Programme Specification HNC in Manufacturing Engineering

1.	**Awarding Institution/Body**	Edexcel
2.	**Teaching Institution**	Leeds City College
3.	**Collaborating Organisations** *(include type)*	N/A
4.	**Delivery Location(s)**	Keighley College (Leeds City College – Printworks)
5.	**Programme Externally Accredited by (e.g. PSRB)**	N/A
6.	**Award Title(s)**	BTEC Level 4 HNC Diploma in Manufacturing Engineering
7.	**Lead School**	N/A
8.	**Additional Contributing Schools**	N/A
9.	**FHEQ Level** *[see guidance]*	4
10.	**Bologna Cycle** *[see guidance]*	First Cycle
11.	**JACS Code and JACS Description**	H700
12.	**Mode of Attendance** *[full-time or part-time]*	Part-time
13.	**Relevant QAA Subject Benchmarking Group(s)**	Engineering Subject Benchmark Statement (2010)
14.	**Relevant Additional External Reference Points** *(e.g. National Occupational Standards, PSRB Standards)*	NOS in Manufacturing Engineering levels 4 & 5
15.	**Date of Production/Revision**	September 2017
16.	**Criteria for Admission to the Programme** *(if different from standard University criteria)*	Relevant A-levels, relevant BTEC Level 3 National Certificate at MM or above, also industrial experience will also be considered. GCSE Passes at Grade 4 (C) in English & Maths or Functional Skills at level 2 are mandatory

17. **Educational Aims of the Programme**

The curriculum has been designed to provide for those students who want a general Manufacturing Engineering education. The course provides sufficient scope for students to study topics that are of particular interest to them in the general area of Manufacturing Engineering. Project work provides opportunities to apply lecture and laboratory led content to the solution of practical problems and to introduce elements of management of an engineering enterprise.

The overall aims of the programme are to:

- Develop a range of skills and techniques, personal qualities and attributes essential for successful performance in working life and thereby enabling learners to make an immediate contribution to employment at the appropriate professional level;
- Provide preparation for a range of technical and management careers in manufacturing engineering;
- Equip individuals with knowledge, understanding and skills for success in employment in a wide range of engineering-based industries such as mechanical, electronic or automotive;
- Provide specialist studies relevant to individual vocations and professions in which learners are working or intend to seek employment in manufacturing engineering and its related industries
- Enable progression to an undergraduate degree or further professional qualification in mechanical and manufacturing engineering or related areas;
- Provide a significant educational base for progression to Incorporated Engineer level.

18. **Learning Outcomes**

The programme will enable students to develop the knowledge and skills listed in the Pearson Specification Document On successful completion of the programme, the student will be able to:-

Knowledge and Understanding*(insert additional rows as necessary)*	
K1	analyse, synthesise and summarise information critically
K2	apply subject knowledge and understanding to address familiar and unfamiliar problems
K3	use their knowledge, understanding and skills to evaluate and formulate evidence-based arguments critically and identify solutions to clearly defined problems of a general routine nature
Cognitive/Intellectual Skills*(insert additional rows as necessary)*	
C1	read and use appropriate literature with a full and critical understanding
C2	think independently, solve problems and devise innovative solutions
C3	design, plan, conduct and report on investigations
Practical/Professional Skills*(insert additional rows as necessary)*	
P1	take responsibility for their own learning and recognise their own learning style
Key Transferable Skills*(insert additional rows as necessary)*	
T1	communicate the results of their study and other work accurately and reliably using a range of specialist techniques
T2	identify and address their own major learning needs within defined contexts and to undertake guided further learning in new areas

	T3	apply their subject-related and transferable skills in contexts where the scope of the task and the criteria for decisions are generally well defined but where some personal responsibility and initiative is required.

https://qualifications.pearson.com/content/dam/pdf/BTEC-Higher-Nationals/General-Engineering/2017/forms-and-administration/qualification-guide-engineering.pdf

19. **Key Learning & Teaching Methods**

A mixture of lectures, tutorials, seminars and laboratory sessions will be used. The lecture programme will impart the necessary principles and concepts. The seminars will be a mixture of student and tutor led sessions considering practical examples of the principles and concepts. The tutorials will take the form of individual support and feedback for students by tutors or other students. Tutor led sessions will be held to provide an opportunity for students to work on examples and case studies in the areas covered by the lectures.

Student-led tutorials will consist of action learning activities, discussion groups and report-back sessions which allow students to develop their research, communication and teamwork skills.

