

Engineering Management MSc programme specification

Academic Year:	2026/27
Degree Awarding Body:	University of Bradford
Subject Benchmark(s):	Engineering (QAA 2015), Masters in Business and Management (QAA 2019)
Qualifications Framework:	Framework for Higher Education Qualifications in England (FHEQ) (QAA 2014)
Target Degree Award:	Master of Science in Engineering Management [FHEQ Level 7]
Intermediate/exit diploma award:	Postgraduate Diploma [FHEQ level 7]
Intermediate/exit certificate award:	Postgraduate Certificate [FHEQ level 7]
Programme admissions:	September and January
Programme mode(s) of study:	12 months full-time

Please note: The University has a set of terms and conditions for all students accepting an offer to study on a course here at Bradford. This is called the Student Contract. This document sets out the Terms and Conditions which apply when you accept an offer of a place on a programme of study at the University of Bradford. [View our Student Contract for further details](#). Information about this programme and its modules has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but changes may occur given the interval between publishing and commencement of teaching. Any change which impacts the terms and conditions of an applicant's offer will be communicated to them.

Minor Modification Schedule

1. April 2024: Annual changes for 2024/25 approved.
2. September 2025: Annual changes for 2025/26 including new academic regulations.
3. April 2026: Minor corrections and format updates only.

Introduction

Engineering activities are critical in the design and creation of products and services, adding value to national economies and contributing to social prosperity. The engineering profession serves people by creating technical solutions to satisfy their needs, creating and managing the humankind environment of the modern and future world. Thus, the engineering profession requires well-qualified and motivated professionals to lead the design and implementation of more sustainable solutions. Future leaders in the engineering profession need to develop their managerial skills to apply more effectively their technical knowledge. Our MSc programme in Engineering Management will help you to develop and apply relevant management skills to complement and support your

engineering knowledge and experience. This combination of skills will help you to further accelerate your engineering career progression into a senior or managerial position

The MSc in Engineering Management is suited to recent graduates as much as engineering professionals with more experience and at different points of their career to learn and apply management principles, toolkits and skills in wide ranging engineering context and environment. It is important to emphasise that our programme is designed with a broad and multidisciplinary industrial view, making it appropriate for different engineering disciplines. The programme has been designed by engineers for engineers, with learning activities and materials including concepts, principles, techniques, tools, analysis of case studies, projects, etc. applied to engineering problems or activities.

Programme Aims

The programme is intended to:

- Provide students with advanced and coherent theoretical knowledge, concepts, discipline skills and personal transferable skills necessary for original thought, holistic thinking, and analysis of complex problems related to the application of management principles and tools to support and enhance engineering activities in organisations and providing sustainable solutions.
- Facilitate exposure to other engineering disciplines.
- Provide a supportive structured environment in which students are encouraged to develop and enhance research and independent learning skills.
- Enable students to carry out independently a specific research project applying their acquired knowledge on management principles, with the support of an academic supervisor.
- Enable students to move directly into responsible roles in employment with a minimum of additional training, or to pursue programmes of further study.

Programme Summary

This Postgraduate programme has a strong input from industry, as it is built on our research, which it is often conducted jointly with industrial organisations. In this way, you will develop the skills to apply decision-making and manage engineering activities, operations, and transformation initiatives to address technological and sustainability challenges in organisations, benefiting both industry and society. The themes of sustainability, circular economy and industry 4.0 are embedded along different modules in our programme to align it with the contemporary and future needs and challenges of industry.

The core modules of the programme will provide students with advanced understanding in strategic management principles and the analysis of relevant costs in engineering projects, project planning and control, operations and supply chain management, the concept of sustainability, circular economy and innovation management, and risk management principles. These modules will cover essential management skills to support your engineering knowledge. Furthermore, these core modules will emphasise the concepts of sustainability and circular economy, to highlight their importance in the current business environment.

The range of optional modules will allow students to develop further knowledge in other multidisciplinary areas. Thus, you will be able to build up a portfolio of expertise across these themes of your professional interest. These optional modules include areas relevant to industry 4.0, like industrial big data analysis and mining. Other areas covered by optional modules include Oil and Gas Management for students interested in working in this global industry. Finally, an optional module on project management is available to students who want to acquire more knowledge on project management and the six-sigma (6σ) process improvement methodology.

