

1. Admissions/ Management Information			
Title of the programme – including any lower awards			
Please provide the titles used for all awards relating to this programme. Note: all programmes are required to have at least a Postgraduate Certificate exit award.			
See guidance on programme titles in:			
Masters	MSc Engineering Management		
Postgraduate Diploma	PGDip Engineering Management	Please indicate if the Postgraduate Diploma is available as an entry point, ie. is a programme on which a student can register, is an exit award, ie. is only available to students exiting the masters programme early, or both.	Exit
Postgraduate Certificate	PGCert Engineering Management	Please indicate if the Postgraduate Certificate is available as an entry points, ie. is a programme on which a student can register, is an exit award, ie. is only available to students exiting the masters programme early, or both.	Exit
Level of qualification	Level 7		
This document applies to students who commenced the programme(s) in:	2019		
Awarding institution		Teaching institution	
Unviersity of York		University of York	
Department(s): Where more than one department is involved, indicate the lead department		Board of Studies	
Lead Department	Department of Electronic Engineering		
Other contributing Departments:	Department of Electronic Engineering		
Route code (existing programmes only)	PMELESELE1		
Admissions criteria			
Applicants are normally expected to hold (or expected to gain) the equivalent of a 2:1 honours degree or above from a university recognised by the University of York. Applications are also welcomed from candidates with a good 2:2 degree (or equivalent) and at least two years relevant work experience. This degree should be in a subject with a significant Electronics, Computing, Engineering, Mathematics or Physics content.			
We are also willing to consider applications from students with lower qualifications, particularly when the student has high marks in relevant modules and/or appropriate industrial experience.			
For applicants whose native language is not English, the minimum University English language requirements of IELTS 6.0 (with at least 5.5 in each of the four language components) or the equivalent are required. [1]			
Length and status of the programme(s) and mode(s) of study			

Programme	Length (years/ months)	Status (full-time/ part-time) Please select	Start dates/months (if applicable – for programmes that have multiple intakes or start dates that differ from the usual academic year)	Mode				
				Face-to-face, campus-based		Distance learning		Other
MSc in Engineering Management	1 year	Full-time	September	Please select Y/N	No	Please select Y/N	No	N/A
Language(s) of study								
English								
Language(s) of assessment								
English								
2. Programme accreditation by Professional, Statutory or Regulatory Bodies (PSRB)								
2.a. Is the programme recognised or accredited by a PSRB								
Please Select Y/N:	Yes	if No move to section 3 if Yes complete the following questions						
2.b. Name of PSRB								
IET (Institute of Engineering Technology)								
2.c. Please provide details of any approval/ accreditation event needed, including: timecales, the nature of the event, central support / information required:								
Department Reapproval for IET accreditation takes place in 2019-20.								
2.d. Are there any conditions on the approval/ accreditation of the programme(s)/ graduates (for example accreditation only for the full award and not any interim award)								
Although the university allows 40 credits of compensation, for the degree to remain IET-accredited, students can only be compensated in 30 credits. If a student has over 30 credits of compensation but has met the university progression requirements of 40 credits of compensation, they may be given the opportunity to resit compensated modules in order to reduce the compensation to 30 credits and remain on an accredited degree. Students who do not meet the IET criteria for accreditation will graduate with MSc Management of Engineering [2]								
3. Additional Professional or Vocational Standards								
Are there any additional requirements of accrediting bodies or PSRB or pre-requisite professional experience needed to study this programme?								
Please Select Y/N:	No	if Yes, provide details						
N/A								
4. Programme leadership and programme team								
4.a. Please name the programme leader for the <u>year to which the programme design applies</u> and any <u>key</u> members of staff responsible for designing, maintaining and overseeing the programme.								
Dr Bidyut Baruah								
5. Purpose and learning outcomes of the programme								

