

ES2H7-15 CAD/CAM and Simulation

26/27

Department

School of Engineering

Level

Undergraduate Level 2

Module leader

Magdalena Cieslak

Credit value

15

Module duration

10 weeks

Assessment

100% coursework

Study locations

University of Warwick main campus, Coventry Primary

Distance or Online Delivery

Description

Introductory description

ES2H7-15 CAD/CAM and Simulation

[Module web page](#)

Module aims

This module provides an overview of CAD/CAM technologies. Both theoretical concepts and practical applications are covered. The CAM element links into the Manufacturing aims of the module while the CAD element links directly with the engineering aims. It also provides an introduction to discrete event simulation.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

- CAD/CAM tools and technologies to support design and manufacturing
- Constraints of manufacturing

- Engineering Drawings for communicating manufacturing requirements
- Computer Aided Design: geometric modelling
- Computer Aided Manufacturing: introduction, NC Basics, tool path generation

Learning outcomes

By the end of the module, students should be able to:

- Design engineering components to meet design constraints. (C5, M5)
- Create Engineering Drawings to fully and clearly define manufacturing and assembly requirements of components. (C5, M5)
- Plan manufacturing operations and create manufacturing instructions for components. (C12, C13, M12, M13)
- Apply knowledge of CAD/CAM tools and technologies to propose strategies to enhance engineering design and manufacture in familiar products. (C3, C13, M3, M13)
- Present solutions to engineering problems in a concise and informative way. (C17, M17)
- Reflect on areas of personal learning across the module. (C18, M18)

Indicative reading list

[Reading lists can be found in Talis](#)

[Specific reading list for the module](#)

Subject specific skills

- Ability to conceive, make and realise a component, product, system or process
- Ability to be pragmatic, taking a systematic approach and the logical and practical steps necessary for, often complex, concepts to become reality
- Ability to seek to achieve sustainable solutions to problems and have strategies for being creative and innovative
- Ability to be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional engineering responsibilities

Transferable skills

- Apply problem solving skills, information retrieval, and the effective use of general IT facilities
 - Communicate (written and oral; to technical and non-technical audiences) and work with others
 - Plan self-learning and improve performance, as the foundation for lifelong learning/CPD
 - Exercise initiative and personal responsibility, including time management, which may be as a team member or leader
 - Appreciation of the global dimensions of engineering, commerce and communication.
 - Be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.
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Study

Study time

Type	Required
Lectures	9 sessions of 1 hour (5%)
Seminars	10 sessions of 2 hours (12%)
External visits	2 sessions of 30 minutes (1%)
Private study	120 hours (71%)
Assessment	18 hours (11%)
Total	168 hours

Private study description

Guided independent and group learning plus exam revision

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A

	Weighting	Study time	Eligible for self-certification
Assessment component			
Individual Portfolio total max 14 pages	70%		Yes (extension)
Reassessment component is the same			
Assessment component			
Group project	30%	18 hours	No

	Weighting	Study time	Eligible for self-certification
Group work submission			
Reassessment component			
Individual project			Yes (extension)
Individual report			

Feedback on assessment

Verbal and/or written feedback for over the course of the group project (formative)

Written feedback for individual portfolio (summative)

Availability

Pre-requisites

Courses

This module is Core for:

- Year 2 of UESA-H335 BEng Automotive Engineering
- Year 2 of UESA-HH75 BEng Manufacturing and Mechanical Engineering
- Year 2 of UESA-H336 MEng Automotive Engineering
- Year 2 of UESA-HH76 MEng Manufacturing and Mechanical Engineering

This module is Option list A for:

- Year 2 of UESA-HN15 BEng Engineering Business Management
- Year 2 of UESA-H112 BSc Engineering