The major MSc Project module (dissertation) will help students to further develop their research and project management skills whilst undertaking in-depth study of a particular engineering management topic. The MSc Project topics are usually linked with on-going research within the School. This, the MSc Project will have an emphasis on application, experiential learning and addressing current real-world issues, which will enhance your student experience. This module will make a major contribution in strengthening your skills' set and attributes for enhanced employability.

Utilising the expertise of our Faculty and the support of our Industrial Advisory Board, this programme will help students to develop a holistic thinking practice in applying their managerial skills when they take over leading roles in industry. Thus, our programme is aligned with the strategic mission of the University of Bradford to drive sustainable and economic development through the outstanding teaching delivered by our Faculties and also delivering a programme that is research informed and with a strong focus on innovation.

The Bradford Graduate

We aim to produce MSc graduates who are creative, innovative, versatile, analytical, confident, competitive, and equipped with interpersonal skills which will allow them to become successful professionals. MSc graduates in this programme will be able to apply their technical and managerial knowledge to conceive and lead sustainable solutions to engineering management problems related to specialist and interdisciplinary projects, contributing to enhance the operational performance and sustainability of organisations. These knowledge and abilities will facilitate our graduates to progress their careers rapidly into professional positions of responsibility with minimal additional training.

- Upon graduation students will be able to take engineering related roles in which they can apply their technical expertise and managerial skills to progress rapidly to positions of greater responsibility.
- Students will develop high-level professional and interpersonal skills gained from learning through a team-based environment. This is a learning strategy where students have spent their time conceiving, designing, implementing, and operating solutions to problems that they have tackled as part of a learning team.
- Students will be adept at working with complex value-added engineering systems and understand the key factors influencing the successful management of those systems. This, students will be familiar with applying a system thinking approach and with having a solid understanding of the business and enterprise context.

- In addition, the ability of an engineer to think clearly, logically and ethically is widely appreciated by many other professions. In this way, your studies at Bradford may well be a stepping-stone to an alternative career in financial services, consulting, teaching, etc.
- Alternatively, students could pursue a research career. They will have highly developed research skills and their personal tutor can help them identify postgraduate research opportunities here at Bradford or elsewhere.
- Another well-travelled route open to students on graduation is to develop their own business. As a Bradford graduate, you will have the ability to combine your managerial skills with your engineering knowledge to design and develop products processes or systems that could have serious commercial potential. We have a long track record of supporting and developing new companies and helping graduates on those first steps as an entrepreneur.

Studying MSc Engineering Management at the University of Bradford will be a foundation for life, personal and professional, aimed at developing an advanced understanding of managerial principles and competence in their application to support the development of technical solutions to engineering problems. Furthermore, as part of this journey, you will develop a wide range of personal and professional skills.

The University of Bradford

Lecturers at Bradford are active researchers in their fields of expertise, developing new knowledge, contributing to peer-reviewed journals and books. This research permeates their teaching practice giving students access to world leading professionals, equipment, and ideas within the University's recent academic research themes of Innovative Engineering, Advanced Healthcare and Sustainable Societies. Our programme of study will include research with an emphasis on application, experiential learning and real-world engagement. This will make a major contribution to student's skill set, enhancing your employability prospects.

We recognise that society benefits from the talents of all, and that the development of creative, collaborative professionals, skilled in communication and teamwork is vital. Diverse engineering teams are known to be more innovative. We help students to contribute to and learn from the varied perspectives of their tutors and peers. We want to equip our graduates with the knowledge and skills to respond to the many different and ever-changing needs of our societies and businesses. We create opportunities, spaces and resources to promote proactive dialogue among staff and students to integrate all cultures and enhance the curriculum.

[The Faculty of Management, Sciences and Engineering](#) welcomes and celebrates the diverse cultural and national backgrounds of our students. We are committed to an educational experience that is inclusive of the diversity of the students and staff, and that addresses attainment gaps within our student body, particularly those between BME and white students. The University of Bradford holds Bronze [Athena Swan Charter](#) and [Race Equality Charter](#) accreditations from [AdvanceHE](#), recognising our commitment to advancing the careers of everyone in STEM.

