

Programme specification

Award title: Manufacturing Management (Full Time, Semester A Intake, Option 1)

Title of programme:	Manufacturing Management (Full Time, Semester A Intake, Option 1)
Programme code:	PEMM
Awarding institution/body:	University of Hertfordshire
Teaching institution:	University of Hertfordshire
School:	School of Physics, Engineering and Computer Science
University/partner campuses:	University of Hertfordshire, Hatfield Campus
Programme accredited by:	Not Applicable
Final qualification:	Master of Science (MSc) [Level 7 Postgraduate Taught]
Final award title (qualification and subject):	MSc Manufacturing Management
UCAS code:	Not Applicable
FHEQ level of award:	7 PGT
Language of delivery:	English
This programme specification is relevant to:	2025-26
Students entering at:	Semester A
Related programmes:	
Mode of study:	Full Time
Typical duration:	1 Years
Version:	1.0
Version date:	01 May 2025
Version description	Initial version
Validation status:	Validated

What is a programme specification?

A programme specification is a collection of key information about a programme of study (or course). It identifies the aims and learning outcomes of the programme, lists the modules that make up each stage (or year) of the programme, and the teaching, learning and assessment methods used by teaching staff. It also describes the structure of the programme, its progression requirements and any programme-specific regulations. This information is therefore useful to potential students to help them choose the right programme of study, to current students on the programme, and to staff teaching and administering the programme.

This programme specification (PS) is designed for prospective students, enrolled students, academic staff and potential employers. It provides a concise summary of the main features of the programme and the intended learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the teaching, learning and assessment methods, learning outcomes and content for each module can be found in Definitive Module Documents (DMDs) and Module Guides.

Changes to your course or modules

Although it is never something we do lightly, we may in certain circumstances, make changes to the advertised content or structure or methods of delivery of your course or individual modules after you have accepted your offer, which may in certain cases include discontinuing a module. We cannot cover here every possible example of when we might decide to do so, but in normal circumstances it would only be for one or more of the following reasons:

- to reflect changes to the theory in an area of research or practices around the subject or its delivery
- to improve a course or a module (for example, to take account of feedback from students)
- to safeguard academic standards
- to comply with the requirements of an external professional, commissioning or accrediting body (for example, a requirement that certain course content be added, changed or removed or that a particular module is discontinued or included)
- to comply with legal, regulatory or governmental requirements
- to safeguard the health, safety and wellbeing of our students and staff
- where insufficient students have chosen an optional module making it unviable (*and where we have indicated in this Programme Specification that this might be a possibility*)
- where the University has found it difficult, for reasons beyond its control, to appoint a member of staff with appropriate expertise to ensure that an optional module can proceed where the change results from other circumstances outside our reasonable control

If we decide to make a change (other than one which is minor or insignificant) before you have registered on the course for the first time, we will inform you as soon as reasonably practicable so that you can decide whether or not you still wish to study with us. If as a consequence you decide not to study with us, we will refund any tuition fees and/or deposit that you have paid in advance in respect of the course in question. For further details regarding our refund policy please see our ***Fees and Finance Policy***.

If we decide to make a change (other than one which is minor or insignificant) after you have registered, we will similarly inform you as soon as reasonably practicable, and we will also use every reasonable effort to minimise any adverse effect it may have on you. If in spite of our efforts

the change is likely to have a serious adverse effect on you (for example, by prejudicing your future choice of career), we will try to find you a suitable alternative course or module with us or (if you prefer) we will try to suggest a suitable alternative course with another education provider. If you change course or module in these circumstances (or simply withdraw from your course), any entitlement you may have to a refund in tuition fees you have already paid will be determined in accordance with our **Fees and Finance Policy**.

In the case of a material change to a course or module, we will also in appropriate circumstances consult with student representatives with a view to identifying options for, and minimising any adverse effect on, affected students.

Some optional modules may have capacity issues and therefore we may not be able to guarantee you a place on your first choice.