5.a. Statement of purpose for applicants to the Masters programme	
Please express succinctly the overall aims of the programme as an applicant facing statement for a prospectus or website. This should clarify to a prospective masters student why they should choose this programme, what it will provide to them and what benefits they will gain from completing it.	
All new technologies, products and services require management to take them from the concept stage to commercial success. Engineering Management is, therefore, a strategically important part of professional engineering, irrespective of the technical area. The MSc in Engineering Management enables ambitious technically-qualified graduates to become more effective as managers within engineering firms. You will develop your innovation skills and your ability to assess the engineering and business implications of ideas, and effectively convert them into commercial successes. The programme is fully accredited by the IET (Institution of Engineering and Technology) and benefits from the knowledge and expertise from our Engineering Education and Management Research Group. It is taught by internationally leading experts and practising managers to ensure you master not only the theory of management tools and techniques but also how they are applied in real engineering situations. You will develop a thorough grounding in aspects of management relevant to the technical manager, creative and innovative thinking, and a deep understanding of how to apply management thinking to state-of-the-art technology issues. A major group project helps you gain practical experience of management skills applicable to management of the engineering function within companies, and to develop your research, team working, problem solving, personal effectiveness and communication skills for academic and professional purposes. Students successfully completing this programme will be equipped to follow one of three broad career paths: working in Industry as a first or second line Engineering Manager; starting their own technology or engineering based company; or progressing into a research focussed career. Some of our better students have also progressed into consulting-related careers.	
5.b.i. Programme Learning Outcomes - Masters	
PLO	On successful completion of the programme, graduates will be able to:
1	Subject Knowledge: Conduct research in business management that takes the full breadth of management and applied engineering to advance the state of knowledge in organisations, systems, algorithms, and devices.
2	Engineering Analysis: Extract and critically evaluate literature and other data about complex business systems through analytical and computational methods and modelling.
3	Engineering Design: Create innovative and optimised business solutions to address real-world opportunities in industrial management and technology by synthesising novel research-based ideas into business models.
4	Practical Skills: Apply professional skills of project management, personal management, teamworking and communication combined with an understanding of business systems and components, to solve and independently propose innovative critical business solutions to technically challenging problems.
5	Technical Communication: Debate, defend and contextualise information in a succinct and technically accurate manner for business people, engineers and non-technical audiences, and to write and interpret business documentation.
6	Management & Personal Development: Proficiently manage themselves, teams and complex projects in preparation for technical careers as reflective leaders in engineering management.
5.c. Explanation of the choice of Programme Learning Outcomes	
Please explain your rationale for choosing these PLOs in a statement that can be used for students (such as in a student handbook). Please include brief reference to:	
i) ... in what way will these PLOs result in an ambitious, challenging programme which stretches the students?	
The PLOs for this programme have been developed by the programme team as the best way of capturing the skills and competencies that graduates of the programme will be able to demonstrate. PLO1 indicates that the specialist engineering management knowledge gained will be actively applied in individual research in business, management and applied electronics research. PLOs 2-4 represent the main skillset that managers and engineers are expected to have - that of analysing complex problems in today's world, designing innovative solutions, and having the practical technical ability to bring novel ideas into being with appropriate professional management. This programme specifically develops a skillset that is applicable in the world of business and technology. PLO5 emphasises the importance of an engineer-manager being able to communicate their questions, analysis, findings and solutions to a variety of audiences via a variety of media. PLO6 crystallises the need in the modern world for managers to be effective team-players, as well as leaders of different sized teams for a variety of different purposes. Together these PLOs bring together up-to-date knowledge, cutting-edge engineering skills, with the ability to work effectively with others and communicate with the wider world.	
ii) ... in what way will these PLOs produce a programme which is distinctive and advantageous to the student?	