We also recognise that the future for engineers is one where they will be working in interdisciplinary teams to solve new, complex and evolving problems that will require innovative solutions. Students' ability to work across engineering disciplines and collaboratively with experts in other specialist

fields will be crucial to creating the solutions of tomorrow. We have designed our programmes to encourage and experience interdisciplinary working, to develop breadth as well as depth of skills and knowledge, and in this way, we believe students will be ideally equipped to be successful and employable.

The University recognises the importance of providing pastoral support, taking into consideration all aspects of our students' journeys and development. All students are allocated a personal academic tutor, with whom they meet regularly to discuss and receive guidance on their learning and development. The University also operates a wide range of support services covering areas such as disability, counselling, faith advisors and careers accessible from the Student Life Service.

Programme Learning Outcomes

On successful completion of the programme, holders of a Master of Science degree award will be able to demonstrate all of the following outcomes:

- 1.** Apply coherent knowledge of relevant management principles, systematically applying them to enhance activities and processes in different engineering disciplines, applying knowledge (possibly at discipline forefront), understanding and skills to work with (incomplete or uncertain) information, quantifying the effect of this on those activities and processes, and using theory or experiment to mitigate deficiencies.
- 2.** Identify and critically evaluate current complex engineering management problems and/or new insights informed by the specialisation forefront and apply and adapt knowledge and comprehensive understanding of management principles and appropriate tools in unfamiliar situations to create safe, secure, innovative and sustainable solutions.
- 3.** Work effectively in a team in order to meet shared objectives and develop leadership skills.
- 4.** Develop awareness of the need for a high level of professional and ethical conduct in engineering, evidencing appreciation of global social responsibilities and awareness of commercial and management practices relevant to engineering activities and engineers.
- 5.** Apply depth and breadth knowledge to develop advanced engineering management proficiency and developing the ability to integrate knowledge from different engineering and professional disciplines to create innovative and sustainable solutions.
- 6.** Integrate management and engineering knowledge and awareness to understand new and emerging technologies, applying professional judgements to balance risks, cost, benefits, circularity and environmental impact.
- 7.** Develop the skill to select and apply advanced quantitative and computational analysis techniques to design and/or evaluate of organisational operations and business models in the context of complex systems, addressing issues of incomplete data and discussing the limitations of the methods employed.
- 8.** Apply skills in problem solving, communication, information retrieval, working effectively with general IT facilities to develop, monitor and update a plan for the solution of both technical and personnel contributions to meeting organisational need.

9. Plan self-learning to improve performance as a foundation for lifelong learning/CPD, maybe as a team member or leader, exercise initiative and personal responsibility in professional practice, enhancing awareness of commercial and engineering practice, evidence good negotiation, written and oral communication skills.
10. Plan, implement, monitor and adjust on an on-going basis, a self-directed individual research programme of work related to the advanced application of engineering management proficiency and skills in a wide ranging engineering context, evidencing collection and critical analysis of research data, use or adaptation of appropriate analysis tools to tackle unfamiliar problems (e.g. those with uncertain or incomplete data or specification), innovation, and application of relevant skills, reflection, and research methodologies in the production of an advanced dissertation.

Curriculum

The MSc programme consist of 180 credits. Students study a total of 60 credits each in Semesters 1 and 2, plus the 60 credit MSc Project module across the whole year.

The programme has two entry points: September and January, which are the start of the University's two Semester study periods where the summer is a third period. Students who enter via the September intake will carry out their studies via the semester sequence (1,2,3), whilst those students who enter onto the course in January will study semesters in the sequence (2,3,1).

All students study 100 core taught credits. In the Semester 2 (January) period, students select 1 of 3 option modules for the final 20 taught credits with the completed MSc Project worth the remaining 60 credits.