More information about how we will try to protect you against changes to your modules or programmes can be found in our **Student Protection Plan** at <https://www.herts.ac.uk/study/your-offer-package>

Additional important points

The University of Hertfordshire has over 60 years' experience of teaching engineering, we have long-established links with the industry. Our links with businesses ensure that our courses are tailored to meet the needs of employers.

The MSc Manufacturing Management programme is designed to provide a rigorous and systematic understanding of the field, equipping students with the critical awareness and knowledge required to become a credible Manufacturing Management professional by developing further knowledge in the domain.

The programme is offered in full-time mode only.

The typical duration of study for full-time students is:

Semester A (September) entry (Option 1): one calendar year, with taught modules in Semesters A and B and the individual project in Semester C.

Semester A (September) entry (Option 2): 18 months, with a study pattern of Semesters A and B (taught modules) and the individual project in the following Semester A. Transfer from Option 1 to Option 2 is not normally allowed for students studying on a student visa, as it would change expected course end date to beyond visa expiration date.

Semester B entry (January): 18 months, with a study pattern of Semesters B, A then B.

Students study the same modules regardless of entry point.

Accreditation by the Institution of Engineering and Technology (IET) will be sought.

To comply with professional body regulations students must achieve, after all available attempts under the University regulations, a minimum of 40% (in any allowable attempt) at level 7, before the board of examiners will be able to consider compensation.

Maximum permissible compensation is 15 credits as per requirements of Professional Bodies.

The award presented in this course fact sheet is 180 credits. The Department also offers 240 credits versions of this award. However, transfer from the 180-credit to the 240-credit versions is not permitted.

Admissions information

The normal entry requirements for the programme are:

Qualification type	Subjects	Grades
English Language Proficiency		An IELTS score of 6.5 (or equivalent) (with no less than 5.5 in any band) would typically be required from candidates whose first language is not English.
Bachelors Degree	In any relevant engineering discipline.	A good (2:2 or above) Honours Degree.

Equivalent qualifications will be considered on an individual basis, such as the Access to HE Certificate or approved equivalent.

For current entry tariff point requirements, please refer to the relevant page for the Course on the University website or on the online prospectus.

The programme is subject to the University's Principles, Policies and Regulations for the Admission of Students to Undergraduate and Taught Postgraduate Programmes (in UPR SA03), along with associated procedures. These will take account of University policy and guidelines for assessing accredited prior certificated learning (APCL) and accredited prior experiential learning (APEL).

If you would like this information in an alternative format, please contact us via <https://ask.herts.ac.uk/contact-us>

If you wish to receive a copy of the External Examiner's Report for the programme, please email a request to aqo@herts.ac.uk

Additional admissions information

Interview/audition required:	No
Portfolio required:	No
DBS check required:	No
Occupational health check required:	No
GTC check required:	No

The academic year

The University's academic year is made up of 3 Semesters. For most undergraduate students the academic year is split into two Semesters (A & B). Each of these is made up of teaching weeks followed by exams (the re-sit period falls within Semester C). For further information please follow the link below

[Term and semester dates | Study | Uni of Herts](#)

Expected workload

In the UK, a full-time student is expected to spend 1200 hours on their studies each year. Please find below an estimate of how your time will be spent on this course during each year of study.

Year	Lectures, seminars, tutorials	Independent study	Placement
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Year 1 15% 85% 0%

Method of assessment

Year	Test	Written exam	Coursework	Practical
Year 1	10%	6%	81%	3%

Additional expenses

Please see below a list of expected materials you will need for your studies. You will be given detailed lists when the course starts.

Title	Description	Value type	Cost (£)
Equipment - Optional	Desktop or laptop computer. Please see: https://ask.herts.ac.uk/buying-a-computer-for-uni	Approximate	£400
Textbook - Optional	Texts to support the curriculum. Postgraduate study requires extensive reading and access to reference works. Recommended texts are available in the Learning Resource Centre either as eBooks or printed material. Please note that the availability of printed material may be limited so students may wish to purchase their own copies. The average price of a recommended text is £50, although you may be able to buy second-hand copies.	Approximate	£50

*Costs vary subject to supplier.

