



Module Descriptor Form

Civil and Environmental Engineering

CL518 - Group Design Project A

Module Code	CL518	Module Title	Group Design Project A				
Module Registrar	Valentine, Mrs Viola						
Other Staff Involved							
Credit Weighting	20	Semester	1	Elective	No	Academic Level	5
Pre-requisites							
Required for							

Module Format and Delivery (hours):

Lectures	Tutorials	Assignments	Labs	Private Study	Total
2	3	97	0	98	200

Educational Aim

This module aims to:

develop ability at multi-disciplinary conceptual design, working in small groups, utilising knowledge of fundamental civil engineering principles and material science, to create innovative solutions. Teaching and learning is achieved by self-directed group work over-seen and facilitated by a series of individual group tutorials with staff.

The project focusses on the civil engineering requirements and considerations for the conceptual design of a proposed renewable energy technology, as well as environmental issues, technical risk and financial viability. Students will develop comprehensive and innovative design solutions that involve structural, geotechnical and water engineering, risk management, environmental and financial planning.

Syllabus

This module will teach the following:

Background

- The strategic, political and financial context of the development of new energy resources
- The available energy resources and technology to harvest the energy
- The current state of the industry, the opportunities and constraints

The scheme

- Outline engineering solution including project planning
- Energy yield, costs and financial viability
- Consideration of key geotechnical, structural and construction aspects of the design solution
- Technical risks and mitigation measures
- Environmental impacts and mitigation measures
- Outline (concept) design of an energy facility

The project report will be assessed on understanding and competence in these areas as well as the team's ability to bring all of these aspects together into a coherent and well-written report.

Learning Outcomes

On Completion of the module, the student is expected to be able to:

LO: 1	Apply knowledge and understanding of mathematics, science and computer- based methods to analyse and solve a substantial range of engineering problems.
LO: 2	Evaluate and synthesize design concepts from a range of areas including some outside engineering and apply them creatively and effectively in engineering projects.
LO: 3	Research new theories, concepts, models, methods and information in unfamiliar situations, working independently and as a team to plan, delegate and collaborate, to deliver a design project to schedule.
LO: 4	Apply engineering techniques taking account of a range of commercial and industrial constraints and communicate the resulting design to the client in an appropriate level of technical detail.

(UK SPEC suggests no more than 4 learning outcomes per module. Statements must be broad and be syllabus free and link in with the intended learning outcomes on the programme specifications.)

Assessment of Learning Outcomes - Criteria

Learning Outcome: 1

	Criteria
1	Apply mathematical models to devise appropriate structural, geotechnical or hydro designs
2	Apply scientific principles to evaluate environmental impacts of a project
3	Apply computer-based models to solve design challenges

Learning Outcome: 2

	Criteria
1	Evaluate the political, economic and environmental factors affecting energy production in Scotland
2	Evaluate the applicability and potential of a range of renewable energy-generation technologies
3	Identify opportunities for renewable energy development for a particular technology and a shortlist of potential sites

Learning Outcome: 3

	Criteria
1	Identify knowledge gaps and seek appropriate sources of information
2	Identify component tasks and delegate workloads between group members
3	Coordinate the combination of tasks and informally review the combined results to meet deadlines

Learning Outcome: 4

	Criteria
1	Estimate costs, timescales and revenue from a proposed design and evaluate the probability of variation due to key risk factors
2	Evaluate likely project risks and appropriate mitigation measures

Assessment Method(s) Including Percentage Breakdown and Duration of Exams

To Pass the module, students need to gain a summative mark of: 50%

Description	Semester	Start Week	Duration	Weight	Submission Week	Linked Criteria
DP51 Project Proposal	1	1		20%	5	LO 2: C1, C2, C3 LO 3: C1, C2, C3
DP52 Conceptual Design Report	1	1		80%	E	LO 1: C1, C2, C3 LO 2: C1, C3 LO 3: C1, C2, C3 LO 4: C1, C2

Principles of Assessment Feedback

(within Assessment and Feedback Policy at: <https://www.strath.ac.uk/staff/policies/academic/>)

These are incorporated in this module as follows:

- The project activities are spread throughout the semester with the maximum possible time allowed with the constraints of exam weeks, national holidays, University closures and marking deadlines
- Feedback/feedforward is given to each group at each project meeting, so that they have the opportunity to improve their work on an ongoing basis.
- The project proposal allows formal feedback/feedforward to be given at this key point in the project so that students can incorporate the advice given into their conceptual design report.
- The group project encourages peer dialogue covering many issues and also, structured discussion with the teacher.
- Assessment covers a range of skills and abilities (researching, presenting, writing, designing, drawing, calculations and scale drawings), so that students who have strengths in some skills, but not others, can still do well in this class.
- Coursework is broken down into the specific topics to be covered and the proportion of the overall marks allocated to each topic is specified.

Additional Information

Students must gain a summative mark of 50% to pass the module. Students who fail the module at the first attempt will be re-examined during the resit diet in July/August. This re-examination will consist entirely of coursework with resit assessment procedures as above. The resit mark will be 100% of the resit coursework. No marks from any previous attempts will be transferred to a new resit attempt.

Resit Procedure

Resubmission of DP52 Conceptual Design Report, either individually or by the whole group, prior to commencement of the resit exam diet in July/August.

Recommended Reading

An extensive list of references and key information are included in the module brief available in Myplace class page.

Module Timetable

Week	Semester 1	Semester 2
0		
1		
2		
3		
4		
5	Submission 20%	
6		
7		
8		
9		
10		
11		
E	Submission 80%	

Date of Last Modification

10-09-2025