The University Of Sheffield.

Programme Specification

A statement of the knowledge, understanding and skills that underpin a taught programme of study leading to an award from The University of Sheffield

Programme Details

1. Programme title	Manufacturing Operations
2. Programme code	AMRU26
3. QAA FHEQ level	4
4. Faculty	Engineering
5. Department	AMRC
6. Other departments providing credit bearing modules for the programme	Management School
7. Accrediting Professional or Statutory Body	Not applicable
8. Date of production/revision	April 2020

Awards	Type of award	Duration
9. Final award	HNC	2 years
10. Intermediate awards		

Programme Codes

11. JACS code(s) *Select between one and three codes from the HESA website.*	H700		
12. HECoS code(s) *Select between one and three codes from the HECoS vocabulary.*	100209		

Programme Delivery

13. Mode of study	Part-time

14. Mode of delivery	Face-to-face and blended learning

15. Background to the programme and subject area

The HNC in Manufacturing Operations forms a mandatory qualification within the Engineering Manufacturing Technician apprenticeship standard which prepares apprentices for the role of Production Team Leader.

This apprenticeship compliments the AMRC-TC's current offer by providing a progression route for Engineering Technicians who are ready to develop the knowledge, skills and behaviours required of a Production Team Leader.

16. Programme aims

HNC in Manufacturing Operations aims to:	
A1	To provide students with the core knowledge, skills and techniques that all engineers/process leaders within manufacturing operations require to achieve high performance in this sector.
A2	To build a body of specialist knowledge, skills and techniques in order to be successful in a range of careers in manufacturing.
A3	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 within which they operate.
A4	To understand the responsibilities of the engineer/process leader within society, and equip them to work with integrity, regard for cost, sustainability and the rapid rate of change experienced in world-class engineering/manufacturing.
A5	To provide opportunities for students to enter, or progress in, employment within the manufacturing sector, or progress to higher education qualifications such as degrees and honours degrees in engineering or a closely related area, by balancing employability skills with academic attainment.
A6	To allow flexibility of study and to meet local or specialist needs.

17. Programme learning outcomes

Knowledge and understanding

On successful completion of the programme, students will be able to demonstrate knowledge and understanding of:

		Links to Aim(s)
K1	Manufacturing processes, supply chain management and relationships.	A1
K2	Methods of process planning and capacity assessment of manufacturing processes.	A2
K3	Mathematical, statistical, analytical and computational techniques to solve manufacturing problems and present data.	A2
K4	The factors leading to the fourth industrial revolution, the characteristics of a	A4

	smart factory and the factors to take account of when transitioning from industry 3.0 to industry 4.0.	
K5	Material and energy sources in terms of their sustainability and environmental impact.	A4
Skills and other attributes On successful completion of the programme, students will be able to:		
S1	Presenting data and solve manufacturing problems.	A2
S2	Justify the manufacturing processes selected in the production of components.	A1
S3	Plan and schedule manufacturing activities.	A3
S4	Analyse the key element of a project's viability.	A6
S5	Demonstrate effective leadership and communication skills.	A5

18. Learning and teaching methods

Blended learning will be used where appropriate, with instructional content provided for independent study time so that contact time can be used for exercises, problem cases and discussion. The instructional content will include a variety of pre-recorded lectures, quizzes, chapters from text books and other material.

Lectures will be pre-recorded for independent study or captured electronically; tutorials will be used to explore topics in more detail either through structured discussion or case studies; problem solving classes will provide time for students to identify specific problems, difficulties and solutions to develop their confidence and competence in problem solving. Students will be given more complex problems to solve in small groups or individually with staff support. Laboratory classes provide opportunities for students to practice and develop a range of discipline-based techniques, apply and investigate theoretical and conceptual knowledge, develop experimental techniques and approaches, analysing, interpreting and presenting their findings and data, developing personal and transferable skills such as problem solving, team working, following protocols and working safely.

19. Assessment and feedback methods

A variety of assessments will be used to assess students formatively, from timed assessments, coursework, laboratory reports and presentations. Formative assessments, in the form of short quizzes, formative lab reports, phase tests and mock exams.

Students will be given feedback from short quizzes through Blackboard, phase tests, and lab reports. Students will also be supported and receive individual and group feedback in problem solving classes.

20. Programme structure and student development

The programme is modular and includes mandatory modules (Manufacturing Processes, Manufacturing Planning and Scheduling Principles, and Engineering Maths), with additional optional modules.

These include Industry 4.0, Sustainability and the Environment in the Manufacturing Industry, Creating and Managing Projects in Manufacturing Operations, Introduction to Professional Engineering Management in order to continue to develop students analytical skills (Engineering Maths), their knowledge of key process (Manufacturing Processes), the wider impact of the manufacturing sector (Sustainability and the Environment) as well as modules such as Creating and

Managing and Projects and Introduction to Professional Engineering Management which will equip apprentices with key skills to succeed in their current role and provide underpinning knowledge and skills to continue to develop throughout their careers.

Students will complete their HNC and apprenticeship and may be eligible to apply for degree apprenticeships.

Detailed information about the structure of programmes, regulations concerning assessment and progression and descriptions of individual modules are published in the University Calendar available online at http://www.sheffield.ac.uk/calendar/.

21. Criteria for admission to the programme

Distinction Merit, BTEC Diploma (120 credits), passing the Higher Maths Assessment. Three years experience as an Engineering Technician.

22. Reference points

The learning outcomes have been developed to reflect the following points of reference:

Subject Benchmark Statements
https://www.qaa.ac.uk/quality-code/subject-benchmark-statements

Framework for Higher Education Qualifications (2014)
https://www.qaa.ac.uk/docs/qaa/quality-code/qualifications-frameworks.pdf

University Strategic Plan
http://www.sheffield.ac.uk/strategicplan

Learning and Teaching Strategy (2016-21)
https://www.sheffield.ac.uk/polopoly_fs/1.661828!/file/FinalStrategy.pdf

Institute for Apprenticeships and Technical Education
https://www.instituteforapprenticeships.org/apprenticeship-standards/engineering-manufacturing-technician/

23. Additional information

This programme is available for apprentices on the Engineering Manufacturing Technician apprenticeship standard.

This specification represents a concise statement about the main features of the programme and should be considered alongside other sources of information provided by the teaching department(s) and the University. In addition to programme specific information, further information about studying at The University of Sheffield can be accessed via our Student Services web site at http://www.shef.ac.uk/ssid.