

## MODULE DESCRIPTION FORM

### DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

### ME312 MECHANICAL DESIGN 3A

<b>Module Registrar:</b> Mr C Johnstone <a href="mailto:cameron.johnstone@strath.ac.uk">cameron.johnstone@strath.ac.uk</a>	<b>Taught To (Course):</b> Year 3 Mechanical Engineering		
<b>Other Lecturers Involved:</b> Mr C Cameron	<b>Credit Weighting:</b> 10	<b>Semester:</b> 1	
<b>Assumed Prerequisites:</b> ME105 Mech Eng Design; ME212 Materials Eng & Design; ME214 Mech Eng Design 2	<b>Compulsory class</b>	<b>Academic Level:</b> 3	<b>Suitable for Exchange:</b> 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 experienced working in teams and the role of organisation in success

LO2 developed a concept from inception to detailed design level

LO3 experienced working with the non-analytical elements of design

LO4 appreciated 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 initial assessment for 30% at week 5 when the product design specification is consolidated and resulting concepts that have been generated are evaluated. A group portfolio of the design, detailing its background and genesis will be submitted in week 10, along with the Peer Marking sheets.

#### Assessment of Learning Outcomes

##### Criteria

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

LO1 to LO4

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:-

Project Consolidation - 30%  
Prototype Design Presentation - 70%

Both assessments consist of combination of informal presentation and questions and answers session 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. Peer Marking may be used to modify individual marks as necessary

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/staff/policies/academic/> )

Please state briefly how these are incorporated in this module.

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

Examination				Coursework		Practical		Project	
Number	Month(s)	Duration	Weighting	Number	Weighting	Number	Weighting	Number	Weighting
								1 group	100%
*				*		*		*All	

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

### Coursework / Submissions deadlines (*academic weeks*):

N/A

### Resit Assessment Procedures:

Additional work as instructed by the Class Registrar by the beginning of semester 2, with a deadline prior to the commencement of the August exam diet.

### 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 during the August diet. This re-assessment will consist entirely of coursework. No marks from any previous attempts will be transferred to a new resit attempt.

### Recommended Reading

\*\*\*Purchase recommended    \*\*Highly recommended reading    \*For reference (do NOT purchase)  
None

### Additional Student Feedback

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

Date	Time	Room No
		Check timetable webpages for details

Session: 2019/20

### Approved:

Course Director Signature: Dr Stuart Grey

Date of Last Modifications: 30/8/19

## MODULE TIMETABLE

**Module Code:**

**ME312**

**Module Title:**

**Mechanical Design 3A**

### Brief Description of Assessment:

Groups will prepare two presentations and be assessed by an experienced academic panel.

The first will be approximately 10mins and the second 20mins. Group are expected to show the Conceive-Design-Implement-Operate philosophy in their work and show how, by the use of engineering design principles, a number of concepts can be reduced to a single final design for build.

### Assessment Timing:-

Indicate on the table below the start/submission dates for each assignment/project and the timing of each exam/assessment using the dropdowns provided. Dropdowns can be left blank. Add extra notes below the dropdowns.

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

Semester One	C&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.	Presenta tion (Group)	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 (Final)	Choose an item. Choose an item.	Choose an item.