

### Programme Specification



<b>1. Programme title</b>	MSc Engineering Management MSc Engineering Management with integrated placement (15 months full-time; 3 months placement) MSc Engineering Management with integrated placement (24 months full time; 12 months placement)
<b>2. Awarding institution</b>	Middlesex University
<b>3. Teaching institution</b>	Middlesex University
<b>4. Details of accreditation by professional/statutory/regulatory body</b>	
<b>5. Final qualification</b>	MSc / PgDip / PgCert Engineering Management
<b>6a. Year of validation</b>	2016/17
<b>6b. Year of amendment</b>	2019/20
<b>7. Language of study</b>	English
<b>8. Mode of study</b>	FT / PT

#### **9. Criteria for admission to the programme**

Applicants will be expected to have a good honours degree or equivalent in an engineering based discipline. Graduates from other related disciplines may also be admitted to the programme after interview. Preference will be given to graduates with industrial experience.

In addition candidates will have such qualities as being creative, proactive and having a desire to engage with the curriculum, and be able to think as an individual but able to work in a team. Candidates should be able to show a keen interest in engineering in all its aspects. It is strongly advised that the applicants address these in their personal statement in their application.

Successful applicants must have competence in English language. For international applicants whose first language is not English the requirement is that they have IELTS 6.5 (with minimum 6.0 in each components) or an equivalent qualification recognised by Middlesex University.

#### **10. Aims of the programme**

The programme aims to take graduates of an engineering discipline and equip them with specialist knowledge and skills in Engineering Management to allow them to control effectively engineering businesses for success in global markets.

<b>11. Programme outcomes</b>	
<p><b>A. Knowledge and understanding</b></p> <p>On completion of this programme the successful student will have knowledge and understanding of :</p> <ol style="list-style-type: none"> <li>1. Techniques for management of human and financial resources.</li> <li>2. Critical awareness of the theory behind current management and business practices.</li> <li>3. Professional responsibilities including the global, social, ethical and environmental context of engineering.</li> <li>4. Evaluation of methods and research for achieving optimal supply chains.</li> <li>5. Project management methods such as evolutionary techniques and scheduling tools.</li> <li>6. Process planning and improvement of product development</li> <li>7. Project management methods</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students gain knowledge and understanding through task-based learning, participating in management games, working with industrial partners, observing processes, writing, presenting and critical analysis. Students will be given individual tasks directly related to their chosen programme.</p> <p><b>Assessment methods</b></p> <p>Students' knowledge and understanding is assessed by project work, hands-on-tasks, coursework, presentations and the group project report. Formative threshold tests will be used to assess competence in stage techniques on a pass/fail basis with opportunity to retake at any time before the end of the module.</p>
<p><b>B. Cognitive (thinking) skills</b></p> <p>On completion of this programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Creatively solve engineering management problems.</li> <li>2. Demonstrate critical thinking in order to solve real industrial problems posed to senior management.</li> <li>3. Make a financial and human resource case for a particular course of action to solve a realistic management problem.</li> <li>4. Work on a number of senior company management level tasks concurrently and show how they can be controlled effectively.</li> <li>5. Visualise the consequences of particular actions in a management situation and plan effective solutions that can be used to cope with these consequences.</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students develop their cognitive skills through completing mini-projects, problem solving activities, oral presentations and through report writing.</p> <p><b>Assessment methods</b></p> <p>Students' cognitive skills are assessed by processes and procedures that they create, with particular reference to their engagement with the human consequences, in particular how their competence can be demonstrated by coursework comprising of self-critical written reports and oral presentations that demonstrate sound judgement.</p>
<p><b>C. Practical skills</b></p> <p>On completion of the programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Select appropriate engineering management solutions.</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students learn practical skills through Mini projects, experimenting with a variety of solutions.</p>