** This is an indicative cost – how much you use and need to replace these supplies will depend on your own style of working and process.

Programme specification detail

A: Programme rationale

The MSc Manufacturing Management programme is designed to provide a rigorous and systematic understanding of the field, equipping students with the critical awareness and knowledge required to become a credible Manufacturing Management professional by developing further knowledge in the domain.

On the MSc Manufacturing Management, the development of skills and advancement of knowledge focus on:

The broad areas of product design for manufacturing & supply chain, sustainable materials, applied lean process design, smart manufacture & asset management, logistics & operations strategy, procurement and inventory management, and continuous improvement and quality management.

Design orientated tasks, including analysis and synthesis, to develop relevant and applicable procedures and processes to resolve technical and ultimately business problems.

Critical review of the present knowledge base, its applicability, usage and relevance to enhance product and enterprise performance.

Students may gain employment in the relevant manufacturing and/or engineering industry sectors or other FMCG areas.

The successful postgraduates of the programme will acquire the knowledge and understanding, intellectual, practical, and transferable skills necessary for the analysis and synthesis of supply chain and manufacturing management problems through a combination of experimental, simulation, research methods and case studies. They can expect to gain work in a range of disciplines within a variety of industries from specialist technical roles to positions of management responsibility.

B: Educational aims of the programme

The programme has been devised in accordance with the University's graduate attributes of programmes of study as set out in UPR TL03.

https://www.herts.ac.uk/__data/assets/pdf_file/0018/235143/TL03-Learning-Teaching-Policy-GradAttributes-v07.0.pdf

Additionally this programme aims to:

Provide a quality education at postgraduate level in the disciplines of manufacturing management and supply chain management.

Provide an educational opportunity and experience to graduates and/or those with appropriate previous experience which enhances their prospects of professional employment in industry.

Provide a variety of awards of study through which the postgraduate may demonstrate competence, knowledge, skills and understanding, in and of selected disciplines in the field of manufacturing management and supply chain management.

Provide the students with the knowledge and understanding to equip them for a career in technical and management.

C: Intended learning outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills and other attributes in the following areas. The programme outcomes are referenced to the QAA benchmark statements for Art and Design and Business and Management and the Frameworks for Higher Education Qualifications of UK Degree-Awarding Bodies (2014) and relate to the typical student. Additionally, the SEEC Credit Level Descriptors for Further and Higher Education (2021) have been used as a guiding framework for curriculum design.

Programme outcomes

Learning outcomes are split into four different types.

Intellectual skills

On successful completion of this programme, a student will be able to:

- IS1 Be able to analyse and solve management problems related to a manufacturing environment.
- IS2 Be able to design, analyse and evaluate appropriate management systems and processes relevant to the discipline.
- IS3 Be able to critically review and select appropriate research methods to solve engineering and commercial problems.
- IS4 Be able to evaluate external influences and develop skills in ethical operations, showing insight into the commercial and social aspects in the context of manufacturing management.
- IS5 Be able to identify the influence of resource-related issues on operations and business.

Knowledge and understanding

On successful completion of this programme a student will have knowledge and understanding of:

- KU1 Demonstrate knowledge and understanding of business practices and limitations in the discipline of manufacturing management.
- KU2 Demonstrate knowledge and understanding of the roles and personal responsibilities when working in a team.
- KU3 Demonstrate knowledge and understanding of relevant techniques for commercial and professional practice in the context of manufacturing management.
- KU4 Demonstrate knowledge and understanding of operations management techniques and processes in the relevant sectors.
- KU5 Demonstrate knowledge and understanding of resource management planning and systems implications.
- KU6 Demonstrate knowledge and understanding of analytical techniques employed in management and process control.
- KU7 Demonstrate knowledge and understanding of relevant techniques for commercial and professional engineering practice in the context of manufacturing management.

