Title:	Experimental Ind. Project APPROVED
Long Title:	Industry-focused Experimental Project

Module Code:	CHEM8015	**Duration:**	1 Semester

Credits:	20
NFQ Level:	Advanced
Field of Study:	Chemistry
Valid From:	Semester 1 - 2020/21 (September 2020)
Module Delivered in	1 programme(s)
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Module Description:	The learner will undertake a 20 credit industry focused experimental project over a semester. The industry focused project will provide the student with an opportunity to apply theoretical knowledge gained on their programme and the integration of their training in quality management systems (QMS), quality system validation (QSV), method validation, data analytics, data integrity and/or analytical science in a commercial operation. This module seeks to develop the student's skills in communication, team work, quality, applied & analytical sciences, interpretation, analysis, evaluation and inference of what they have learned and the documentation of this in a Log book and/or guided journal and experimental thesis. The project is supported by a member of departmental staff together with a workplace mentor. The aim of the project is to introduce the learner to structured employment in a relevant work sector and to develop in the learner an understanding regulatory procedures, technology, quality and scientific practices through the completion of an experimental project.

Learning Outcomes	
On successful completion of this module the learner will be able to:	
LO1	Critically analyse the company's scientific or engineering processes and its regulatory and quality strategies, for the development of an experimental project.
LO2	Plan and execute a programme of experimental work for the solution of an analytical, quality management or quality systems problem in a regulatory environment.
LO3	Reflect on programme-based learning acquired during the experimental project through the preparation of a reflective journal and laboratory notebook that records weekly experiments, interpretations, brain-storming sessions, analysis, evaluations, problem-solving strategies and learning reflections.
LO4	Document, analyse and critically evaluate the project findings to a professional standard.
LO5	Communicate in a professional manner both orally and in written form.

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).

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.

No incompatible modules listed

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.*
No requirements listed

Module Content & Assessment

Indicative Content
Research The learner will be required to apply advanced research skills including design of experiments where appropriate, taking note of ethical considerations, being aware of plagiarism, to constructively evaluate proposals, draw conclusions and offer recommendations to solve an industry-related problem by developing an experimental project, as part of this module.
Communication The learner will acquire proficiency in the area of the communication process. This will consist of articulating ideas, insights, analysis and policy via meetings, presentations resulting from the experimental project
Application of Learning to the Workplace The learner will develop the capacity to contribute valuable creative and innovative perspectives and knowledge to develop their experimental project. Programme modules and their content covering QMS, QSV, analytical techniques, regulations, data analytics and statistics will be integrated into the chosen experimental project.
Personal Development and Initiative The learner will be required to act autonomously and think independently, to formulate and communicate judgements with incomplete or limited information, to take responsibility for the work of self through self-evaluation. Both professional individual performance and teamwork with colleagues will be an important aspect of the experimental project.
Problem Solving This will consist of the analysis of problems arising in the experimental project from both a QMS, QSV, regulatory, scientific and/or instrumentation perspective. The learner will demonstate a critical awareness of current problems, will proactively troubleshoot and solve problems and develop novel solutions in problem areas. All recorded daily/weekly experiments, project meetings, interpretations, brain-storming sessions, analysis, evaluations, problem-solving strategies and learning reflections will be recorded in a reflective journal and laboratory notebook.
Teamwork The learner will engage with multi-disciplinary teams and refine skills in the area of relationship and people management where necessary as part of the experimental project. This will require an ability to lead and initiate team activity and to take responsibility for teamwork, within the context of the chosen experimental project.

Assessment Breakdown	%
Course Work	100.00%

Course Work

Assessment Type	*Assessment Description*	*Outcome addressed*	*% of total*	*Assessment Date*
Project	Using a Log book and/or guided journal, the learner will be required to record all daily/weekly experiments, project meetings, interpretations, brain-storming sessions, analysis, evaluations, problem-solving strategies and learning reflections, related to the experimental project.	1,2,3,4,5	20.0	Every Week
Project	Project plan and supporting flow-diagram and Gantt chart	1,2,3,4,5	10.0	Week 3
Presentation	Mid-Term Presentation on agreed project concept & strategy.	2,3,5	10.0	Week 5
Project	Interim Project Report (Literature Review, Experimental section, preliminary tables and figures.	1,2,3,4,5	20.0	Week 8
Project	Thesis or peer review publication following an appropriate journal format outlining the completed experimental project	1,2,3,4	30.0	Week 11
Presentation	The learner will be required to prepare and deliver a powerpoint presentation on the completed experimental project.	2,3,4,5	10.0	Sem End

No End of Module Formal Examination

Reassessment Requirement

Coursework Only
This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.

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*
Lecturer-Supervised Learning (Contact)	Mentorship and guidance for the student in the workplace from the academic supervisor	0.5	Every Week	0.50
Independent & Directed Learning (Non-contact)	Project work and independent learning	27.5	Every Week	27.50
			Total Hours	28.00
			Total Weekly Learner Workload	28.00
			Total Weekly Contact Hours	0.50

Workload: Part Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecturer-Supervised Learning (Contact)	Mentorship and guidance for the student in the workplace from the academic supervisor	0.5	Every Week	0.50
Independent & Directed Learning (Non-contact)	Project work and independent learning	27.5	Every Week	27.50
			Total Hours	28.00
			Total Weekly Learner Workload	28.00
			Total Weekly Contact Hours	0.50

Module Resources

Recommended Book Resources

- **Bossot, B. 2020, *Reflective Journal*, 3rd Ed., : Red Globe Press [ISBN: 1352010291]**
- **Marshall, P. 2015, *Research Methods: How to design and conduct a successful project (Student Handbooks)*, How to Books Ltd., UK**
- **Parker, G.M. 2008, *Team Players and Teamwork: New Strategies for Developing Successful Collaboration*, 2nd Ed., Jossey-Bass San Francisco [ISBN: 0787998117]**
- **Fogler, H. Scott; LeBlanc, Steven E 2014, *Strategies for creative problem solving*, 3rd Ed., Prentice Hall NJ, USA [ISBN: 9780133091663]**

Supplementary Book Resources

- **Fanthome, C. 2004, *Work Placements: A Survival Guide for Students*, 1st Ed., Palgrave Macmillan Hampshire [ISBN: 1403934347]**
- **Yate, J.M. 2014, *Great Answers to Tough Interview Questions*, 9th Ed., Kogan Page [ISBN: 074947145X]**
- **Crawford, J.B. 2004, *What Not To Do When Seeking Employment*, 1st Ed., Authorhouse Bloomington, Indiana [ISBN: 1418423491]**
- **Innes, J. 2012, *The CV Book: Your Definitive Guide to Writing the Perfect CV*, 2nd Ed., Pearson Harlow, Essex [ISBN: 0273776584]**

This module does not have any article/paper resources

Other Resources

- **Website: 2019*Code of Good Practice in Research*, CIT, Cork, Ireland https://www.cit.ie/aboutcit/reports_plan sandpolicies/academic_**
- **Website: 2020*U.S. Food and Drug Administration* https://www.fda.gov/home**
- **Website: 2020*ICH_Harmonised for Better Health* https://www.ich.org/**

Module Delivered in

Programme Code	Programme	Semester	Delivery
CR_SQSDA_8	Higher Diploma in Science in Quality Systems Validation with Data Analytics	2	Mandatory