York has been developing programmes in this area for many years and staff have a wide range of experience in the core subject knowledge, working on related research projects, and guiding students through the process of learning and practically experiencing the subject. The PLOs form a series of learning ladders that ensure that the different strands of learning receive full coverage across the programme. Whilst students need to learn a good deal of information about their subject, the job of a university in today's knowledge-rich world, is to provide context, guidance and experience of applying that knowledge in practice. For this programme in Engineering Management, students will gain knowledge, experience and confidence in a combination of areas that are of direct applicability to today's major research topics in business skills applicable to management of the engineering function within companies.

iii) ... how the design of the programme enables students from diverse entry routes to transition successfully into the programme? For example, how does the organisation of the programme ensure solid foundations in disciplinary knowledge and understanding of conventions, language skills, mathematics and statistics skills, writing skills, lab skills, academic integrity

Prior to arrival: Students receive newsletters with information about the programme; specialist language reading lists; general books to read to get them started.

Upon arrival: 3 afternoon intensive induction specifically designed to introduce students to the way we do things here at York, to level the understanding playing field; to give students the chance to get to know each other and work together in groups; to lay down a foundation of generic skills training and UK conventions, especially in teaching and learning; to get them started in writing and speaking skills, working in teams, some tools for creative problem solving, thinking, etc.

We generally mix students in supervision groups by gender and country of origin - with the intention of helping them integrate.

During the year: The eLearning log is an important means by which we build reflective practice, generic skills learning and pass information about skills development at the right time for their needs. We give our the complete assignment book at the start of the term so all students know the complete assignment picture from day 1 and what is expected of them - we then use that as a vehicle for their own skills development - especially personal time and project management. The Masterclasses during the year are all designed to develop generic skills.

iv) ... how the programme is designed to enable students to progress successfully - in a limited time frame - through to the end of the award? For example, the development of higher level research skills; enabling students to complete an independent study module; developing competence and confidence in practical skills/ professional skills. See QAA masters characteristics document <http://www.qaa.ac.uk/en/Publications/Documents/Masters-Degree-Characteristics-15.pdf>

Student progression through the programme starts with the 3-day intensive induction session where the foundations of generic skills are laid down. The eLearning log integrates much of this development and the teaching and learning within modules throughout the programme. Programme modules are highly integrated with each other with a number of cross referenced points and linkages through the assessments - which are, in themselves, an integral part of the student learning process and not simply there to test knowledge and understanding. The main vehicle for student progress is the design and arrangement of modules to support the students in a deep understanding of theme-based fundamental knowledge, leading rapidly to more specialist research-based knowledge and application. Supporting this entire process is our MSc Professional Development Framework, which is described below in 5.c.vi. Together the PLOs ensure that the industry-expected skillset is covered, and the modules and framework provide the material, time and support to help students develop to their full potential.

During the Autumn Term students undertake four major modules in management theory and practice (Law, Enterprise, Strategic Management for EM, Management & Marketing of Technology). Each module is designed to introduce key topic material, but also to allow students to apply this in practice in seminars, tutorials, and via supported self-study. Modules continue in the Spring Term, but these build upon the foundations covered in the Autumn Term, covering Accounting & Finance and Ideation. These two terms are supported by Personal Effectiveness workshops and Interdisciplinary Masterclasses, along with a module on International Business, which help to develop the student's research and industry readiness. In the Summer Term the main feature is broadening the students' research methods and data processing skills in preparation for the main project, and students are supported in the development of their research, writing, literature review, time management and project management skills. The final stage of the process is a major research and development project in the area, carried out in industry-style teams but developing personal skills and responsibilities. The final group project is very integrative in nature and is designed to pull together learning throughout the programme into the single capstone student activity. Groups have regular contact from an academic supervisor actively researching in this area. Thus the whole one-year process can be seen as a transition from a generalist interested in technical systems, to a specialist researcher and practitioner with a wider range of management experience and engineering skills in areas of applied electronics and technology.

v) ... how this programme (as outlined in these PLOs) will develop students' digital literacy skills and how technology-enhanced learning will be used to support active student learning through peer/tutor interaction, collaboration and formative (self) assessment opportunities (reference could be made to such as blogging, flipped classrooms, response 'clickers' in lectures, simulations, etc).

