



EE581: Masters Project - Nano Tech. Major

Module Details

Title:	Masters Project - Nano Tech. Major PENDING APPROVAL
Long Title:	Masters Project - Nano Tech. Major
Language of Instruction:	English
Module Code:	EE581
Credits:	30
NFQ Level:	9
Field of Study:	Electronic Engineering
Valid From:	2016/17 (Sep 2016)
Module Delivered In	1 programme(s)
Administrator:	Noel Murphy
Module Coordinator:	Jennifer Bruton
Module Department:	20 - ELECTRONIC ENGINEERING
Module Description:	To allow the student to put theoretical knowledge of engineering to use in a practical project related to Nano Technology and related devices and to document the project outputs to research publication standard. In this module students will use and develop knowledge and skills in planning and managing projects, risk and health & safety assessments, reviewing literature, analysing, defining and implementing an engineering solution, documenting and presenting outcomes and key findings.

Learning Outcomes

On successful completion of this module the learner will be able to:

LO1	Describe and explain the scientific principles and engineering technologies and design processes associated with their project area
LO2	Identify engineering problems and to formulate problems in a manner which allows solution
LO3	Display a level of ingenuity in applying appropriate existing solutions or devising novel solutions to engineering design problems
LO4	Devise appropriate tests or experiments in order to allow exploration, analysis and evaluation of a proposed system design
LO5	Apply critical analysis to the results of tests or experiments and to draw concrete conclusions as to the effectiveness of an engineering design
LO6	Identify technical requirements for a design and to assess the practicality of possible solutions to problems arising in the project
LO7	Write well structured engineering reports which are written to the correct level of technical detail to suit the intended reader
LO8	Apply project management techniques in the execution of the project in order to undertake all project implementation and development work and to produce a complete project report to deadline
LO9	Take responsibility for progression of their own work under guidance of a supervisor and to identify and report problems and issues as they arise which might impede progress of a project
LO10	Conduct the required background research related to the project topic and be able to search for, access, review and evaluate publications on given topics
LO11	Distinguish between their own work and that of others and to credit others' in a proper manner
LO12	Resolve differences of opinion on technical matters between themselves and their supervisor
LO13	Effectively communicate technical concepts and ideas orally, in writing and graphically
LO14	Search research journals, the Internet, and other resources for relevant research approaches and to evaluate and compare these
LO15	Use statistical approaches, critical analysis, quantitative and qualitative comparisons to evaluate the quality of their own work and that of others
LO16	Communicate complex technical ideas to a lay audience
LO17	Report their research results to publication standard in the format of an academic paper
LO18	Document their results in a hierarchical manner, with fine detail delegated to appendices and key points in the main report

Pre-requisite learning**Module Recommendations**

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 recommendations listed

Co-requisite Modules

No Co-requisite modules listed

Pre-Requisite

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.



Module Content & Assessment

Indicative Content and Learning Activities

Literature Review & Analysis of the Problem

This review should include relevant literature and other sources which must be critically analysed to suggest a possible project approach/solution. Must be properly referenced and form a significant section of the final project portfolio.

Presentation Preparation & Delivery

Presentation of key information, ideas and conclusions from the Literature review along with a high-level project plan.

Project Plan

Development of an approved fine-detailed project plan and solution to implement a reasoned engineering approach to complete/advance the project.

Implementation of Solution

Activities carried out to fulfill the project plan. May take many forms - laboratory work, computer based analysis, cognitive reasoning etc.

Testing & Analysis of Results

Designing appropriate tests and evaluating the outcome from these and the new information developed during the project in a critical and insightful manner.

Documentation of Outcomes

Production of the project conference paper which should document key aspects and findings of the project and reach conclusions. Also the portfolio which includes appendices and interview.

Communications with supervisor, technical support & others

Arranged communications (on-campus and/or electronic) to discuss the advancement of the project and the technical resources required.

Assessment Breakdown

%

Continuous Assessment

100.00%

Continuous Assessment

<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome Addressed</i>	<i>% of total</i>	<i>Assessment Date</i>
Report(s)	Literature Review (Stage I)	1,2,6,7,9,10,11,13,14	10.00	Week 19
Presentation	Oral Presentation	1,2,3,6,13,16	10.00	Week 21
Assignment	Project Design Plan	2,3,6,7,8,9,12,13	0.01	Other
Performance evaluation	Supervisor assessment of Project Management	3,6,8,9,12	9.99	Other
Oral Examination	Project Portfolio: Final Oral Examination	1,2,3,8,9,11,13,15	10.00	Other
Project	Project Portfolio: Research Paper, Non-Technical Articles and Appendices	1,2,3,4,5,6,7,10,11,13,14,15,17,18	60.00	Other

No End of Module Formal Examination

DCU reserves the right to alter the nature and timings of assessment



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Module Workload

Full Time hours per semester		
<i>WorkLoad Type</i>	<i>WorkLoad Description</i>	<i>Hours</i>
Directed learning	Literature Review	100
Directed learning	Presentation Preparation & Delivery	30
Directed learning	Project Implementation Activities over 2 Semesters	30
Directed learning	Semester 2 Project Planning	60
Independent Study	Summer Independent Implementation	380
Directed learning	Summer Final Implementation Elements	75
Report	Final Portfolio Production & Assessment	75
	Total Hours	750.00

This module has no Part Time workload.

Module Resources

Essential Book Resources

Adedeji B. Badiru, *Project management for research: A guide for Engineering and Science*, Springer [ISBN: 0412588900]

Supplementary / Recommended Book Resources

Thomas Mann 2005, *The Oxford guide to library research*, Oxford University Press New York [ISBN: 0195189981]

Hoang Pham, ed 2006, *Springer Handbook of Engineering Statistics*, Springer London [ISBN: 1852338067]

Mike W. Martin, Roland Schinzinger 2005, *Ethics in engineering*, McGraw-Hill Boston [ISBN: 0072831154]

Charles Lessard,, *Project Management for Engineering Design* [ISBN: 1598291742]

This module does not have any article/paper resources

Other Resources

Website: *Module Loop Site*

<https://loop.dcu.ie/course/view.php?id=8281>

Module Delivered In

Programme Code	<i>Programme Title</i>
MEN	MEng in Electronic Systems (Draft)

Module Managers & Teachers

Module Managers		
<i>Semester</i>	<i>Staff Member</i>	<i>Staff Number</i>
Semester 1	Jennifer Bruton	75027771
Semester 2	Jennifer Bruton	75027771
Autumn	Jennifer Bruton	75027771

Module Teachers	
<i>Staff Member</i>	<i>Staff Email</i>
No Teacher Staff Assigned	