

Module Title:	Research Project (Engineering)
Language of Instruction:	English
Credits:	10
NFQ Level:	8
Module Delivered In	5 programme(s)
Teaching & Learning Strategies:	The module will be delivered as a full time project. Access to resources (labs, workshops) will be supervised with individual learners being supervised by a single supervisor or group of supervisors. Progress will be monitored with attendance and interaction with supervisors being critical. Staged elements of the project will be evaluated to provide the learners with formative assessment and feedback.
Module Aim:	The aims of the module are: To provide the learner with the opportunity to apply and extend the knowledge, competencies and skills developed on the programme; To research, design, develop and critically analysis within an engineering problem: To manage, document, and communicate an engineering project: To develop personal skills of initiative, independence and responsibility.
Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Conduct a literature review and formulate a project plan
LO2	Design an appropriate engineering solution to accomplish the project objectives
LO3	Evaluate the proposed solution through analysis, simulation and/or experimentation
LO4	Demonstrate self-direction, problem solving and project management through technical reports or papers
LO5	Present a critical analysis and discussion of the project outcomes through technical reports, papers, posters or presentations
LO6	Assess sustainability and ethical issues in relation to personal conduct, project content and completion of the project objectives
Pre-requisite learning	
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>	
No recommendations listed	
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>	
No incompatible modules listed	
Co-requisite Modules	
No Co-requisite modules listed	
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>	
Development Project (Engineering) or equivalent	

Module Content & Assessment

Indicative Content

Project Title and Scope

The scope and title of the project will be determined by the project supervisors and in some cases, with industry partners. Typical project components will include but are not limited to the following: • design and manufacture of an engineering product or system; • mathematical modelling of an engineering system; • review of an emerging technology or review an existing product design; • development of an engineering product or system. Students will be encouraged to explore possible cooperation on project assignments with their peers from other engineering programmes in the institute and their peers from international collaborative partners.

Project Brief

Projects will be selected from a list of projects provided. These may be linked to work placement or industry. Prepare a working specification and propose an action plan, identifying the staged structure and associated deadlines, in consultation with the project supervisor/s.

Project Plan

Students will be expected to develop a detailed project plan using project planning tools.

Research

Conduct a literature review. Investigate, research, collect, collate and analyse relevant information.

Design

Software tools will be used for simulation in the development of the design. Design software will be used to produce working drawings for the prototype.

Testing and Validation

Design, implement and test the proposed solution. Testing of solution to ensure that it meets the original specification

Evaluation

Thoroughly evaluate the proposed solution and research its production costs. Investigate exploitation of the proposed solution: Commercial issues, patent issues, financial viability.

Presentation

The learner will be required to make a technical presentation on the progress of the project at intervals linked to the staged structure of the project. This may be in the form of a poster presentation, video presentation or in camera presentation.

Work Journal

The learner will maintain a detailed log of actions, proposed and executed, issues arising, discussions with supervisor and others, and all aspects of the project.

Thesis

A formal report should be prepared to document the activity undertaken throughout the project. This may take the form of a technical report or journal paper or as defined at the beginning of the project.

Assessment Breakdown

%

Project

100.00%

No Continuous Assessment

Project

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Project	Series of presentations will be completed. All presentations are made in front of a panel of academic staff. The academic staff assess the presentation based on structure, time management and delivery.	2,3,5	30.00	n/a
Project	The final project deliverables are assessed under the following headings: • Literature review on historical and state-of-the-art publications and resources relevant to the project; • Project plan presenting the project management element of the work; • Design and implementation of the solution proposed; • Design innovation, technical prowess and sustainability; • Manufacture and/or simulation, validation and testing of the proposed solution/design; • Discussion of results, methodology and literature leading to reasonable and objective conclusions • Communication skills and technical accuracy of the submitted technical report/paper; • Effort and participation;	1,2,3,4,5,6	70.00	Sem 2 End

No Practical

No End of Module Formal Examination

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Project	24 Weeks per Stage	4.25
Independent Learning	30 Weeks per Stage	4.93
Total Hours		250.00

Module Delivered In

Programme Code	Programme	Semester	Delivery
CW_EEAER_B	Bachelor of Engineering (Honours) in Aerospace Engineering	7	Mandatory
CW_EFARG_B	Bachelor of Engineering (Honours) in Agricultural Systems Engineering	7	Mandatory
CW_EEBEE_B	Bachelor of Engineering (Honours) in Biomedical Electronics	7	Mandatory
CW_EESYS_B	Bachelor of Engineering (Honours) in Electronic Engineering	7	Mandatory
CW_EMMEC_B	Bachelor of Engineering (Honours) in Mechanical Engineering	7	Mandatory