

# Programme Specification and Curriculum Map for Map for Engineering Management



<b>1. Programme title</b>	Engineering Management
<b>2. Awarding institution</b>	Middlesex University
<b>3. Teaching institution</b>	Middlesex University
<b>4. Programme accredited by</b>	
<b>5. Final qualification</b>	MSc
<b>6. Academic year</b>	2014/2015
<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.

Candidates will need a high level of competence in the use of English, equivalent to at least 6.5 in the IELTS test or TOEFL 575 (paper based), 237 (computer based)

## 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.

## **11. Programme outcomes**

### **A. Knowledge and understanding**

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

1. Techniques for management of human and financial resources.
2. Critical awareness of the theory behind current management and business practices.
3. Professional responsibilities including the global, social, ethical and environmental context of engineering.
4. Evaluation of methods and research for achieving optimal supply chains.
5. Engineering simulation methods such as discrete simulation of factory production.
6. Process planning and improvement of product development
7. Project management methods

### ***Teaching/learning methods***

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.

### **Assessment Methods**

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.

### **B. Cognitive (thinking) skills**

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

1. Creatively solve engineering management problems.

2. Demonstrate critical thinking in order to solve real industrial problems posed to senior management.
3. Make a financial and human resource case for a particular course of action to solve a realistic management problem.
4. Work on a number of senior company management level tasks concurrently and show how they can be controlled effectively.
5. Visualise the consequences of particular actions in a management situation and plan effective solutions that can be used to cope with these consequences.

### ***Teaching/learning methods***

Students develop their cognitive skills through completing mini-projects, problem solving activities, oral presentations and through report writing.

### **Assessment Method**

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.

### **C. Practical skills**

On completion of the programme the successful student will be able to:

1. Select appropriate management solutions.
2. Plan ahead and prioritise actions in open ended tasks that require leadership.
3. Research, communicate and justify ideas for decisions that would enable a company to avoid business failure.
4. Validate and optimise business plans with full consideration of human and financial consequences.
5. Use simulation to analyse and make business improvements.

### **Additionally to MSc**

6. Design and implement management systems to guarantee company success.

***Teaching/learning methods***

Students learn practical skills through Mini projects, experimenting with a variety of solutions.

***Assessment Method***

Students' practical skills are assessed by coursework comprising of individual mini-projects, assignments, group and individual presentations.

**D. Graduate Skills**

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

1. Communicate orally via professional presentations.
2. Communicate via professional written reports.
3. Handle management problems that require numerate skills that would cause company failure if not solved correctly.
4. Work independently and autonomously at a level appropriate for a senior engineering manager.
5. Demonstrate competence and responsibility through mastering problems typically faced by senior management.

**Additionally to MSc**

6. Work successfully within a team, demonstrating an ability to deal with personal differences and supporting other colleagues.

***Teaching/learning methods***

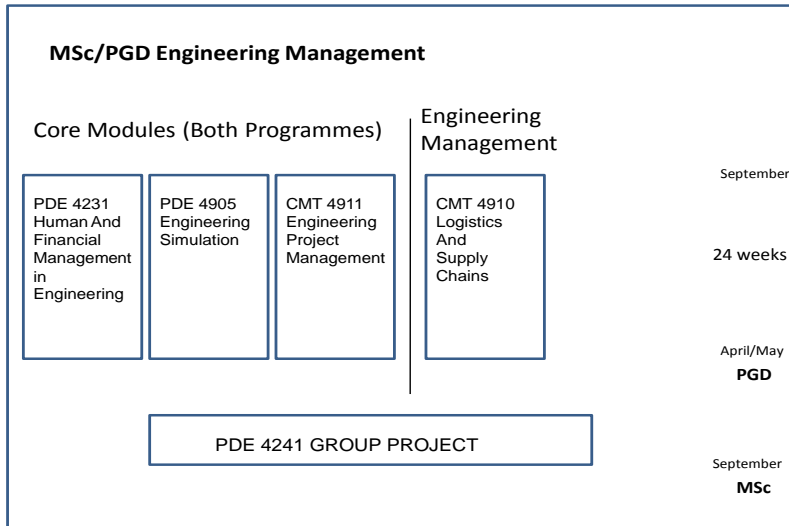
Students acquire graduate skills throughout the programme. With the completion of the group module, they will have become autonomous and effective collaborative learners.

