

Course Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Course Title: CAD-CAM FOR ADVANCE MANUFACTURING

Course ID: HENAI1004

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 030199

Description of the Course:

Advanced manufacturing provides innovative technologies and processes to improve manufacturing efficiency, productivity, and flexibility. It encompasses a wide range of cutting-edge technologies, including robotics, automation, additive manufacturing, and artificial intelligence.

The short course in advanced manufacturing covers the fundamental concepts and techniques involved in modern manufacturing processes. The proposed course mainly covers Digital Manufacturing: This includes the use of computer-aided design (CAD) and computer-aided manufacturing (CAM) software to design and produce products.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Reorganise, reproduce and review engineering drawings.
- K2.** Identify the correct usage of 3D modeling techniques.
- K3.** Outline 3D modelling techniques and standards.

Skills:

- S1.** Translate between different views of an object and develop two and three-dimensional models
- S2.** Appraise the capabilities of engineering design software.
- S3.** Use engineering drawings as communication tools

Application of knowledge and skills:

- A1.** Apply knowledge of modelling principles to produce high-quality 3D designs
- A2.** Produce an estimate of quantities from two and three-dimensional models.

Course Content:

The short course on CAD CAM will cover the following topics:

1. Introduction to CAD CAM: This topic would provide an overview of CAD CAM technology and its applications in advanced manufacturing.
2. CAD Software: The course will introduce participants to various CAD software tools such as SolidWorks, AutoCAD and Fusion 360, and how to create 2D and 3D designs.
3. CAM Software: This module would cover CAM software tools such as Mastercam, Siemens NX CAM, and GibbsCAM.
4. Design for Manufacturing: Participants would learn about the principles of design for manufacturing, including design rules, tolerances, and material selection.
5. Rapid Prototyping: This module would cover rapid prototyping technologies such as 3D printing.
6. Quality Control: Participants would learn about quality control processes, including inspection techniques, measurement systems, and statistical process control.
7. Project Work: The course would include project work that would enable participants to apply CAD CAM concepts and technologies to real-world manufacturing problems.

Learning Task and Assessment:

Students will progress through the course by completing one unit each week, and weekly tutorials will be assessed, which carry marks up to 50% of the total. The design project carries the remaining 50% of the marks.

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
Assessed Tutorials	Weekly tutorials will be assessed, Students are expected to submit the completed tasks at the end of the tutorial, which carry marks up to 50% of the total	Tutorial	50
The design project	In the design project, students are given the task to design a device and submit a report on it.	Report	50

Adopted Reference Style:

Refer to the [library website](#) for more information

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