Table 1: MSc Engineering Management FHEQ Level 7 modules (cores/options)

Mod. Code	Module Title	Credit	Study Period	Selection
ENB7012-B	Project Planning and Control	20	Autumn (Sem1)	Core
ENB7010-B	Strategic Management and Cost Engineering	20	Autumn (Sem1)	Core
ENB7008-B	Supply Chain Management and Production	20	Autumn (Sem1)	Core
ENB7007-B	Risk Assessment and Management	20	Spring (Sem2)	Core
ENB7011-B	Sustainability and Innovation for Engineers	20	Spring (Sem2)	Core
ENB7009-B	Project Management and Six Sigma	20	Spring (Sem2)	Option 1
COS7050-B	Industrial Big Data Analysis and Mining	20	Spring (Sem2)	Option 2
CPE7013-B	Oil and Gas Management	20	Spring (Sem2)	Option 3
ENG7002-E	MSc Project	60	Full Year (123)	Sept Start Core
ENG7002-E	MSc Project	60	NS Year (231)	Jan Start Core

Students will be eligible to exit with the award of Postgraduate Certificate if they have successfully completed 60 credits. Students will be eligible to exit with the award of Postgraduate Diploma if they have successfully completed at least 120 credits.

Students will be eligible for the award of Degree of Master if they have successfully completed at least 180 credits and achieved the award learning outcomes.

Learning and Teaching Strategy

The programme's teaching and learning strategy takes into consideration the learning outcomes, the nature of the subject and the student intake, and the need for students to take greater responsibility for their own learning as they progress through the Programme.

Our strategy begins with the end in mind. We want students to become great engineers and managers who are able to provide holistic and creative solutions, becoming great problem solvers, great team-workers with an inquisitive and curious mind, with a strong business awareness and demonstrating leadership skills. This should mean that by the end of their study with us they can move seamlessly into the world of work, academic research or become an entrepreneur.

The teaching and learning methods have been selected to engage students in developing their knowledge and understanding of management fundamentals applied to different engineering disciplines through formal learning opportunities such as lectures, tutorials, experiential learning through practical classes and computer lab sessions, oral presentations, and informal and social learning through team-working in projects.

As a distinctive approach to promote teamworking, participation in multidisciplinary group discussions and develop presentation skills, several tutorial sessions in core modules (e.g. Supply Chain Management and Production, Sustainability and Innovation for Engineers, and Strategic Management and Cost Engineering) will include group discussions to analyse case studies with relevant engineering management problems. Representatives of the discussion groups will present their findings and reflection at the end of the sessions. Feedback will be provided by the instructor and by peers. This approach will help to develop interpersonal and intercultural skills. Furthermore, it will also allow to promote a sense of programme identity and enhance a cohesive student experience.

This combination of teaching and learning methods will help to engage and keep students purposeful and motivated, with a sustained effort throughout their learning journey. Team-working will be used to foster collaborations and a sense of community between the students. Opportunities will also be provided for self-evaluation and reflection, so that students can learn to self-regulate.

Study with us will include formal lectures (including those from visiting professors and guest speakers from industry), but these will always be interactive and two way. We want to develop student's understanding of the vast array of opportunities open to today's professional engineer and therefore we look to incorporate aspects of real-world engineering and managerial problems and solutions where possible. To this end we make use of case studies, practical demonstrations, and provide opportunities for students to propose and elaborate their own solutions.

To support MSc students to prepare better regarding development of academic skills and engagement with the MSc project module (60 credits), we deliver a series of three seminars related to the MSc Project module for both cohorts of MSc students (September and January intake).

These seminars are delivered in the first semester when these students join their programme of study. These seminars cover: an introduction to the MSc Project module (including allocation process, key deadlines, supervision meetings, library resources, etc.), a library seminar about research skills to find information, and a library seminar about referencing and plagiarism. After the exams in Semester 2, we deliver a seminar for all Engineering MSc students to emphasise key information and provide further support to carry out the MSc project during the summer months (June to August). In addition, we organise a meeting with all MSc students in the Mechanical and Energy Systems Engineering Department to discuss their student experience and to promote the sense of programme identity within the department. Particularly, this will help January entry students to engage quickly with their MSc project.

