Title:	Process Quality Management APPROVED
Long Title:	Process Quality Management

Module Code:	CHEP8019	**Duration:**	1 Semester

Credits:	5
NFQ Level:	Advanced
Field of Study:	Chemical & Process Eng
Valid From:	Semester 1 - 2016/17 (September 2016)
Module Delivered in	1 programme(s)
Module Coordinator:	NIALL MORRIS
Module Author:	CILIAN O SUILLEABHAIN
Module Description:	The module addresses the methods,concepts and theories associated with management and lean manufacturing, including such topics as total quality management and six sigma. Budgetary and time management of engineering projects from design through construction are covered. People management including communications and motivation is addressed.

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Critically evaluate the approaches, concepts and theories of lean manufacturing, including key aspects of Six Sigma
LO2	Synthesise solutions to problems using world class manufacturing techniques to effect continuous improvement.
LO3	Apply Analytical Troubleshooting techniques to problem solving and decision making.
LO4	Formulate project schedules and controls.
LO5	Critique key concepts in people management including motivation, and communication.

Pre-requisite learning
Module Recommendations *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).*
None
Incompatible Modules *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.*
Lean Manufacturing
Co-requisite Modules
No Co-requisite modules listed
Requirements *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.*
None

Module Content & Assessment

Indicative Content
Lean Manufacturing Principles of Lean Manufacturing, (waste process versus value added processes, continuous improvement, employee involvement), Just in time.
Customer Focus Internal and External customers, Supplier-customer chains, causes of competitive advantage.
Applications of Statistical Quality Control Measuring quality performance using statistical quality control; run charts, control charts, specification limits versus control limits, process capability, pareto diagrams.
Decision Making and Technical Problem Solving Stuctured problem solving techniques for the identification of the root causes of problems, options for improvement, and selection of optimum strategy.
Process Mapping Process bottlenecks and most effective methods to de-bottleneck, Cycle-time analysis.
People Involvement Teamwork, Education, Training, Employee empowerment and development, Long term commitment, Unity of purpose, Accelerated change management, Influencing organisational mindset and culture to deal with and adapt to change.
Project Management Development of budgets, variance analysis. Project time management, critical path analysis. Quality in design.

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	Theory	1,2,3,4	10.0	Week 6
Project	Team Project	2,3,4	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	1,2,3,4,5	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				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Theory	4.0	Every Week	4.00
Independent & Directed Learning (Non-contact)	Independent study and assignment	3.0	Every Week	3.00
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	4.00

Workload: Part Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	Theory	4.0	Every Week	4.00
Independent & Directed Learning (Non-contact)	Independent study and assignment	3.0	Every Week	3.00
			Total Hours	7.00
			Total Weekly Learner Workload	7.00
			Total Weekly Contact Hours	4.00

Module Resources

Recommended Book Resources

- **Pound, E.S., Jeffrey H. Bell,J.H., Spearman, M.L. 2014, *Factory Physics for Managers: How Leaders Improve Performance in a Post-Lean Six Sigma World*, McGraw Hill Professional New York [ISBN: 007182250X]**
- **Pyzdek, T., Keller, P.A. 2014, *Six Sigma Handbook*, 4th Ed., McGraw Hill [ISBN: 0071840538]**
- **Ming Zeng, Peter J. Williamson, 2007, *Dragons at Your Door*, 1 Ed., 6, Harvard Business School Press Boston, USA [ISBN: 9781422102084]**

Supplementary Book Resources

- **Nigel Slack, Alistair Brandon-Jones, Robert Johnston. 2013, *Operations management*, 7 Ed., Pearson Boston [ISBN: 0273776207]**
- **Juran, J.M. 1993, *Quality planning and analysis ; from product development through use*, 3 Ed., McGraw Hill [ISBN: 0070331839]**
- **Deming, J.E., 1982, *Out of the Crisis,*, 1 Ed., Cambridge Uni Press Cambridge Massachussets [ISBN: 05213 05535]**
- **Womack, J.P et al 2007, *The machine that changed the world*, 1 Ed., Simon & Schuster London [ISBN: 18473 70551]**
- **Blanchard, K., Johnson, S. 2015, *The New One Minute manager*, 2nd Ed., Harper [ISBN: 0008128049]**
- **Taiichi Ohno; foreword by Norman Bodek 1988, *Toyota production system*, 1 Ed., Productivity Press Cambridge, Mass. [ISBN: 0915299143]**
- **Crosby, P.B. 1979, *Quality is Free*, Signet [ISBN: 978-0451622471]**
- **Peter F. Drucker 7, *The Effective Executive*, 2 Ed., Routledge [ISBN: 0750685077]**
- **Walton, M. 1991, *Deming Management at Work*, Perigree Books [ISBN: 399516859]**
- **Schonberger, R.J. 1982, *Japanese Manufacturing Techniques*, 1 Ed., Macmillan [ISBN: 0029291003]**
- **Hobbs, D.P. 2004, *Lean Manufacturing Implementation*, J Ross Publishing [ISBN: 19321159142]**

This module does not have any article/paper resources

Other Resources

- **Typed book of course notes: Cilian Ó Súilleabháin*Quality Management Course Notes*, Cork**

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_ECPEN_8	Bachelor of Engineering (Honours) in Chemical and Biopharmaceutical Engineering	8	Elective