For full time study, students are likely to have approximately 420 contact hours in a single year's study. The contact hours will be a mix of lecture, seminar and practical activities, but you will also be assigned additional guided study tasks by your tutor to complete independently.

As a guide, additional personal study of 12-15 hours per week for part-time students and 24-30 hours per week for full-time students is the 'norm'. You may have to do slightly more depending on the workload and your personal requirements.

Course Assessment

A variety of assessments will be used on the course to enable students to experience and adapt to different assessment styles. The assessment methods used will be appropriate to assess each module's intended learning outcomes. Assessment on the course overall will be 100% coursework (including essays, reports, presentations, group work, reflective learning journals and research projects).

Course Team

The academic staff delivering this course are drawn from a team that includes teaching specialists and current practitioners. All staff are qualified in their subjects with their own specialist knowledge to contribute.

Course Costs

Students undertaking Pearson BTEC Level 4 HNC Engineering (Mechanical Engineering) will be charged tuition fees as detailed below.

Student Group	Tuition Fees
Full-time UK/EU	£6,168 per year
Part-time UK/EU	£1,028 per 20 credit module £771 per 15 credit module
Full-time International	£6,400 per year
Part-time International	£1,200 per 20 credit module £900 per 15 credit module

Payment of tuition fees is due at the time of enrolment and is managed in accordance with the Tuition Fee Policy.

Students are likely to incur other costs for equipment, materials, optional field trips, exhibitions amounting to approximately £100 per year.

Academic Framework and Regulations

This course is delivered according to the Framework and Regulations for Higher National Awards and other academic policies and procedures of the University and published on the [website](#).