As part of our focus on building a learning experience which will prepare students for the world of work our curriculum has been developed using the **Conceive Design Implement Operate (CDIO)** framework for engineering. This means that our learning strategy will be to encourage students to work in teams to **Conceive** potential solutions, **Design** new products, processes or services, **Implement** (or model) and test those designs and processes, and elaborate on the **Operation** of the product or solution. In line with the CDIO innovative educational framework for engineering, students will have numerous opportunities to be an active learner, to think and execute as an engineer leading real-world projects and reflecting on operational and implementation aspects.

Assessment Strategy

In the same way that our teaching and learning strategy is designed to prepare students for the world of work, academic research or entrepreneurship, our assessment methods incorporate a wide range of different methods designed to meet the needs of industry and accrediting bodies as well as prepare students for a potential academic research career.

Assessment is a key part of the learning process, it is only through challenging themselves to express what they have learned or put it to practical use, can students complete the learning journey and assess for themselves if they have understood what they have been taught and are able to apply and use that skill and knowledge. There are two forms of assessment formative assessment which provides an opportunity for our staff will give students feedback during their learning. This feedback is designed to help and guide learning. All the modules will have some formative assessment, and this may be in various forms including discussions or questioning from the supervisor, tests, practical activities, et cetera. These formative activities are crucial if students are to make best use of their learning experience and they are designed to prepare students for their summative assessment. Summative assessment is how we grade the work on a module and the details of this assessment will be available from the beginning of the module so that students understand how the grade will be determined.

Each assessment on the programme is tailored to the specific learning outcomes and is structured to ensure that the learning is embedded by application of knowledge to real world examples. This is aligned with our CDIO strategy. The design of assessments also considers ensuring academic integrity aspects. Thus, individual and group coursework, lab reports, presentations, etc. are designed to be very specific to allow students to demonstrate their knowledge and own work. Project work will often be assessed on the basis of the quality of the product or process produced

by the students as part of their own projects. We use practical tests to assess practical skills and written reports to show the depth of understanding of concepts and ideas. Practical skills are often assessed via individual and group technical reports with the computer/laboratory work linked with the taught modules. The methods of assessment of transferable skills are built in the structure of the examinations, case studies, laboratory demonstrations and project work.

Assessment, Continuation and Award Regulations

This programme follows the Assessment, Continuation and Award regulations published on the University's website for postgraduate courses ([Regulation 9](#)).

Admission Requirements

We are proud to be [one of the most inclusive universities in the UK](#). All our students have potential, and we believe that as many people as possible should have the chance to benefit from higher education, no matter what their background or circumstances. We take the time to understand the background of our applicants, understand their journey to education, and make decisions based on an applicant's potential to thrive at university and beyond.

The standard entry requirements for the programme are as follows:

- A second-class Honours degree or equivalent (or higher) in an engineering discipline (e.g. mechanical, manufacturing, industrial, chemical, electrical, electronics, computer, biomedical, civil, etc.). Examples of other equivalent international qualifications are provided on the [University of Bradford page for a country or region](#).
- GCSE English at grade 4 or C (UK and home students).
- Students whose first language is not English require IELTS at 6.0 or the equivalent, with no less than 6.0 in any band. International applicants who do not meet the IELTS requirement can take a [University of Bradford pre-sessional English course](#).

Candidates who do not fulfil the normal entry requirements but have extensive industrial experience (minimum two years) in an engineering area/position are considered on an individual basis. If applicants have prior certificated learning or professional experience which may be equivalent to parts of this programme, the University of Bradford has procedures to evaluate and recognise this learning to provide applicants with exemptions from specified modules or parts of the programme. Find more information about [recognition of prior learning decisions](#) on the University website.

People thinking of studying with the University of Bradford don't need to wait for the start of the year to contact our Disability Service. The University can arrange for anyone to talk to this team about what support is on offer at Bradford including an invitation to our Get Set Day. To contact the Disability Service please complete the [request support form](#).

Information in this document is for the contemporary recruitment cycle and was accurate at time of publication. The current tariff and accepted qualifications for entry onto the programme is published at the online course page: <https://www.bradford.ac.uk/courses/pg/engineering-management/>