The entire programme is imbued with developing digital literacy. A variety of computer uses are encountered and applied by students (PLOs 1-4) as a key part of the modules. The field of Engineering Management flourishes with a deep understanding of the design and use of hardware and software systems, and so this is built in to the module and programme structure. Students not only learn how to use digital tools, but how to manage their invention, design, build & marketing. PLO1 enhances personal research by developing students' skills to independently find, evaluate and use sources. Students also need to develop their personal communication skills (PLO5) and the programme and its assignments provide multiple opportunities for this; from keeping technical & reflective logbooks, to portraying information to the public via poster preparation, and by doing public presentations. PLO6 is developed not only in the module assignments (managing themselves, teams and complex projects) which use collaborative tools such as Google Apps, but in the final teamworking project, and by involvement in the Professional Development Framework (see below in 5.c. vi).

vi) ... how this programme (as outlined in these PLOs) will support and enhance the students' employability (for example, opportunities for students to apply their learning in a real world setting)?
The programme's employability objectives should be informed by the University's Employability Strategy:

All our MScs programmes incorporate a carefully designed Professional Development Framework. In consultation with our Departmental Advisory Board, with key contributors from Industry, Research and Academia, this ensures that all students gain awareness of the essential skills that employers need and opportunities to develop their personal and team-based effectiveness. This begins with an Induction Week including an introduction to masters-level learning, and student team activities. Throughout the Autumn and Spring Terms students develop their personal effectiveness in a series of workshops (covering such issues as literature, research, referencing, teamwork, leadership, reflective learning, ethics, and business skills). These lead on to Interdisciplinary Masterclasses which cover key research and development cross-curricular topics in emerging technology. In the Summer Term students are prepared for research methodology and digital literacy, and undertake regular developmental training in project management. This all leads to a major group project (60 credit units) which is designed to give research and industry-relevant experience to individuals and teams as a major component of each programme.

viii) ... how learning and teaching on the programme are informed and led by research in the department/ Centre/ University?

The modules are taught by leading academics from York's Engineering Education and Management Research Group in the Department of Electronic Engineering, and the programme is fully accredited by the IET (Institution of Engineering and Technology). Modules are informed by this research and development and are kept up to date with the latest research, equipping them with state-of-the-art knowledge in this rapidly evolving area. Students have multiple opportunities to work with and be guided by staff who are actively working in these developing subject fields.

5.d. Progression

For masters programmes where students do not incrementally 'progress' on the completion of a discrete Postgraduate Certificate and Postgraduate Diploma, please summarise students' progressive development towards the achievement of the PLOs, in terms of the characteristics that you expect students to demonstrate at the end of the set of modules or part thereof. This summary may be particularly helpful to students and the programme team where there is a high proportion of option modules and in circumstances where students registered on a higher award will exit early with a lower one.

Note: it is not expected that a position statement is written for each masters PLO, but this can be done if preferred.

On completion of modules sufficient to obtain a Postgraduate Certificate students will be able to:

If the PG Cert is an exit award only please provide information about how students will have progressed towards the diploma/masters PLOs. Please include detail of the module diet that students will have to have completed to gain this qualification as an exit award.

Students can receive a postgraduate certificate by achieving a minimum of 60 credits in taught modules. At least 40 credits must be in M Level Modules. This could occur for instance by failing a pass/fail module, or by not being able to progress onto the project for other reasons such as failing the Research Methods modules. Up to this point in the programme all PLOs are covered, but PLO1 will be lacking the literature review contextualisation, and PLO6 will be under-practiced as the major project is not experienced.

On completion of modules sufficient to obtain a Postgraduate Diploma students will be able to:

If the PG Diploma is an exit award only please provide information about how students will have progressed towards the masters PLOs. Please include detail of the module diet that students will have to have completed to gain this qualification as an exit award.

Students can receive a Diploma by passing everything except the project (due to leaving early or by failing the project). Thus they will have covered the majority of PLOs 1-5. Their completion of PLO6 will be limited compared to a Masters graduate, but it is not entirely missing as they will have still have completed the Research Methods modules and attended support sessions on Project Management.