<ol style="list-style-type: none"> <li>2. Plan ahead and prioritise actions in open ended tasks that require leadership.</li> <li>3. Research, communicate and justify ideas for decisions that would enable a company to avoid business failure.</li> <li>4. Validate and optimise business plans with full consideration of human and financial consequences.</li> <li>5. Use simulation to analyse and make business improvements.</li> </ol> <p>Additionally students completing the MSc will be able to:</p> <ol style="list-style-type: none"> <li>6. Design and implement engineering management systems to guarantee company success.</li> </ol>	<p><b>Assessment methods</b></p> <p>Students' practical skills are assessed by coursework comprising of individual mini-projects, assignments, group and individual presentations.</p>
<p><b>D. Graduate skills</b></p> <p>On completion of this programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Communicate orally via professional presentations.</li> <li>2. Communicate via professional written reports.</li> <li>3. Handle engineering management problems that require numerate skills that would cause company failure if not solved correctly.</li> <li>4. Work independently and autonomously at a level appropriate for a senior engineering manager.</li> <li>5. Demonstrate competence and responsibility through mastering problems typically faced by senior management.</li> </ol> <p>Additionally students completing the MSc will be able to:</p> <ol style="list-style-type: none"> <li>6. Work successfully within a team, demonstrating an ability to deal with personal differences and supporting other colleagues.</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students acquire graduate skills throughout the programme. With the completion of the group module, they will have become autonomous and effective collaborative learners.</p> <p><b>Assessment methods</b></p> <p>Students' graduate skills are assessed by reports, essays, presentations, individual and team projects.</p>

## 12. Programme structure (levels, modules, credits and progression requirements)

### 12. 1 Overall structure of the programme

Term 1	<b>PDE4232</b> Financial management in engineering [15]	<b>PDE4910</b> Logistics and supply chains [30]	<b>PDE4911</b> Engineering project management [30]	<b>PDE4230</b> Engineering Innovation [30] <i>or</i>	<b>*PDE4252</b> Preparing for the Integrated Placement [0]
Term 2	<b>PDE4233</b> Human resource management in engineering [15]			<b>PDE4905</b> Engineering Simulation [30]	
<b>*PDE4250/PDE4251</b> Postgraduate work placement [0]					
<b>PDE4241</b> Engineering management group project [60]					

\*Students enrolled on the full-time programme with integrated placement (UK only) take either a 3 month or 12 month non-credit rated placement module followed by the project module (60 credits). This will extend the programme duration to either 15 months or two calendar years. In preparation for the placement, students must successfully complete module PDE4252 Preparing for the Integrated Placement.

<b>12.2 Levels and modules</b>		
Starting in academic year 2010/11 the University is changing the way it references modules to state the level of study in which these are delivered. This is to comply with the national Framework for Higher Education Qualifications. This implementation will be a gradual process whilst records are updated. Therefore the old coding is bracketed below.		
Level 7 (4)		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<p>Students must take all of the following:</p> <p>PDE4232 Financial management in engineering (15 credits)</p> <p>PDE4233 Human resource management in engineering (15 credits)</p> <p>PDE4910 Logistics and Supply Chains</p> <p>PDE4911 Engineering project management (30 credits)</p> <p>PDE4241 Engineering management group project (60 credits)</p>	<p>Students must take one of the following:</p> <p>PDE4230 Engineering Innovation (30 credits)</p> <p>PDE4905 Engineering simulation (30 credits)</p> <p>Full-time students in the UK may additionally take one of the following option modules: either PDE4250 Postgraduate Work Placement (12 months) Or PDE4251 Postgraduate Work Placement (3 months). In preparation for the placement, students must successfully complete module PDE4252 Preparing for the Integrated Placement.</p>	<p>For the named PgCert award students must complete 60 credits of PDE4230, PDE4232, PDE4233, PDE4905, PDE4910 and PDE4911.</p> <p>For the named PgDip award students must complete all four of PDE4232, PDE4233, PDE4910 and PDE4911 plus one of PDE4230 and PDE4905.</p> <p>Students must obtain 120 credits at level 7 and pass PDE4252 Preparing for the Integrated Placement in order to progress onto the optional placement module or obtain 120 credits at level 7 in order to progress onto PDE4241 Engineering management group project.</p>

<b>12.3 Non-compensatable modules</b> (note statement in 12.2 regarding FHEQ levels)	
Module level	Module code
7	PDE4241

### 13. Curriculum map

See page 17.

### 14. Information about assessment regulations

Please refer to the University Regulations for generic guidance, and the Programme Handbook, under the Assessment section, for additional information.

### 15. Placement opportunities, requirements and support (if applicable)

Students enrolled on the masters with integrated placement will undertake either a 3 months or 12 months placement. In preparation for the placement, students must successfully complete module PDE4252 Preparing for the Integrated Placement.

