



Department of Electronic Engineering : Programme Specification

MSc : Engineering Management



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**UNIVERSITY OF YORK
POSTGRADUATE PROGRAMME SPECIFICATION**

This document applies to students who commence the following programme:
Awarding & Teaching institution: University of York
Department: Electronics
Award and programme title: MSc in Engineering Management
Level of qualification: Level 7 (Masters)
Awards available only as interim awards:
Postgraduate Diploma in Engineering Management (exit point only for 120cu)
Postgraduate Certificate in Electronics (exit point only for 60cu)
Admissions criteria
Applicants are expected to hold an appropriate honours degree with at least an upper second class honours

or the equivalent from a university recognised by the University of York. This degree should have a significant Electronics, Computing, Engineering, Mathematics or Physics content. Experience of having worked in industry is an advantage but is not essential.

Applications will also be considered from candidates with a good 2:2 degree (or equivalent) and at least two years relevant work experience.

For non-English native speakers English language skills at the standard university requirement of at least IELTS 6.0 or the equivalent are expected.

Length and status of the programme and mode of study

Programme	Length (years) and status (full-time/part-time)	Start dates/months	Mode		
			Face-to-face, campus-based	Distance learning	Other
MSc in Engineering Management	1 year full-time	October	Yes	No	N/A

Language of study: English

Programme accreditation by Professional, Statutory or Regulatory Bodies

IET (Institute of Engineering Technology)

Educational aims of the programme

For the Masters, Diploma and Certificate:

The programme aims to provide students with a grounding in the aspects of management that are required for Industrial Engineering Managers. It is also appropriate for individuals who wish to start their own technology-based company. The programme is suitable for applicants who already have an engineering/technical first degree and who aspire to managerial positions. It aims to develop a good understanding of project management; the management and marketing of technology; idea creation, development and communication; accounting and finance; enterprise; and law for engineering management as a fundamental basis. In addition it aims to develop a more in-depth understanding of aspects of international management.

Additionally for the Masters:

There is a major Independent Study Module in the form of a Group Project, enabling students to obtain realistic technical and business experience, and develop interpersonal skills, much in the way that this development is undertaken in industry.

Diagrammatic representation of the programme structure by stage, showing the distribution and credit value of core and option modules

Autumn Term	Spring Term	Summer Term	Summer Vacation
		Research Methods [ELE00082M] 20 CU, Level 7	
Introduction to Project	Enterprise		

Management [ELE00029M] 5 CU, Level 7	[ELE00008M] 10 CU, Level 7
Law for Engineering Management for MSc [ELE00040H] 10 CU, Level 6 P/F	Accounting and Finance for MSc [ELE00037H] 10 CU, Level 6 P/F
Management and Marketing of Technology for MSc [ELE00041H] 10 CU, Level 6 P/F	Ideation [ELE00039M] 10 CU, Level 7
Technical Literature Review [ELE00080M] 10 CU, Level 7	

Intended learning outcomes for the programme – and how the programme enables students to achieve and demonstrate the intended learning outcomes



A: Knowledge and understanding

The taught Masters in Engineering Management is aimed at those ambitious graduate engineers who aspire to higher level management positions, especially technical management, in industry. It is also aimed at those aspiring to self-employment in the high technology sector. It specifically focuses on areas of management that graduates require in their management career progression. Students on the programme undertake a Technical Appraisal to develop understanding in an area that they can then use as a basis for exploring technical innovations and management issues and the management of ‘opportunities to reality’ in an existing organisation or as a new business. Embedded within the programme is an International Enterprise stream which involves students taking Accounting & Finance for MSc and International Business.

After having successfully completed this programme, students will have a solid knowledge of, and will have developed skills in those aspects of management appropriate to the Engineering Manager, namely project management; the management and marketing of technology; idea creation, development and communication; accounting and finance; enterprise; law as a fundamental basis; and international enterprise.

This knowledge and related skills will provide students with appropriate grounding for careers in the full breadth of electrical and electronic engineering and related subject areas and in self-employment within these technical areas. Most teaching will be undertaken through conventional lectures and workshops, and will be assessed through closed-book examinations and continuous assessment.