6. Reference points and programme regulations

6.a. Relevant Quality Assurance Agency benchmark statement(s) and other relevant external reference points

Please state relevant reference points consulted (e.g. Framework for Higher Education Qualifications, National Occupational Standards, Subject Benchmark Statements or the requirements of PSRBs): See also Taught Postgraduate Modular Scheme: Framework for Programme Design:

"Framework for Higher Education Qualifications in England, Wales and Northern Ireland – August 2008 <http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/FHEQ08.pdf>
IET Accreditation – October 2014: <http://www.theiet.org/academics/accreditation/policy-guidance/>"

6.b. University award regulations

The University's 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.

7. Programme Structure

ii) Contact with staff	
Please explain how the programme's design maximises the value of students' contact time with staff (which may be face-to-face, virtual, synchronous or asynchronous), including through the use of technology-enhanced learning. For example, giving students resources for their independent study which then enables a class to be more interactive with a greater impact on learning.	
An original feature of this programme is its use of the eLearning log, which helps students with their learning almost like a virtual mentor and directs students to appropriate material at the appropriate time. Academic supervisors have access to the logs and are expected to use the student entries as part of the supervision agendas. In the first term of the programme, students have access to intensive periods of study by staff in lectures, tutorials and supervisions. Students have access at any time to a personal supervisor who is there to guide them through the process and help them reflect on their learning and progress. All modules have self-study materials available, such as lecture notes, business plans etc, which students are expected to read, and these can then be discussed with staff during taught sessions. Contact time changes during the Summer period to a more supervisory role, where students have access to two project supervisors (who are not necessarily their academic supervisor) and here the focus is on supporting, developing and progressing the final project.	
iii) Summative Assessment	
Please outline how summative assessment within and across modules has been designed to support and evidence the progressive achievement of the programme learning outcomes. (For example, the use of different assessment methods at the 'introduction' stage compared to those used to evaluate deeper learning through the application of skills and knowledge later in the programme).	
This programme has a mix of summative assessment styles. Assignments are designed to be more than just a test, but to provide a challenging experience for personal work. Scenarios are given for each such assignment which reflect the range of real-world applications that the students may encounter in this topic area. An example of this is the <i>Law for Engineering Management</i> assignment which acts as additional learning by allowing students to study and contrast real law in different countries. Public speaking is used as an important component, where students peer review and peer assess, for formative benefit others doing the style of presentations that they will be required to do in industry. This not only demonstrates to students, and gives them experience of, the detailed criteria we use to assess them, but also provides data for a later assignment. Their peer assessment marks are used as the basis for data analysis in the <i>Research Methods</i> module which involves in-depth analysis of their own assessment performance (bias, etc.) Thus the assignments, including the final project, tend to cover most PLOs as they require the application of knowledge (PLO1), the analysis and design of a problem (PLOs 2 & 3), the proposal and/or development of a technical solution (PLO4), managed in a creative and effective way (PLO6) and described effectively to others (PLO5). As the programme progresses, the assignments incorporate a greater degree of student innovation and independence, culminating in a final creative and technical project.	
8. Additional information	
8.a. Continuing Professional Development	
Will any of the programme's modules be available on a free-standing basis?	
Please Select Y/N:	Yes
if yes, please explain how:	
There is a proposal (not yet approved) to allow the Accounting and Finance module to be taken on a CPD basis. This is currently being discussed with the IET.	
8.b. Transfers out of or into the programme	
i) Transfers <u>into</u> the programme will be possible? (please select Y/N)	No
ii) Transfers <u>out</u> of the programme will be possible? (please select Y/N)	No
11. Exceptions to University Award Regulations approved by University Teaching Committee	
Exception Please detail any exceptions to University Award Regulations approved by UTC	Date approved
N/A	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, and via the Postgraduate Taught Experience Survey (PTES).