The placement will be secured through the students' independent work applications and with the support of our employability service. In the case where appropriate work-placement has not been identified prior to the start of the optional module associated with the placement due to unsuccessful student application and/or suitability, students will be required to progress directly to the Project module.

### 16. Future careers (if applicable)

Graduates from the programme will be expected to enter into engineering management with highly specialised operational skills that are much sought after worldwide. The programme content will be enriched by keeping industrial partners' engagement active and offering sponsored projects. This will also help to support the students regarding current opportunities and future trends in their relevant employment sector.

### 17. Particular support for learning (if applicable)

Meeting the learning outcomes of this programme requires active participation in the subject and the development of autonomous practice in meeting objectives. Supporting this level of active participation and autonomous practice is achieved via regular weekly tutorial contact with academic staff, productive and informed support from technical staff and the use of online, resource-based learning materials where appropriate.

The subject provides extensive facilities where students can engage with their coursework assignments in a supported and productive environment.

<b>18. JACS code (or other relevant coding system)</b>	H100
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<b>19. Relevant QAA subject benchmark group(s)</b>	Engineering (2015) Business and Management (2015)
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### 20. Reference points

- QAA Engineering subject benchmark statement (2015)
- QAA Business and Management benchmark statement (2015)
- QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland

- Middlesex University Regulations
- Middlesex University Learning and Quality Enhancement Handbook
- Chartered Engineer and Incorporated Engineer Standard, Engineering Council UK, 2014
- UK Standard for Professional Engineering Competence;
- The Accreditation of Higher Education Programmes, Engineering Council UK, 2014;
- IED Engineering Design Specific Learning Outcomes for EC(UK) Accredited Degree Programmes.

## 21. Other information

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

## Curriculum map for MSc Engineering Management

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

### Programme learning outcomes

Knowledge and understanding		Practical skills	
A1	Techniques for management of human and financial resources.	C1	Select appropriate engineering management solutions.
A2	Critical awareness of the theory behind current management and business practices.	C2	Plan ahead and prioritise actions in open ended tasks that require leadership.
A3	Professional responsibilities including the global, social, ethical and environmental context of engineering.	C3	Research, communicate and justify ideas for decisions that would enable a company to avoid business failure.
A4	Evaluation of methods and research for achieving optimal supply chains.	C4	Validate and optimise business plans with full consideration of human and financial consequences.
A5	Project management methods such as evolutionary techniques and scheduling tools.	C5	Use simulation to analyse and make business improvements.
A6	Process planning and improvement of product development	C6	Design and implement engineering management systems to guarantee company success.
A7	Project management methods	C7	
Cognitive skills		Graduate Skills	
B1	Creatively solve engineering management problems.	D1	Communicate orally via professional presentations.
B2	Demonstrate critical thinking in order to solve real industrial problems posed to senior management.	D2	Communicate via professional written reports.
B3	Make a financial and human resource case for a particular course of action to solve a realistic management problem.	D3	Handle engineering management problems that require numerate skills that would cause company failure if not solved correctly.
B4	Work on a number of senior company management level tasks concurrently and show how they can be controlled effectively.	D4	Work independently and autonomously at a level appropriate for a senior engineering manager.



B5	Visualise the consequences of particular actions in a management situation and plan effective solutions that can be used to cope with these consequences.	D5	Demonstrate competence and responsibility through mastering problems typically faced by senior management.
		D6	Work successfully within a team, demonstrating an ability to deal with personal differences and supporting other colleagues.

Programme outcomes																							
A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6
Highest level achieved by all graduates																							
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Module Title	Module Code by Level	Programme outcomes																							
		A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6
Financial Management in Engineering	PDE4232	X	X	X					X	X	X	X	X		X	X	X		X	X	X		X	X	
Human Resource Management in Engineering	PDE4233	X	X	X					X	X	X	X	X		X	X	X		X	X	X		X	X	
Logistics and Supply Chains	PDE4910		X	X	X		X			X	X		X	X		X		X	X	X	X	X			
Engineering Project Management	PDE4911	X	X	X		X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	
Engineering Management Group Project	PDE4241	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	
Engineering Innovation	PDE4230	X		X		X	X			X	X		X	X	X	X		X		X	X	X		X	
Engineering Simulation	PDE4905				X		X			X			X		X	X		X	X	X	X	X	X	X	