Knowledge & Understanding	Module	Delivery & Assessment
Types of project. Role of project manager. Project life-cycles. Tools and techniques for project management. Quality Assurance. Engineering Ethics.	Introduction to Project Management	Lectures. Continuous assessment.
Change management including the nature of change in organizations, hard and soft changes, soft management change systems, sources of resistance and managing transitions.	Management & Marketing of Technology	Lectures. Management report and Marketing plan.
To equip students with an understanding of the different forms of Company structure and the appropriateness of each for given situations. To explain the place of company mission statements and its link to corporate values and policies and practices	Strategic & Operations Management	Lectures. Presentation and Report.
Develops students ability to undertake a detailed and focussed literature review into relevant aspects of a novel technological idea broadening and deepening the students understanding of a technical topic they already understand from their undergraduate engineering degree	Research Methods	Workshops, Presentation and Report.
UK and European Legal systems. Laws of trading, and those applicable to engineering businesses both large and small	Law for Engineering Management	Lectures. Continuous assessment.
Foundations of accounting and finance including: company performance, investment opportunities and product costing and pricing in the business and new venture contexts.	Accounting & Finance for MSc	Lectures. Closed-book examination.
Creativity and idea generation techniques. Approaches to idea refinement and selection. How to communicate a new idea.	Ideation	Lectures & Continuous Assessment.
Issues of commercial exploitation, competitive environment including the setting of pricing structures & marketing options.	Enterprise	Seminars. Presentation and Report.
International trading & marketing across national borders; its role in the global economy; the international competitive business environment, theories of international trade, globalisation & international business.	International Business	Lectures. Presentation and Report.
Research skills. Critical literature review and writing skills. In depth technical knowledge.	Technical Literature Review	Lectures, Private Study & Continuous Assessment.

B: (i) Skills: Discipline-related

The course reinforces and enhances students' existing academic skills through a variety of individual and group assignments, including a substantial project element. Most modules provide specialist engineering management skills, notably: Introduction to Project Management, Management & Marketing of Technology, Law for Engineering Management, Ideation and Enterprise.



Other modules, together with the Group project, provide specialist contextual skills for management and finance in an international context: Accounting & Finance for MSc and International Business.

Discipline-related Skills	Module	Delivery & Assessment
Analyse a project & produce specification. Work breakdowns. Critical path analysis & risk.	Introduction to Project Management	Individual project plan and analysis. Report assessed.
Produce a marketing plan for a new technology based product or service.	Management & Marketing of Technology	Lectures. Management report and Marketing plan.
Understand the operations of a business and the managerial aspects associated with them including push & pull production methodologies, quality management and life-cycle costing.	Strategic & Operations Management	Lectures. Presentation and Report.
Build on existing research methods knowledge or to learn the fundamentals of research to equip students with the knowledge to undertake and evaluate research.	Research Methods	Workshops, Presentation and Report.
Evaluate the difference in legal implications in business formation in the UK compared to another country.	Law for Engineering Management	Lectures. Continuous assessment.
Appraise the value to an organisation of an investment opportunity. Prepare a cash flow forecast and from it derive a Profit and Loss Account and Balance Sheet.	Accounting & Finance	Lectures. Closed-book examination.
Communicate an idea through a written proposal and an 'elevator pitch'.	Ideation	Lectures & Continuous Assessment.
Explore a real new/novel technology or product and advance it to the point of a genuinely workable business plan.	Enterprise	Seminars. Presentation and Report.
Analyse the legal issues associated with an international trading situation and recommend a human resource solution.	International Business	Lectures. Presentation and Report.
Undertake a detailed and focussed literature review into relevant aspects of a novel technological idea.	Technical Literature Review	Lectures, Private Study & Continuous Assessment.
Investigation of a specified problem in Engineering Management.	MSc Project	Tender presentation & report. Final report. Viva examination. Performance review.

B: (ii) Skills: Transferable



The 60 credit unit Group project provides an excellent opportunity to gain experience working in a group, much in the way development is undertaken in industry. Groups of several students working together in a coordinated environment are considered an ideal way in which business and management experience can be explored and developed. In addition to attaining marketing and technical experience, highly useful experience in interpersonal skills is also gained.

Our experience with students on all our taught MSc's has demonstrated how much students can benefit from this aspect of the programme, especially if they have aspirations to work in multinational companies.

Transferable skills of project management, presentation and technical writing are taught as part of the Group project. In addition to skills developed through academic programmes, the University's York Award can help students to plan and reflect on their experience and gain certification for many extra-curricular activities.