20. **Key Assessment Methods**

Assessments relate directly to learning outcomes and one assessment tends to cover more than one learning outcome. Students are assessed in taught modules which are specifically designed to enable students to practise and develop their acquired skills and knowledge and students are assessed in accordance with the assessment schedule identified for the Programme.
Outcomes are assessed through a variety of assessment mechanisms including:

- Assignments
- Project work
- A Pearson set research project (Externally marked)

Programme Modules
(additional copies to be completed for each named pathway)

Level 4

Code	*Title*	*Credits*
1	Engineering Design	15
2	Engineering Maths	15
3	Engineering Science	15
4	Managing a Profession Engineering Project	15

Code	*Title*	*Credits*
14	Production Engineering for Manufacture	15
17	Quality & Process Improvement	15
7	Machining & Processing of Engineering Materials	15
10	Mechanical Workshop Practices	15

21.	**Programme Structure** Overview of structure of the modules across the academic year. The Edexcel BTEC Level 4 HNC in Manufacturing Engineering is a qualification with a minimum of 120 credits of which 90 are mandatory core, of which a minimum of 65 credits are required to be at level 4. In the first year the following modules are offered in Semester 1: • Machining & Processing of Engineering Materials • Engineering Maths With the following modules being offered in Semester 2: • Engineering Science • Mechanical Workshop Practices In the second year the following modules are offered in Semester 1: • Production Engineering for Manufacture • Engineering Design With the following modules being offered in Semester 2: • Quality & Process Improvement • Managing a Profession Engineering Project (Pearson Set)
22.	**Support for Students and Their Learning** The award adopts the following approach to student learning support: • Tailored induction support begins before students arrive with the admissions team, and is reinforced at the detailed induction programme • A robust communications system functions to give students access to lecturers and management; this includes e-mail, VLE and notice boards. • All necessary information about the programme is provided by means of the student handbook, module handbooks and the VLE. • Industrial support, where possible • The College provides an extensive range of services for students, including support for those with specific needs • Access to Student Services, which provide assistance and guidance e.g. counselling, dyslexia support. • Staff student ratios for teaching typically 15:1. • Well-equipped laboratory facilities • Dedicated technical support • Visiting speakers from industry (where relevant)

23.	**Distinctive Features** The HNC has been designed to enable students to develop a range of skills and techniques essential for a range of technical and management careers in the manufacturing engineering industry. The main area of work based learning is within both the Production Engineering & Quality improvement modules where students may be asked do a work-based project which tends to be set by their employer. The College is able provide additional support to students on Higher Education programmes through its robust links with industry, and through approaches to learning such as collaborative group work. This programme is designed for part-time students and as such students are likely to have worked in the industry in some capacity before, as well as during the programme. In some of the units students are expected to draw heavily on their industrial experience. The award focuses on the needs identified in the Leeds City Region Skills Audit that highlights a requirement for engineering and manufacturing engineering graduates.

Map of Outcomes to Modules

Please provide a map for each named pathway or separate award. Insert outcomes key across the top of each column, adding in additional columns where necessary, insert module names in the left of the grid and place an "A" in the box where the programme outcome is assessed.

For Undergraduate programmes please provide a map for each Stage, e.g. Stages 1 and 2 and programme outcomes for Honours degrees, and Stage 1 and programme outcomes for Foundation Degrees.

	Knowledge and Understanding											Cognitive skills									Applied skills				Transferable skills											
Unit	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	1	2	3	4	1	2	3	4	5	6	7	8	9	10	11	12
1	X			X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X		X	X	X	X
2	X											X						X					X		X			X							
3	X											X						X					X		X			X							
4	X	X	X	X	X	X	X	X	X	X												X	X		X		X				X	X	X	X	X	X
7	X	X	X								X	X	X					X							X											
9	X									X								X					X		X			X							
10	X											X						X					X		X										
14	X											X						X				X			X		X								
17	X									X													X		X										

Map of Teaching and Learning Methods

Year: 1

Examples – put in your own specific forms	Lectures	Seminars	Tutorials	Practical	Demonstrations	Case studies	Group activities	Independent Study
Engineering Maths	*		*					*
Engineering Science	*		*		*			*
Machining Engineering Materials	*	*		*	*	*	*	*
Mechanical Workshop Practice	*	*		*	*		*	*

Year : 2

Examples – put in your own specific forms	Lectures	Seminars	Tutorials	Practical	Demonstrations	Case studies	Group activities	Independent Study
Production Engineering for Manufacturing	*		*	*	*	*	*	*
Engineering Design	*	*	*		*	*	*	*
Quality & Process Improvement	*		*	*		*	*	*
Manage a Project (Pearson Set)	*		*			*		*

Map of Assessment Methods

Year : 1

Examples – put in your own specific forms	Negotiated learning agreement	Personal development plan	Assignments	WRL project	Reflective learning statement	Examination	Case study	Self evaluation	Peer assessment	Portfolio	Presentation
Engineering Maths			*								
Engineering Science			*								
Machining Engineering Materials			*				*			*	*
Mechanical Workshop Practice			*					*	*	*	

Year : 2

Examples – put in your own specific forms	Negotiated learning agreement	Personal development plan	Assignments	WRL project	Reflective learning statement	Examination	Case study	Self evaluation	Peer assessment	Portfolio	Presentation
Production Engineering for Manufacturing			*				*		*	*	*
Engineering Design			*				*		*	*	*
Quality & Process Improvement			*				*				
Manage a Project (Pearson Set)			*				*	*		*	*