

MODULE DESCRIPTION FORM

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ME312 MECHANICAL ENGINEERING DESIGN 3A

Module Registrar: Mr C Johnstone cameron.johnstone@strath.ac.uk	Taught To (Course): Year 3 Mechanical Engineering		
Other Lecturers Involved: Mr C Cameron	Credit Weighting: 10 (ECTS 5)	Semester: 1	
Assumed Prerequisites: ME105 Mech Eng Design; ME212 Materials Eng & Design; ME214 Mech Eng Design 2.	Compulsory class	Academic Level: 3	Suitable for Exchange: N

Module Format and Delivery (HOURS i.e. 1 credit = 10hrs of study):

Lecture	Tutorial	Laboratory	Groupwork	External	Online	Project	Assignments	Private Study	Total
10	20		70						100

Educational Aim

This module aims to provide students with experience in applying engineering science principles in a design context. It is the aim of this class to have students experience the application of knowledge, gained primarily from previous classes, to the initial stages of the design process including product design specification, concept generation and selection, performance analysis and decision support in the selection of a candidate design solution.

Learning Outcomes

On completion of the module the student is expected to be able to:

LO1 experience working in teams and the role of organisation in success

LO2 develop a concept from inception to detailed design level

LO3 experience working with the non-analytical elements of design

LO4 appreciate design as a process of iteration

Syllabus

The module will teach the following:

The class consists of a semester-long group design exercise. Over the semester, the groups will develop their design from the conceptual stage to final detailed design.

There is an assessment for 50% of the class mark in week 11 which consists of a Group Design Presentation reporting how the project has been managed, how the product design specification is consolidated, the resulting concepts that have been generated and evaluated, the detailed evaluation of the three concepts taken forward for more in-depth evaluation and the final concept to be taken forward for manufacturing and testing.

An individual learning log should also be submitted in week 11. This will be for the remaining 50% of the class mark. This should be a weekly log of an individual's personal contribution to the group and progressing the Design challenge given out; what design evolution activities the individual has undertaken that week y undertook that week, how this was undertaken (methodology, etc.) and results/ outputs from the activity undertaken.

Assessment of Learning Outcomes

Criteria

For each of the Module Learning Outcomes the following criteria will be used to make judgements on student learning:

Please note that due to the integrated nature of the group design activity the learning outcomes are not assessed independently. Assessment is therefore carried out part way through and at the end of the semester on the following basis:

- 1) Group Concept Development Presentation, week 7 – 35%
- 2) Group Prototype Design Presentation, week 11- 45%
- 3) Peer Assessment, week 11 - 20%

Assessments 1 and 2 consist of a Group presentation, and questions and answers sessions with the class facilitators. During each session students should collectively demonstrate their understanding of the design process as defined by LO1 to LO4 through the presentation and explanation of their group solution to the specific design problem. Assessment 3, Peer Assessment is used to provide a mark which represents an individual's engagement and contribution in advancing the Design challenge.

The standards set for each criterion per Module Learning Outcome to achieve a pass grade are indicated on the assessment sheet for all assessment.

Principles of Assessment and Feedback

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

Ongoing formative feedback will be provided by verbal discussion at weekly timetabled group working sessions based in the design studio. Summative feedback will be provided by mark awarded at the project consolidation stage and for the group portfolio presented upon completion of the detailed design.

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

Examination				Coursework		Practical		Project	
Number	Month(s)	Duration	<i>Weighting</i>	Number	<i>Weighting</i>	Number	<i>Weighting</i>	Number	<i>Weighting</i>
								1	100%
*						*		*LO1-4	

* *L/Os*: Indicate which Learning Outcomes (L01, L02, etc) are to be assessed by exam/coursework/practical/project as required.

Coursework / Submission deadlines (*academic weeks*):

- 1) Concept Development Presentation, week 6
- 2) Prototype Design Presentation, week 11
- 3) Peer Assessment, week 11

Resit Assessment Procedures:

Submission of additional work by the start of the Resit Diet, summer 2023.

^^Students must contact the module Registrar for details as soon as results confirm that a resit is required.

PLEASE NOTE:

Students must gain a summative mark of 40% to pass the module. Students who fail the module at the first attempt will be re-assessed prior to the August diet. This re-assessment will consist entirely of a coursework. No marks from any previous attempts will be transferred to a new resit attempt.

Recommended Reading

No set texts used or recommended for the class. Relevant course material will be provided during lectures or on Myplace through the Reading List.

Additional Student Feedback

(Please specify details of when additional feedback will be provided)

Date	Time	Room No
		Check Myplace for details

Session: 2023/24

Approved:

Course Director Signature: S Connolly (on behalf of E Henderson)

Date of Last Modifications: 25/08/2023

(Updated August 2023)

MODULE TIMETABLE

Module Code:

ME312

Module Title:

Mechanical Engineering Design 3A

Brief Description of Assessment:

Groups will prepare one final presentation and be assessed by an experienced academic panel. These will be approximately 20 mins. Group are expected to show the Conceive-Design-Implement-Operate philosophy in their work and show how, using engineering design principles, several design concepts can be reduced to a single final design for build. An individual assessment mark will be awarded based on an individual's learning log detailing their level of engagement and contribution to the Design project.

Assessment Timing

Please note: Timings can and will change, this should only be used as a guide.

Semester One	W&D Wk	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	WK10	WK11	Exam Period
	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Present ation Group Concept	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Choose an item. Choose an item.	Presentati on (Group- Final) Peer Assessm ent	Choose an item.