Transferable Skills	Module(s)	Delivery & Assessment
Group working. Interpersonal skills. Time management. Delegation & risk management. Placing individual work in a larger context, as in real-life companies.	MSc Project	Tender presentation & report. Final report. Viva examination. Performance review.
Capturing customer requirements and forming requirement specifications; work breakdown structures; activity matrices; project plan preparation; project charting techniques, Bar Chart, Gantt charts and PERT; critical path analysis; project management techniques, value added; risk management; and ethics.	Introduction to Project Management	Individual project plan and analysis. Report assessed.
Undertake market research and develop a marketing plan. Use of tools and diagrams to understand how an organisation should develop its product portfolio.	Management & Marketing of Technology	Lectures. Management report and Marketing plan.
Public Speaking – through workshop presentations.	Ideation	Lectures & Continuous Assessment.
Propose an organisational form for a new venture based on an analysis of the opportunity. Prepare a full and professional business plan	Enterprise	Seminars. Presentation and Report.

C: Experiences of the MSc in Engineering Management

Students on the MSc in Engineering Management benefit from a wide-ranging programme covering those areas of management that graduates require in their progression towards a management career but firmly anchored in a technical context. It provides students with:

- ▶ a sound understanding of aspects of management relevant to the technical manager
- ▶ opportunities to apply management thinking to real technology issues
- ▶ management skills applicable to employability prospects and career development
- ▶ experience of exploiting technological opportunities within large firms or as an entrepreneurial activity

Students gain experience in international business and finance, and participate in a group project designed to simulate a typical experience in industry. To support this project, they receive training in planning team projects, assigning roles, preparing agendas, chairing meetings and taking minutes, and managing a small team. Modules are taught by internationally leading experts in their fields, with the teaching quality widely praised by students.

Student Profile 1: Experience of the Course - Ceren Cekmer

Ceren finished her bachelor degree of Industrial Engineering in Turkey, and writes here of her experience at York on the MSc in Engineering Management.



“I decided to apply to University of York since it had a high ranking among the universities in the UK especially in Electronics. Another strength is that the MSc Engineering Management programme in the University of York is that the programme is taught within the Electronics Department.

During the past three terms, we have had a wide range of lectures from ‘Ideation’ to ‘International Finance’. We have lectures from academic staff in different departments who are really qualified in their specific areas.

My final project is a group project and the subject is ‘Waste Management and Sustainable Energy’. Our target is to find optimal solutions to manage electronic and bio-waste in the university and industries in York via focusing on the solutions like product recovery, anaerobic digestion and energy recovery. Working with people of different cultural and engineering

background on the same project has provided me the opportunity to learn a lot while gaining a magnificent experience."

Student Profile 2: Excellence in teaching - Bidyut Baruah

" The MSc course in Engineering Management offered in York had the perfect blend of management as well as technical subjects like Accounting and finance, marketing and management of Technology, sensors and instrumentation, Enterprise, Ideation etc. This course was perfect to enhance my managerial skills and also groom my personality. So, I decided to take this course.



My experience in this course so far has been really excellent. This MSc course involves many interactive workshops, seminars, lectures etc. The 'Ideation' course illustrated the various techniques of idea generation that will be used in different working environments, 'Accounting and finance' course helped us learn about managing financial information in different organisations. This course has a lot to offer. As a current student, I am really happy and content with the way this MSc course is developing and shaping my skills as an Engineer as well as a prospective manager.

I chose University of York because it has an impressive reputation all over the world for its excellence in teaching. It has created its own niche as a very young but highly successful university. And also the city of York

is known to be one of UK's most beautiful and peaceful places. As an international student what more can I ask for."

Relevant Quality Assurance Agency benchmark statement and other relevant external reference points

Here we summarise the main characteristics of MSc students, taken from:

Framework for Higher Education Qualifications in England, Wales and Northern Ireland – August 2008

QAA Subject Benchmark Statements on Engineering (2006)

<http://www.qaa.ac.uk/Publications/InformationandGuidance/Documents/FHEQ08.pdf>

MSc students will be able to:

- ▶ deal with complex issues both systematically and creatively, make sound judgements in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences
- ▶ demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level
- ▶ continue to advance their knowledge and understanding, and to develop new skills to a high level.

And will have the qualities and transferable skills necessary for employment requiring:

- ▶ the exercise of initiative and personal responsibility
- ▶ decision-making in complex and unpredictable situations
- ▶ the independent learning ability required for continuing professional development.