More information can be obtained from the Academic Support Office:

Date on which this programme information was updated:

26 Sept 2019

Departmental web page:

Please note:

The information above provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if they take full advantage of the learning opportunities that are provided. Detailed information on the learning outcomes, content, delivery and assessment of modules can be found in the module descriptions. The University reserves the right to modify this overview in unforeseen circumstances, or where the process 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.

Template Last Updated 11/01/2017 by Adrian Lee

Overview of modules by stage

Notes:

[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] Special assessment rules (requiring University Teaching Committee approval); 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] Independent Study Modules (ISMs) are assessed by a dissertation or substantial project report. They cannot be compensated (NC) and are subject to reassessment rules which differ from ‘taught modules’. Integrated Masters programmes may designate a project in the final stage as an ISM which is then subject to the assessment rules as set out in the postgraduate programmes section of the Guide to Assessment.

Core & option module table (add additional rows as required)

Core/ Option	New/ substantially revised module – Yes/ No	Module title	Module code	Credit level[1]	Credit value[2]	Prerequisites, Corequisites, Prohibited combinations (name of modules(s))	Assessment rules[3],[4]	Timing of module (eg. AuT – Autumn, SpT – Spring, SuT – Summer Term, Year long)	Format, contribution to module mark and timing of summative assessment (eg. essay, 50%, AuT wk10, exam and 50%, SpT wk1)
Core	No	Ideation	ELE00039M	7/M	10			SpT	E-Learning Log 40%, SpT wk 10 Report, 60%, SuT wk 1
Core	No	Enterprise	ELE00008M	7/M	10			AuT	Individual presentation, 25%, Aut wk7 or 8, Group Report (Business Plan), 50%, Aut wk 10, Individual Reflective Report, SpT wk 1
Core	No	Strategic Management for EM	ELE00117M	7/M	10			AuT	Report, 100%, SpT wk 1
Core	No	International Business	ELE00081M	7/M	20			AuT, SpT	Presentation, 20%, wk 1 SpT, Report, 80%, SuT wk 1
Core	No	Accounting & Finance	ELE00037H	6/H	10		P/F	SpT	Closed book examination, 100%, SuT wk1

MSc Engineering Management Programme Design Document

Core	Yes	MSc Personal Effectiveness and Masterclasses	ELE00111M	7/M	20			AuT, SpT	Self Promotion Video 25% AuT Wk10, Group Site 15% SpT Wk10, Job Analysis 10% SpT wk10, E-Learning Log 50 Every 3 wks AuT & SpT.
Core	No	Law for Engineering Management	ELE00040H	6/H	10		P/F	AuT	Report 100%, SpT wk 1
Core	No	Management and Marketing of Technology	ELE000129M	7/M	10		P/F	AuT	Individual Report, 100%, SpT wk 1
Core	Yes	Research Methods Theory	ELE00123M	7/M	10			SuT	Individual Report, 100%, SuT wk 4
Core	Yes	Research Methods: Data Analysis	ELE00124M	7/M	10			SuT	Individual Report, 100%, SuT wk 4
Core	Yes	MSc in Engineering Management Project	ELE00052M	7/M	60		ISM	SuT, SuV	Report (Initial), 20% wk 1 SuV, Report Final, 60% SuV wk 9, Performance Review, 10%, Presentation 5% SuV week 11, Viva 5% SuV wk 11

[1] Here is the information currently on the website: Applicants are normally expected to hold (or expected to gain) the equivalent of a 2:1 honours degree or above from a university recognised by the University of York. Applications are also welcomed from candidates with a good 2:2 degree (or equivalent) and at least two years relevant work experience. This degree should be in a subject with a significant Electronics, Computing, Engineering, Mathematics or Physics content.

We are also willing to consider applications from students with lower qualifications, particularly when the student has high marks in relevant modules and/or appropriate industrial experience.

For applicants whose native language is not English, the minimum University English language requirements of IELTS 6.0 (with at least 5.5 in each of the four language components) or the equivalent are required.

[2] Taken from statement of assessment