***Assessment method***

Students' graduate skills are assessed by Reports, essays, presentations, individual and team projects.

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

## 12. 1 Overall structure of the programme



## 12.2 Levels and modules

### Level 4

COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<p>Students must take all of the following:</p> <p>PDE 4231 Human and Financial Management in Engineering (30 credits)</p> <p>PDE 4905 Engineering Simulation (30 credits)</p>		<p>For PgCert award the candidates must complete any combination of 60 credits from the modules: PDE4231, PDE4905, CMT4910 and CMT4911</p> <p>For PgDip award, the candidate must complete 120 credits</p>

CMT 4910 Logistics and Supply Chains (30 credits)		and must successfully pass modules: PDE4231, PDE4905, CMT4910 and CMT4911
CMT 4911 Engineering Project Management (30 credits)		Must obtain 120 credits at level 4 in order to progress onto the Group Project module.
PDE 4241 Engineering Group Project (60 credits)		MSc (180 credits)

### 12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)

Module level	Module code
4	<i>PDE4231</i>

### 13. Curriculum map

See Curriculum Map attached

### 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)

There will be no placement requirement for this programme. However, the programme will arrange industrial visits and seek relevant industrial partnerships. There will be strong involvement from industrial partners in terms of sponsored projects and specialist lectures

### 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 qualities worldwide. The programme content will be enriched by keeping industrial partner's engagement active and offering sponsored projects. This will also help to support the students about the 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.

### **18. JACS code (or other relevant coding system)**

H100

### **19. Relevant QAA subject benchmark group(s)**

Engineering (2006)

Business and Management (2007)

### **20. Reference points**

- QAA Engineering subject benchmark statement (2006)
- QAA Business and Management benchmark statement (2007)
- QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland
- QAA/CLQE guidelines for programme specifications
- QAA Code of Practice for the assurance of academic quality and standards in HE
- University's Regulations

- EAB Guidelines for Exemption and Accreditation
- Middlesex University and School of Engineering and Information Sciences Teaching Learning and Assessment policies and strategies
- University policy on equal opportunities.
- Manufacturing :New Challenges, New Opportunities, BERR September 2008
- Professional Engineers' Needs for Managerial Skills and Expertise, UMIST 2003
- Innovation Nation, White Paper Dept for Innovation Universities and Skills, March 2008.
- The Engineer of 2020 Visions of Engineering in the New Century, National Academy of Science 2004.

## **21. Other information**

N/A

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 programme handbook and the University Regulations.



# Curriculum map for MSc /PgD 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

<b>Knowledge and understanding</b>		<b>Practical skills</b>	
A1	Techniques for management of human and financial resources.	C1	Select appropriate 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	Engineering simulation methods such as discrete simulation of factory production.	C5	Use simulation to analyse and make business improvements.
A6	Process planning and improvement of product development	C6	Design and implement management systems to guarantee company success.
A7	Project management methods	C7	
<b>Cognitive skills</b>		<b>Graduate Skills</b>	
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 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.
B6		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																							
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Level	Module	Code	A	A	A	A	A	A	A	B	B	B	B	B	C	C	C	C	C	C	D	D	D	D	D	D
			1	2	3	4	5	6	7	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	6
4	Human and Financial Management in Engineering	PDE 4231	X	X	X		X			X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	
4	Engineering Simulation	PDE 4905				X	X	X	X		X	X		X		X	X	X	X	X	X	X	X	X	X	
4	Logistics and Supply Chains	CMT 4910	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
4	Engineering Project Management	CMT 4911	X	X	X		X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	
4	Engineering Group Project	PDE 4241	X	X	X	X	X		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	