Practical skills

On successful completion a student will be able to:

- PS1 Be able to apply experimental, analytical and modelling techniques to a range of business applications and draw conclusions.
- PS2 Be able to plan and manage projects, considering commercial, industrial and resource constraints.
- PS3 Be able to manage resource constraint implications on management decision-making.
- PS4 Be able to plan the effective implementation of appropriate management systems and processes.

Transferable skills

On successful completion of this programme, a student will be able to:

- TS1 Communicate effectively, orally and/or in writing.
- TS2 Manage time and resources effectively.
- TS3 Work effectively individually and/or within a team.
- TS4 Solve problems in a logical and coherent manner.
- TS5 Learn effectively and independently, in preparation for lifelong learning.

Graduate Attributes

Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses.

- GA1 Professionally Focused
- GA2 Globally Minded
- GA3 Sustainability Driven
- GA4 Digitally capable and confident
- GA5 Inclusive and collaborative
- GA6 Evidence based and ethical

D: Teaching methods

Knowledge and Understanding (KU):

Acquisition of knowledge and understanding of KU1-KU7 is through a combination of lectures, seminars, group discussions, tutorials, workshops, laboratory practical and written assignments.

Additional math support is provided via the math drop-in centre.

Staff will also deploy a range of teaching and learning strategies in the most appropriate way for each individual module, and this varies depending on the subject nature and its associated activities.

Throughout, the student is encouraged to undertake independent study both to supplement and consolidate what is being taught/learned and to broaden their individual knowledge and understanding of the subject.

Intellectual Skills (IS):

Intellectual skills (IS1 – IS5) are developed throughout the programme by the methods and strategies outlined in section A, above. Analysis, problem-solving, and modelling skills are further developed through case studies, class discussions, in-course exercises, assignments, tests, and exams.

Analysis, problem-solving, and simulation skills are further developed through tutorial work, practical sessions, and project work.

Design and IT skills are further developed through project work.

Throughout, the learner is encouraged to develop intellectual skills further through independent study.

Practical Skills (PS):

Practical skills are developed throughout the programme through a series of case studies, experimental and simulation exercises, project reports and presentations, moving from a more didactic approach to an increasingly self-directed and interactive approach depending on the nature of the module.

Skills (PS1 – PS4) are developed through the programme of study and associated software simulation tools, written reports, lab exercises and submissions.

PS1-PS4 are also developed throughout the programme of the study, with one-to-one supervision during the MSc individual project.

Feedback is provided to all students on all coursework produced.

Transferable Skills (TS):

Transferable skills are developed throughout the programme by using group discussions and report writing and require students to manage their own time for achieving targets.

Skill TS1 is developed through coursework reports, oral presentations, research methods and the project report.

Skill TS2 is developed through meeting deadlines for scheduled assignments and the individual project.

Skills TS3, TS4 and TS5 are developed throughout most modules, through lectures, group work, assessments, and the individual project.

Skill TS5 is encouraged and developed by the nature of the programme of study and the acquisition of transferable skills.

Throughout, the student is encouraged to develop transferable skills by maintaining a record of evidence and completing a personal development plan.

E: Assessment strategy

The programme complies with the University's academic regulations (in particular, UPR AS11, UPR AS12/UPR AS13 and UPR AS14) with the exception of those listed below, which have been approved by the University:

<https://www.herts.ac.uk/about-us/our-leadership-strategy-and-plans/our-governance-and-leadership/university-policies-and-regulations-uprs>

Assessment Strategy for:

Knowledge and Understanding (KU):

Knowledge and understanding are assessed through a combination of exams, coursework in the form of critical analysis reports, laboratory reports, essays and class-based test or quizzes. KU1-KU7 can also be assessed through laboratory practical, presentations and design exercises.

Intellectual Skills (IS):

Intellectual skills (IS1 – IS5) are assessed through case studies, experiential work, tutorials, assignments, lab reports, reports, class-based tests, and examinations.

These are supported by work centred on analysis and synthesis, and problem-solving, in technical contexts.

