

### Programme Specification



<b>1. Programme title</b>	Engineering Project Management
<b>2. Awarding institution</b>	Middlesex University
<b>3. Teaching institution</b>	Middlesex University
<b>4. Programme accredited by</b>	N/A
<b>5. Final qualification</b>	MSc
<b>6. Academic year</b>	2009-2010
<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 aim of this programme is to take graduates of an engineering discipline and equip

them with specialist knowledge and skills in Engineering Project Management to allow them to control effectively engineering projects for global markets.

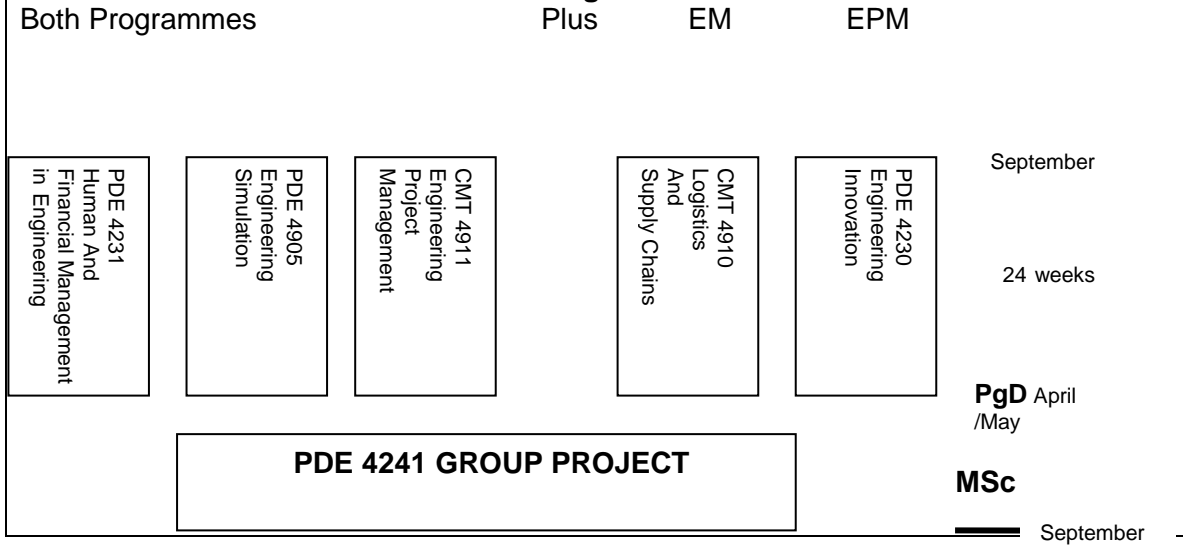
<b>11. Programme outcomes</b>	
<p><b>A. Knowledge and understanding</b></p> <p>On completion of this programme the successful student will have systematic knowledge and a comprehensive understanding of :</p> <ol style="list-style-type: none"> <li>1. The theory relating current Project Management techniques and their interaction with business practices</li> <li>2. Project management methods such as evolutionary techniques and scheduling tools.</li> <li>3. Techniques for management of human and financial resources.</li> <li>4. Professional responsibilities including the global, social, ethical, legal and environmental context of engineering.</li> <li>5. Methods for achieving and maintaining innovation</li> <li>6. Engineering simulation methods such as the use of System Dynamics to model the research and development process.</li> <li>7. Process planning and improvement of product development</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 allocated tasks directly relevant to their chosen programme.</p> <p><b>Assessment Method</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 project management problems.</li> <li>2. Demonstrate critical thinking in order to solve real industrial problems posed to a project manager</li> <li>3. Make a financial and human resource case for a particular course of action to solve a real project management problem.</li> <li>4. Work on a number of project management tasks concurrently and show how they can be controlled effectively.</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 Method</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.</p>

<p>5. Visualise the consequences of particular actions in a project management situation and plan effective solutions that can be used to cope with these consequences.</p>	
<p><b>C. Practical skills</b> On completion of the PgD programme the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Select appropriate project management solutions.</li> <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 technical failure.</li> <li>4. Validate and optimise project plans with full consideration of human and financial consequences.</li> <li>5. Use simulation to analyse and make process improvements.</li> </ol> <p><b>Additionally to MSc</b></p> <ol style="list-style-type: none"> <li>6. Design and implement project systems to guarantee product success.</li> </ol>	<p><b>Teaching/learning methods</b></p> <p>Students learn practical skills through Mini projects, experimenting with a variety of solutions.</p> <p><b>Assessment Method</b></p> <p>Students' practical skills are assessed by coursework comprising of individual mini-projects strictly related to their chosen programme, assignments, group and individual presentations.</p>
<p><b>D. Graduate Skills</b> On completion of the PgD 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. Demonstrate project solutions to problems that require numerate skills, which would cause technical failure if not solved correctly.</li> <li>4. Work independently and autonomously at a level appropriate for a project manager.</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 method</b></p> <p>Students' graduate skills are assessed by Reports, essays, presentations, team projects.</p>