University award regulations

To be eligible for an award of the University of York a student must undertake an approved programme of study, obtain a specified number of credits (at a specified level(s)), and meet any other requirements of the award as specified in the award requirements and programme regulations, and other University regulations (e.g. payment of fees). Credit will be awarded upon passing a module's assessment(s) but some credit may be awarded where failure has been compensated by achievement in other modules. The University's award and assessment regulations specify the University's marking scheme, and rules governing progression (including rules for compensation), reassessment and award requirements. The award and assessment regulations apply to all programmes: any exceptions that relate to this programme are approved by University Teaching Committee and are recorded at the end of this document.

Departmental policies on assessment and feedback

Detailed information on **assessment** (including grade descriptors, marking procedures, word counts etc.) is available in the written statement of assessment which applies to this programme and the relevant module descriptions. These are available in the student handbook and on the Department's website:

https://www.elec.york.ac.uk/internal_web/Docs/Handbooks/MSc/5_Statement_of_Assessment.html

Information on formative and summative feedback to students on their work is available in the written statement on feedback to students which applies to this programmes and the relevant module descriptions. These are available in the student handbook and on the Department's website:

https://www.elec.york.ac.uk/internal_web/

Overview of modules by stage

Core module table

Module Title	Module Code	Credit Level ¹	Credit Value ²	Terms Taught	Pre-requisites	Assessment Rules ³	Timing and format of main assessment ⁴
Accounting and Finance for MSc	ELE00037H	6/H	10	SpT	None	P/F	SuT week 1 Examinations
Enterprise	ELE00008M	7/M	10	SpT	N/A		SpT & SuT Coursework
Ideation	ELE00039M	7/M	10	SpT	None		SpT Coursework
International Business	ELE00081M	7/M	20	AuT & SpT			SpT & SuT Coursework
Introduction to Project Management	ELE00029M	7/M	5	AuT	None		AuT Coursework
Law for Engineering Management for MSc	ELE00040H	6/H	10	AuT	None	P/F	SpT Coursework
Management and Marketing of Technology for MSc	ELE00041H	6/H	10	AuT	None	P/F	SpT Coursework
Research Methods	ELE00082M	7/M	20	SuT			SuT Coursework
Strategic and Operations Management	ELE00079M	7/M	15	AuT & SpT	None		SpT Coursework
Technical Literature Review	ELE00080M	7/M	10	AuT			AuT Coursework

Option modules

Module Title	Module Code	Credit Level ¹	Credit Value ²	Terms Taught	Pre-requisites	Assessment Rules ³	Timing and format of main assessment ⁴
MSc in Engineering Management Project	ELE00052M	7/M	60	SuV	None		SuV Coursework

¹ The **Credit Level** is an indication of the module's relative intellectual demand, complexity and depth of learning and of learner autonomy (Level 4/Certificate, Level 5/Intermediate, Level 6/Honours, Level 7/Masters).

² The **Credit Value** gives the notional workload for the module, where 1 credit corresponds to a notional workload of 10 hours (including contact hours, private study and assessment).

³ **Assessment rules**

P/F = the module marked on a pass/fail basis (NB pass/fail modules cannot be compensated).

NC = the module cannot be compensated.

NR = there is no reassessment opportunity for this module. It must be passed at the first attempt.

⁴ **Timing and format of main assessment**

AuT = Autumn Term.

SpT = Spring Term.

SuT = Summer Term.

SuV = Summer Vacation.

Transfers out of or into the programme

N/A

Quality and Standards

The University has a framework in place to ensure that the standards of its programmes are maintained, and the quality of the learning experience is enhanced.

Quality assurance and enhancement processes include:

- ▶ The academic oversight of programmes within departments by a Board of Studies, which includes student representation
- ▶ The oversight of programmes by external examiners, who ensure that standards at the University of York are comparable with those elsewhere in the sector
- ▶ Annual monitoring and periodic review of programmes
- ▶ The acquisition of feedback from students by departments.

More information can be obtained from the Academic Support Office:

<https://www.york.ac.uk/about/departments/support-and-admin/academic-support/staff/#quality>

Date on which this programme information was updated: 20/08/2017 TH

Departmental web page: <https://www.elec.york.ac.uk/>

Please note

The information above provides a concise summary of the main features of the programme and learning outcomes that a typical students might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the leaning opportunities that are provided.

Detailed information on learning outcomes, content, delivery and assessment of modules can be found in

module descriptions.

The University reserves the right to modify this overview in unforeseen circumstances, or where processes of academic development, based on feedback from staff, students, external examiners or professional bodies, requires a change to be made. Students will be notified of any substantive changes at the first available opportunity.

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