Practical Skills (PS):

Practical skills are assessed through laboratory reports, coursework assignments, design exercise submissions, case study reports, presentations, and project reports.

Transferable Skills (TS):

Transferable skills TS1-TS5 are assessed through assignment work and the project.

F: Programme specific assessment regulations

The programme is compliant with the University's academic regulations (in particular, UPR AS11, UPR AS12 and UPR AS14) with the exception of those listed below, which have been specifically approved by the University:

MSc Individual Project (Supply Chain & Manufacturing) 7ENT2107 cannot be compensated and must be included in the calculation for the award.

MSc Engineering (Manufacturing Management) is an unaccredited award that does not meet PSRB compensation requirements and is only applicable to students registered on the 180-credit award.

MSc Manufacturing Technology is an unaccredited award that does not meet PSRB compensation and accreditation requirements and is only applicable to students registered on one of the 240-credit awards. Students must have completed their 60-credit individual project plus any 120-credit combination of modules (e.g. 60 credits of core manufacturing modules, 60 credits of with Advanced Project modules, and the 60-credit individual project).

To comply with professional body regulations students must achieve, after all available attempts under the University regulations, a minimum of 40% (in any allowable attempt) at level 7, before the board of examiners will be able to consider compensation.

Maximum permissible compensation is 15 credits as per requirements of Professional Bodies.

Further points of clarification and interpretation relevant to this specific programme are given below:

To enrol on the MSc Individual Project module, students must have studied 120 credits of taught modules from the programme and passed at least 60 credits (UPR AS14, D5.2.3).

Students who are registered on any of the 180-credit awards are not eligible to transfer to the corresponding 240-credit award.

Students who are registered on any of the 240-credit awards may be eligible to transfer to the corresponding 180-credit award. Transfer requests will be considered on a case-by-case basis.

G: Professional accreditation requirements

Not Applicable

H: Management of programme and support for student learning

Management

The programme is managed and administered through:

- The programme is managed and administered through:
- The Programme Leader, who is responsible for advising students on the programme as a whole and chairing the programme committee.
- Student representatives on programme committees.
- Module Leaders.
- A designated administrative team to deal with day-to-day administration associated with the modules within the programme.

Support

Students are supported by:

- Students are supported by: An induction week at the beginning of each new academic session.
- A nominated member of academic staff who will be an important point of contact, able to help you gain a good understanding of the School and programme you are studying.
- A School-based Academic Support Hub, that provides group and 1:1 academic support.
- A substantial Student Centre that provides advice on issues such as finance, University regulations, legal matters, accommodation, international student support, etc.
- Office of Dean of Students, Student Wellbeing (incorporating Counselling, Mental Health and Disability Support), Chaplaincy, and Day Nursery.
- A versatile online interactive intranet and learning environment.
- Guided student-centred learning on Canvas module sites.

- Access to extensive digital and print collections of information resources.
- Attractive modern study environments in 3 Learning Resources Centres.
- Student Success Hubs, which include a Mathematics Drop-in Centre.
- Medical Centre.
- University Disability Advisors.
- Careers and Employment.
- Hertfordshire Student's Union.
- Dedicated programme site.

I: Programme structures, features, levels, modules, and credits

Programme structure

Year: Year 1 The award of an MSc Manufacturing Management requires 180 credit points. Maximum credits: 180					
Semester	Module Code	Module Title	Credits	Level	Core/optional
Semester A	7ENT2069	Product Design for Manufacture and Supply Chain	15	7	Core
Semester A	7ENT2071	Sustainable Materials	15	7	Core
Semester A	7ENT2072	Applied Lean Process Design	30	7	Core
Semester B	7ENT2066	Quality Management and Continuous Improvement	15	7	Core
Semester B	7ENT2067	Logistics and Operations Strategy	15	7	Core
Semester B	7ENT2068	Procurement and Inventory Management	15	7	Core
Semester B	7ENT2070	Smart Manufacturing and Asset Management	15	7	Core
Semester C, A	7ENT2107	MSc Individual Project (Supply Chain & Manufacturing)	60	7	Core

