



This specification provides a summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. As the content of the University's degree programmes is constantly being developed the information contained in this document is liable to change.

## Programme Details

1. Programme title	Automation and Control Engineering for England (Apprenticeship)		
2. Final award (e.g. BA, MEng or MSc)	Type: Pearson BTEC L4 Higher National Certificate in Automation and Control Engineering for England	Duration: 36-42 months	
3. Intermediate/exit awards	Title (if different from main award):		
	Type:	Duration:	
	Title (if different from main award):		
	Type:	Duration:	
4. Framework for Higher Education Qualifications level	FHEQ Level 4		
5. Faculty	Engineering		
6. School / Department	AMRC Training Centre		
7. Other schools/depts (providing credit bearing modules for the programme)	None		
8. Accrediting Professional or Statutory Body	Pearson		
9. Mode(s) of study	Part-time		
10. HECoS code(s) <i>Select between one and three codes from the <a href="#">HECoS vocabulary</a>.</i>	100209		
11. Relevant Subject Benchmark Statements	<a href="#">QAA Subject Benchmark Statement for Engineering</a>		

Programme Code(s) (Internal use)	AMRU34
----------------------------------	--------

## 12. Programme aims

The programme aims to:	
<b>A1</b>	lay the foundation of learning by providing a broad introduction to automation and control engineering. This develops and strengthens core skills while preparing students for specialist subjects at Level 5 or to enter employment with the qualities necessary for job roles that require some personal responsibility.
<b>A2</b>	equip students with a wide range of engineering knowledge linked to practical skills obtained through research, independent study, directed study and workplace scenarios. Students are involved in vocational activities that help them to develop behaviours (the attitudes and approaches required for a competence) and transferable skills. Transferable skills are those such as communication, teamwork, research and analysis, which are highly valued in higher education and in the workplace.
<b>A3</b>	equip students with a sound knowledge of the basic concepts of automation and control engineering. They will be competent in a range of subject- specific skills as well as in general skills and qualities relevant to these key areas of engineering.

## 13. Programme learning outcomes

<b>Knowledge and understanding (K)</b>	
On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:	
<b>K1</b>	Fundamental principles of engineering science relevant to manufacturing.
<b>K2</b>	Mathematics necessary to apply engineering science to manufacturing.
<b>K3</b>	Analytical and design methods used in engineering.
<b>K4</b>	Use of information technology for analysis, design and simulation/modelling.
<b>K5</b>	Operation of the manufacturing engineering industry, including business practice, quality and project management.
<b>K6</b>	Professional responsibility of manufacturing engineers and the influence of social, environmental, ethical, economic and commercial considerations on their activities.
<b>Skills and other attributes (S)</b>	
<i>When considering the skills and attributes developed in this programme, please refer to the Sheffield Graduate attributes (SGAs). <a href="#">SGAs can be found here</a></i>	
On successful completion of the programme, students will be able to:	
<b>S1</b>	fault find and problem solve in a timely, professional manner, reflecting on their work and contributing to the development of the process and environment within which they operate.
<b>S2</b>	solve problems using critical thinking, expert and creative solutions to solve non-routine problems; use systems and digital technology and generate and communicate ideas creatively.

<b>S3</b>	manage their time and behaviour, particularly developing adaptability and resilience, self-monitoring and self-development, self-analysis and reflection, planning and prioritising.
<b>S4</b>	communicate effectively, work with others, negotiate with and influence colleagues, present their ideas to colleagues, suppliers and customers and demonstrate leadership skills.
<b>S5</b>	understand client needs, manage and monitor budgets, develop an awareness of the types of companies and company formations, their and their company's legal and statutory responsibilities and business management.

**14. Learning and teaching methods** *(this should include a summary of methods used throughout the programme, including any unique features)*

Learning activities will adopt an active learning approach, with a combination of lecture, individual work and group problem solving, research and analysis activities. Learners will be given access to electronic and physical research material through the University's library resources. In addition, all units will be supported by on-line VLE resources, encouraging learners to learn independently outside the classroom.

Reference will be made to the industrial context of each subject in learning activities, encouraging students to contribute knowledge and experience from their employment to enrich group learning.

Learners will develop practical skills, as required, at the AMRC Training Centre. Learners will have access to well-equipped IT suites and the centre's state of the art practical workshops, as appropriate.

Tutorial sessions will provide 1:1 support and guidance to all learners and will provide the opportunity for target setting and monitoring of learner progress.

**15. Assessment and feedback methods** *(this should include the range of types of methods used)*

Assessment will take the form of centre produced assignments, devised in accordance with Pearson's requirements and internally verified to ensure quality and fitness for purpose. Where possible, a range of assessment instruments will be used.

Assessment processes will follow Pearson's specifications for HN assessment and will be subject to internal verification, as required by Pearson. Learners will receive written formative and summative feedback, as required by Pearson, to allow learners to improve their grades in accordance with Pearson regulations.

All assessment activities will be subject to external scrutiny by an External Verifier, in accordance with Pearson external quality assurance requirements.

**16. Programme structure, progression and assessment regulations**

**16a. Standard Programme Information (pre-populated for all programmes)**

All programmes are expected to adhere to the University of Sheffield's General Regulations. Details of the University's General Regulations can be found here: <http://www.sheffield.ac.uk/calendar/>

Details of the programme structure and current modules can be found here:

<https://www.sheffield.ac.uk/calendar/regs>

Further information about studying at The University of Sheffield can be accessed via our web pages at:

<https://www.sheffield.ac.uk/study>

**16b. Progression and assessment requirements** *(this should capture information about e.g. progression hurdles, PSRB requirements, resit of component parts, module capping etc)*

The HNC programme is modular, being constructed of eight 15-credit units delivered over two years, with a total of 120 credits. All units have been designed by Pearson and units have been selected according to the published rules of combination. The programme is delivered on a part-time, day release basis.

Units are scheduled to allow logical progression in development of skills and knowledge. For example, Engineering Maths and Engineering Science are delivered in the first year, as prerequisites for subsequent specialist units.

Programme quality is monitored and assured, as required, through annual Assessment Boards, an annual Pearson programme review and routine internal quality assurance activities. The AMRC Education Committee provides programme oversight, in accordance with University regulations.

In the first year, students will develop their essential mathematical and analytical skills and knowledge by studying two core units: Engineering Maths, Engineering Science. Students contextualise and develop their learning further through the following specialist units, Analogue and Digital Electronics, and Automation, Robotics and PLCs. Where possible and appropriate, students are encouraged to draw upon their learning and experience in the workplace to contextualise their learning.

In the second year, students build on their first-year learning by studying the three final core units: Programming for Engineers, Professional Engineering Practice and Engineering Mechanics and Materials. In addition to building on prior learning, these units further develop students' transferable and intellectual skills and knowledge and require students to apply these skills and knowledge. During the second year, students also take a further specialist unit: Mechatronics.

**17. University scheme on optional Year Abroad or Placement Year**

*Schools should indicate here if students on this programme cannot apply for the University scheme(s) for an optional year abroad and / or placement year*

---

Version Number:	Purpose / Change:	Date:
1	New programme	December 2024