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
2	22		36				10	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.

LO3   Understand the importance of team working and cooperative learning while completing complex tasks.

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)   Students will learn the basics of teamwork while designing a remote control (RC) mechanism using computer-aided tools.

c)   An Introduction to the Design Process using modern 3D solid modelling approaches.

d)   An introduction to CAD-CAM techniques and basic techniques in the use of specialised software.

e)   Students will learn the basics of engineering report writing while working together on the group coursework report.

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/professionalservices/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.

Feedback

Summative assessments: Courseworks submission in week 11 of s2
Formal feedback: Written feedback for the courseworks will be provided.
Informal feedback: Verbal feedback during the tutorial sessions. Written feedback will be provided via the Myplace forum and emails.

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

Examination				Coursework		Practical		Project	
Number	Month(s)	Duration	**Weighting**	Number	**Weighting**	Number	**Weighting**	Number	**Weighting**
				1	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 July/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 July/August exam 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

***Essential	**Highly recommended reading	*For reference/further reading

*** "Manufacturing Engineering and Technology", 7th Edition [internet resource] by S. Kalpakjian, Pearson, 2021, ISBN 9781292372891. Full online access via the Library website: https://www.vlebooks.com/Product/Index/2151913

*** "Learn SOLIDWORKS: Get up to speed with key concepts and tools to become an accomplished SOLIDWORKS Associate and Professional", 2nd Edition [internet resource] by Tayseer Almattar, Packt Publishing, 2022, ISBN: 9781801074339. Full online access via the Library website: https://app.knovel.com/kn/resources/kpLSOLID03/toc?kpromoter=marc

** BS 8888:2020 "Technical product documentation and specification", British Standards Online. Can be downloaded free on DS using the following link: https://bsol-bsigroup-com.proxy.lib.strath.ac.uk/Home

* "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.

* "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. Students will receive grades and written feedback on their coursework. All aspects of the course involve verbal feedback, in the context of group discussions with supervising staff.

Session: 2025/26

Approved:

Programme Lead/Director Signature: Dr Andrew McLaren
Date of Last Modifications: 25 August 2025

(MAE template updated June 2025)

MODULE TIMETABLE

Module Code:	ME109	Module Title:	CAD FOR BME

Brief Description of Assessment:

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

Indicated on the table below are the start/submission dates for each assignment/project and the timing of each exam/assessment.

Please note: Timings could change during unforeseen periods of disruption; 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.	

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.	Course work Set	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Choose an item.	Course work Submit	Choose an item.