Final and interim awards available

Final award	Award title	Minimum requirements	Available at the end of level
MSc	Manufacturing Management	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm 180 credits, to include at least 150 credits @ Level 7 (with no more than 15 credits below Level 6) The title 'Master of Science' is generally used where studies are substantially based on science, engineering or mathematics and their applications. It can also be used in social sciences.	7 PGT
Interim award	Award title	Minimum requirements	Available at the end of level

MSc	Engineering (Manufacturing Management)	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm 180 credits, to include at least 150 credits @ Level 7 (with no more than 15 credits below Level 6) The title 'Master of Science' is generally used where studies are substantially based on science, engineering or mathematics and their applications. It can also be used in social sciences.	7 PGT
MSc	Manufacturing Technology	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm 180 credits, to include at least 150 credits @ Level 7 (with no more than 15 credits below Level 6) The title 'Master of Science' is generally used where studies are substantially based on science, engineering or mathematics and their applications. It can also be used in social sciences.	7 PGT
PGCert	(Untitled)	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm 60 credits, to include at least 45 credits @ Level 7	7 PGT
PGDip	Manufacturing Management	See UPR AS11, section 13: http://sitem.herts.ac.uk/secreg/upr/AS11.htm 120 credits, to include at least 90 credits @ Level 7 (with no more than 15 credits below Level 6)	7 PGT

Other sources of information

In addition to this Programme Specification, the University publishes guidance to registered students on the programme and its constituent modules:

- A dedicated programme site on the University's Virtual Learning Environment (Canvas);
- A Definitive Module Document (DMD) for each constituent module;

The [Ask Herts](#) website provides information on a wide range of resources and services available at the University of Hertfordshire including academic support, accommodation, fees, funding, visas, wellbeing services and student societies.

As a condition of registration, all students of the University of Hertfordshire are required to comply with the University's rules, regulations and procedures. These are published in a series of documents called 'University Policies and Regulations' (UPRs). The University requires that all students consult these documents which are available on-line, on the UPR web site, at: <http://www.herts.ac.uk/secreg/upr/>. In particular, [UPR SA07](#) 'Regulations and Advice for Students' Particular Attention - Index' provides information on the UPRs that contain the academic regulations of particular relevance for undergraduate and taught postgraduate students.

In accordance with section 4(5) of the Higher Education and Research Act 2017 (HERA), the UK Office for Students (OfS) has registered the University of Hertfordshire in the register of English higher education providers. The Register can be viewed at: <https://www.officeforstudents.org.uk/advice-and-guidance/the-register/the-ofs-register/>.

Furthermore, the OfS has judged that the University of Hertfordshire delivers consistently very high-quality teaching, learning and outcomes for its students. Consequently, the University received a Silver award in the 2023 Teaching Excellence Framework (TEF) exercise. This award was made in October 2023 and is valid for up to 4 years. The TEF panel's report and conclusions can be accessed [via this link](#).

J: Development of intended programme learning outcomes in the constituent modules

These maps identify where the programme learning outcomes are assessed in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the programme aims (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

X = Delivered and Assessed

Module Code	IS 1	IS 2	IS 3	IS 4	IS 5	KU 1	KU 2	KU 3	KU 4	KU 5	KU 6	KU 7	PS 1	PS 2	PS 3	PS 4	TS 1	TS 2	TS 3	TS 4	TS 5	
7ENT2066	X	X	X		X		X	X	X		X			X	X	X				X		
7ENT2067	X	X	X	X		X	X	X	X	X	X		X	X		X	X	X	X			
7ENT2068				X	X	X		X		X	X	X	X	X		X	X	X	X	X	X	X
7ENT2069	X	X		X	X	X		X			X	X	X		X		X		X	X	X	X
7ENT2070	X	X	X		X	X	X		X	X		X		X	X	X	X	X			X	X
7ENT2071		X	X	X	X	X		X		X	X	X	X		X				X	X	X	X
7ENT2072	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7ENT2107	X					X	X		X	X	X	X	X	X	X	X	X			X	X	X

