

MODULE DESCRIPTION FORM

DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

ME109 CAD for BME

Module Registrar: Dr Yevgen Gorash yevgen.gorash@strath.ac.uk	Taught To (Course): Cohorts for whom class is compulsory		
Other Lecturers Involved: Mr Drew Irvine Mr Lewis McFadden	Credit Weighting: 10	Semester: 2	
Assumed Prerequisites: none	Compulsory class	Academic Level: 1	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
	22		36		4		8	30	100

Educational Aim

This module aims to introduce the concept of engineering design, assembling, standards and modern manufacturing techniques (CAD-CAM) using state-of-art engineering software. Students will be expected to work through structured problem solving and group-based modelling and simulation tasks during the computer-aided labs and in their own time.

Learning Outcomes

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

- LO1 Appreciation of formal design methods and standards, and the use of sketching, drawing and 3D models as an essential component of communication and product development cycle.
- LO2 Appreciation of modern CAD-CAM techniques and state-of-art engineering software.

Syllabus

The module will teach the following:

- a) An introduction to Engineering Communication, including engineering drawings and 3D models and their place within the wider context of the manufacturing process.
- b) An Introduction to the Design Process using modern 3D solid modelling approaches.
- c) An introduction to CAD-CAM techniques and basic techniques in the use of specialised software.

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

- C1 Students should be able to communicate their design ideas using graphical communication skills.
- C2 Students should have an understanding of basic requirements and standards for Engineering Design.

LO2

- C1 Students should have a basic working knowledge of CAD & CAM software and modelling approaches.
- C2 Students should understand the benefits of CAD-CAM techniques in modern manufacture.

LO3

- C1 Students should complete tasks in teams while completing complex tasks.
- C2 Students should cooperate to produce joint outputs that combine the efforts of each team member.

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/>)

Deliver high quality feedback information that helps learners self-correct:

High quality feedback will be provided by staff to students at all stages of their work. This will involve group discussions in tutorial slots, and feedback on project work.

Ensure that summative assessment has a positive impact on learning.

Summative assessments will be responded to by detailed feedback on an individual basis.

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 (S2)	100%				
*				* LO1, LO2, LO3		*		*	

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

Coursework / Submissions deadlines (*academic weeks*):

End of semester 2.

Resit Assessment Procedures:

Submission of alternate ^coursework(s) prior to commencement of the August exam diet.

^^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 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

- *** BS 8888:2017 "Technical product documentation and specification.", British Standards.
Can be downloaded free on DS using the following link.
(<https://bsol-bsigroup-com.proxy.lib.strath.ac.uk/Home>).
- ** "Learn SOLIDWORKS 2020: A hands-on guide to becoming an accomplished SOLIDWORKS Associate and Professional" [internet resource] by Tayseer Almatarr, Packt Publishing Ltd, 2019, ISBN: 1789801958, 9781789801958. Full online access via the Library website.
- * "Materials Science and Engineering: an Introduction"
by Wm D Callister, John Wiley & Sons, Copies in the Main Library.
- * "Mastering Manufacturing" by Gordon Mair, Macmillan, 1993, ISBN 0333542304.
Copies available in Main Library.
- * "Manufacturing Engineering and Technology" by S. Kalpakjian, Addison-Wesley, 1995, ISBN 0201538466. Copies in Main Library.
- * "Materials and Processes in Manufacturing" by E.P. DeGarmo, Macmillan, 1984, ISBN 0029-401405.
Copies in Main Library.

Additional Student Feedback

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

Date	Time	Room No
Depending on group's schedule of activities.		Check timetable webpages for details

Students receive regular feedback through discussion with staff during activities throughout the year. Detailed, written feedback for the submitted project element of assessment. All aspects of the course involve verbal feedback, in the context of group discussions with supervising staff.

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:

ME109

Module Title:

CAD FOR BME

Brief Description of Assessment:

Sem 2 – Basics of solid modelling using 3D CAD & CAM software including: creating parts, drawings, assemblies and machining simulations. Each assigned lab team (4-5 students) will produce a coursework focussed on computer-aided comprehensive re-design of an RC buggy that will consider a contribution of each individual student on the stage of concept design development and selection.

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.	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.	Choose an item. Choose an item.

Semester Two	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.	Course work Set	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.	Course work Submit