<p>5. Demonstrate competence and responsibility by mastering problems typically faced by a project manager</p> <p><b>Additionally to MSc</b></p> <p>6. Work successfully within a team, demonstrating an ability to deal with personal differences and supporting other colleagues.</p>	
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<p><b>12. Programme structure</b></p>
<p><b>12. 1 Overall structure of the programme</b></p>
<p>The MSc Engineering Project Management programme is studied over either 12 months full-time or a minimum of 24 months part-time. Study is entirely undertaken at level 4. The programme is made up of a four modules, in 2009/2010 running in parallel from the Autumn Term with 24 weeks contact leading to the Group Project module that takes place over the Spring and Summer Terms. In 2010/2011 these will run consecutively in block format.</p> <p>The course is divided into study units called modules. Each module has a credit value of either 30 or 60 credits. Each 30 credit module represents approximately 300 hours of student learning, endeavour and assessment.</p> <p>Successful completion of the programme leads to the MSc award (180 credits). In the event of the Group Project module not being successfully completed, then the University may make an award of postgraduate diploma provided all of the other modules have been successfully completed and 120 credits are achieved.</p> <p>Exiting the programme with 60 credits will result in a Postgraduate Certificate being awarded. For the award of a Postgraduate Diploma will require completion of 120 credits. Classification of the MSc award will be based on the distribution of Level 4 grades and the Dissertation grade and this will conform to University regulation E4.6.</p> <p>The programme will not actively recruit for PgCert or PgDip awards but will confer these awards on students who will need to exit during the programme based on the number of credits completed at the time.</p>

## STRUCTURE OF MSc /PgD Engineering Management and Engineering Project management



<b>12.2 Levels and modules.</b> This section should contain a more detailed description level-by-level of the programme structure, modules and credits. All modules should be categorized as compulsory or optional.		
COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS
<b>Level 4</b>		
<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>PDE 4230 Engineering Innovation (30 credits)</p> <p>CMT 4911 Engineering Project Management (30 credits)</p>	No options are allowed	<p><b>For PgCert award the candidates must complete any combination of 60 credits from the modules: PDE4231, PDE4905, PDE4230 and CMT4911</b></p> <p><b>For PgDip award, the candidate must complete 120 credits and must successfully pass modules: PDE4231, PDE4905, PDE4230 and CMT4911</b></p> <p><b>Must obtain 120 credits at level 4 in order to progress onto the Group Project module.</b></p>
PDE 4241 Engineering Group Project (60 credits)		<b>MSc (180 credits)</b>

<b>12.3 Non-compensatable modules</b>	
<b>Module level</b>	<b>Module code</b>
4	CMT4911

**13. Curriculum map**

See Annex 2

**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.

<b>18. JACS code (or other relevant coding system)</b>	H100
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<b>19. Relevant QAA subject benchmark</b>	Engineering (2006)
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**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.



## Annex 2 Curriculum map for MSc /PgD Engineering Project 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 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	A1	A2	A3	A4	A5	A6	A7	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6
			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
4	Engineering Simulation	PDE 4905				X	X	X	X		X	X		X		X	X	X	X	X		X	X	X	X	X
4	Engineering Innovation	PDE 4230			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	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	X	X

## Programme learning outcomes

Programme Handbook: MSc Engineering Management and MSc Engineering Project Management 2009-10

<b>Knowledge and understanding</b>		<b>Practical skills</b>	
A1	The theory relating current Project Management Techniques and their interaction with business practices.	C1	Select appropriate project management solutions.
A2	Project management methods such as evolutionary techniques and scheduling tools.	C2	Plan ahead and prioritise actions in open ended tasks that require leadership.
A3	Techniques for management of human and financial resources.	C3	Research, communicate and justify ideas for decisions that would enable a company to avoid technical failure.
A4	Professional responsibilities including the global, social, ethical and environmental context of engineering.	C4	Validate and optimise business plans with full consideration of human and financial consequences.
A5	Methods for achieving and maintaining innovation.	C5	Use simulation to analyse and make process improvements.
A6	Engineering simulation methods such as the use of System Dynamics to model the research and development process.	C6	Design and implement project systems to guarantee product success.
A7	Process planning and improvement of product development		
<b>Cognitive skills</b>		<b>Graduate Skills</b>	
B1	Creatively solve engineering Project 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 real Project 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 Project Management tasks concurrently and show how they can be controlled effectively.	D4	Work independently and autonomously at a level appropriate for a project manager.
B5	Visualise the consequences of particular actions in a Project Management situation and plan effective solutions.	D5	Demonstrate competence and responsibility through mastering problems typically faced by a project manager.
		D6	Work successfully within a team, demonstrating an ability to deal with personal differences and supporting other colleagues.