Key to module codes

Module code	Level	Title
7ENT2066	7	Quality Management and Continuous Improvement
7ENT2067	7	Logistics and Operations Strategy
7ENT2068	7	Procurement and Inventory Management
7ENT2069	7	Product Design for Manufacture and Supply Chain
7ENT2070	7	Smart Manufacturing and Asset Management
7ENT2071	7	Sustainable Materials
7ENT2072	7	Applied Lean Process Design
7ENT2107	7	MSc Individual Project (Supply Chain & Manufacturing)

Key to programme learning outcomes for Intellectual Skills

- IS1 Be able to analyse and solve management problems related to a manufacturing environment.
- IS2 Be able to design, analyse and evaluate appropriate management systems and processes relevant to the discipline.
- IS3 Be able to critically review and select appropriate research methods to solve engineering and commercial problems.
- IS4 Be able to evaluate external influences and develop skills in ethical operations, showing insight into the commercial and social aspects in the context of manufacturing management.
- IS5 Be able to identify the influence of resource-related issues on operations and business.

Key to programme learning outcomes for Knowledge and Understanding

- KU1 Demonstrate knowledge and understanding of business practices and limitations in the discipline of manufacturing management.
- KU2 Demonstrate knowledge and understanding of the roles and personal responsibilities when working in a team.
- KU3 Demonstrate knowledge and understanding of relevant techniques for commercial and professional practice in the context of manufacturing management.
- KU4 Demonstrate knowledge and understanding of operations management techniques and processes in the relevant sectors.
- KU5 Demonstrate knowledge and understanding of resource management planning and systems implications.
- KU6 Demonstrate knowledge and understanding of analytical techniques employed in management and process control.
- KU7 Demonstrate knowledge and understanding of relevant techniques for commercial and professional engineering practice in the context of manufacturing management.

Key to programme learning outcomes for Practical Skills

- PS1 Be able to apply experimental, analytical and modelling techniques to a range of business applications and draw conclusions.
- PS2 Be able to plan and manage projects, considering commercial, industrial and resource constraints.
- PS3 Be able to manage resource constraint implications on management decision-making.
- PS4 Be able to plan the effective implementation of appropriate management systems and processes.

Key to programme learning outcomes for Transferrable Skills

- TS1 Communicate effectively, orally and/or in writing.
- TS2 Manage time and resources effectively.
- TS3 Work effectively individually and/or within a team.
- TS4 Solve problems in a logical and coherent manner.
- TS5 Learn effectively and independently, in preparation for lifelong learning.

Development of Graduate Attributes in the constituent modules

This map identifies where the Graduate Attributes are delivered in the constituent modules. It provides (i) an aid to academic staff in understanding how individual modules contribute to the development of the Graduate Attributes (ii) a checklist for quality control purposes and (iii) a means to help students monitor their own personal and professional development as the programme progresses. [Note that there is no requirement for the Graduate Attributes to be assessed through these modules]

D = Delivered

Module Title	Module Code	Level	Professionally Focused	Globally Minded	Sustainability Driven	Digitally Capable & Confident	Inclusive and Collaborative	Evidenced-based and Ethical
Quality Management and Continuous Improvement	7ENT2066	7 PGT	D	D	D	D	D	D
Logistics and Operations Strategy	7ENT2067	7 PGT	D	D	D	D	D	D
Procurement and Inventory Management	7ENT2068	7 PGT	D	D	D	D	D	D
Product Design for Manufacture and Supply Chain	7ENT2069	7 PGT	D	D	D	D	D	D
Smart Manufacturing and Asset Management	7ENT2070	7 PGT	D	D	D	D	D	D
Sustainable Materials	7ENT2071	7 PGT	D	D	D	D	D	D
Applied Lean Process Design	7ENT2072	7 PGT	D	D	D	D	D	D
MSc Individual Project (Supply Chain & Manufacturing)	7ENT2107	7 PGT				D		D