

<b>Title:</b>	Engineering Management <b>APPROVED</b>
<b>Long Title:</b>	Engineering Management
<b>Module Code:</b>	ELEC7009
<b>Credits:</b>	5
<b>NFQ Level:</b>	Intermediate
<b>Field of Study:</b>	Electrical Engineering
<b>Valid From:</b>	Semester 1 - 2014/15 ( September 2014 )
<b>Module Delivered in</b>	<a href="#">2 programme(s)</a>
<b>Module Coordinator:</b>	JOSEPH CONNELL
<b>Module Author:</b>	Emmanuel Pican
<b>Module Description:</b>	This module details the management tools required by the learner to usefully engage in the workplace in the areas of communication, finance, project and contract management, and safety legal obligations. This module also examines both the obligations of the electrical engineer and some of the ethical problems they may face.
<b>Learning Outcomes</b>	
<i>On successful completion of this module the learner will be able to:</i>	
LO1	Identify the main ethical theories that underpin ethical problems in Electrical Engineering and using appropriate communication tools suggest solutions that demonstrate accountability and transparency.
LO2	Explain the obligations and responsibilities of the professional electrical engineer as outlined in Engineers' Ireland Code of Ethics.
LO3	Implement the operation and application of Environmental Protection Legislation and understand the legal consequences of non compliance.
LO4	Interpret the mathematical tools used for the costing of engineering projects.
LO5	Help prepare and implement a safety statement for an electrical installation.
LO6	Implement the principles of project planning and contract management as it applies to engineering project.
<b>Pre-requisite learning</b>	
<b>Module Recommendations</b>	
<i>This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).</i>	
No recommendations listed	
<b>Incompatible Modules</b>	
<i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.</i>	
No incompatible modules listed	
<b>Co-requisite Modules</b>	
No Co-requisite modules listed	
<b>Requirements</b>	
<i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.</i>	
No requirements listed	

<b><i>Co-requisites</i></b>
No Co Requisites listed

**Module Content & Assessment**

**Indicative Content**

**Professional Conduct**

Reasons for the code of ethics; the responsibilities and obligations of the electrical engineer to colleagues, clients, employers and to society in general.

**Ethical Dilemmas**

An analysis of background ethical theories –Deontology, Utilitarianism and rights theory; how these theories can be used to deal with ethical problems engineers face

**Communication Skills**

Communication and its importance. Electronic communications. Structure and content of reports. Reading and interpreting reports. Preparation for presentations and meetings. Chairing meetings, minutes recording, action lists and follow-up.

**Environmental Protection Legislation**

Planning process. Environmental impact study. Pollution control and measurement. Monitoring and enforcement. EPA (Environmental Protection Agency), licensing

**Business Environment**

The business cycle, interest rates, inflation, depreciation, amortisation. Operating and capital budgets, cash flow, life cycle costing, discounted cash flow (DCF) and net present value (NPV). Risk analysis.

**Safety**

Main provisions of the SHW at Work Act 2005. General principles of prevention. Duty of care. Safety statement, hazard identification, risk assessment. General application regulations.

**Project Planning and Scheduling**

Project management. Gantt charts, activity duration, time analysis, critical path analysis. Arrow diagram. Programme evaluation review technique (PERT).

Assessment Breakdown	%
Course Work	30.00%
End of Module Formal Examination	70.00%

**Course Work**

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Short Answer Questions	Written test	1,2	10.0	Week 4
Presentation	Group presentation on ethical issues facing electrical engineers.	1,2	20.0	Week 9

**End of Module Formal Examination**

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Formal Exam	End-of-Semester Final Examination	3,4,5,6	70.0	End-of-Semester

**Reassessment Requirement**

**Repeat examination**

Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

The institute reserves the right to alter the nature and timings of assessment

**Module Workload**

**Workload: Full Time**

<i>Workload Type</i>	<i>Workload Description</i>	<i>Hours</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	course notes delivery	3.0	Every Week	3.00
Independent & Directed Learning (Non-contact)	Study of Module Material	4.0	Every Week	4.00
Total Hours				7.00
Total Weekly Learner Workload				7.00
Total Weekly Contact Hours				3.00

**This module has no Part Time workload.**

Module Resources
<i>Recommended Book Resources</i>
<ul style="list-style-type: none"> <li>• Charles Handy 1999, <i>Understanding Organizations</i>, 4th Ed Ed., Penguin Press [ISBN: 0140156038 / 0-14-015603-8]</li> </ul>
<i>Supplementary Book Resources</i>
<ul style="list-style-type: none"> <li>• Joan van Emden and Jennifer Eastaer, <i>Technical Writing and Speaking</i>, McGraw Hill</li> <li>• Marsha Ludden, <i>Effective Communication Skills: Essential Skills for Success in Work and Life</i>, 2nd Ed Ed., JIST Works</li> <li>• Allan Ashworth, <i>Pre-Contract Studies - Development Economics, Tendering and Estimating</i>, 2nd Ed Ed., Blackwell Publishing</li> <li>• Marion O'Connor, John Mangan, John Cullen 2004, <i>IMI Handbook of Management</i>, Oak Tree press</li> <li>• Irish Government, <i>Safety Health and Welfare at Work Act 2005</i>, Irish Government</li> <li>• HSA, <i>Various Publications</i>, Health and Safety Authority Ireland</li> <li>• Chris Hendrickson, <i>Project Management for Construction</i>, Prentice Hall</li> </ul>
<i>This module does not have any article/paper resources</i>
<i>Other Resources</i>
<ul style="list-style-type: none"> <li>• Website: HSA 2005, <i>SAFETY, HEALTH AND WELFARE AT WORK ACT 2005</i> , HSA  <a href="http://www.hsa.ie/eng/Legislation/Acts/Safety_Health_and_Welfare_at_Work/SI_No_10_of_2005.pdf">http://www.hsa.ie/eng/Legislation/Acts/Safety_Health_and_Welfare_at_Work/SI_No_10_of_2005.pdf</a></li> <li>• Website: <i>Deontology for Engineers</i>  <a href="http://en.wikipedia.org/wiki/Deontological_ethics">http://en.wikipedia.org/wiki/Deontological_ethics</a></li> <li>• Website: <i>Utilitarianism</i>  <a href="http://en.wikipedia.org/wiki/Utilitarianism">http://en.wikipedia.org/wiki/Utilitarianism</a></li> </ul>

Module Delivered in			
Programme Code	Programme	Semester	Delivery
CR_EEPSY_8	<a href="#"><u>Bachelor of Engineering (Honours) in Electrical Engineering</u></a>	6	Mandatory
CR_EELEC_7	<a href="#"><u>Bachelor of Engineering in Electrical Engineering</u></a>	6	Mandatory