Advanced Computer Aided Design

Module Information

2022.01, Approved

Summary Information

Module Code	5261PDE
Formal Module Title	Advanced Computer Aided Design
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	22

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	This module will focus on single component part modelling. The key aim is to develop a range of advanced solid modelling and surface feature skills that can be applied to real-world products with complex geometry.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Apply hybrid modelling techniques to create geometry using BOTH solid modelling and surface tools
MLO2	2	Reverse engineer existing products by selecting and applying the most appropriate tools
MLO3	3	Design a component that can be manufactured using a forming process, along with its associated tooling
MLO4	4	Critically evaluate the modelling process, using storyboard methods to document specific features applied

Module Content

Outline Syllabus	Surface Modelling• The surface "analogues" of solid modelling tools: surface extrude; surface revolve; surface loft; surface sweep; etc• Unique surface tools: offset surface; surface trim; surface thicken; boundary surface; etcDesign for Manufacture (Forming Processes)• Use of advanced tools to create part geometry: multi degree-of-freedom lofts and sweeps; draft angles; shell features• Part evaluation using "draft analysis"• Use of intersection tools to generate tooling from an existing partReverse Engineering• Feature identification, and correct selection of solid modelling and surface tools to produce geometry• Documentation of the modelling process using "storyboard" methods
Module Overview	**Aims** **This module will focus on single component part modelling. The key aim is to develop a range of advanced solid modelling and surface feature skills that can be applied to real-world products with complex geometry.** **Learning Outcomes** **After completing the module the student should be able to:** **1 Apply hybrid modelling techniques to create geometry using BOTH solid modelling and surface tools.** **2 Reverse engineer existing products by selecting and applying the most appropriate tools.** **3 Design a component that can be manufactured using a forming process, along with its associated tooling.** **4 Critically evaluate the modelling process, using storyboard methods to document specific features applied.**
Additional Information	UN Sustainable Development GoalsThis module includes content which relates to the following UN Sustainable Development GoalsSDG09 – this module investigates advanced design processes used to deliver products to market at a faster rate, boosting industrial productivity in a sustainable manner.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Test	Computer assessment: Tool	20	2	MLO3
Test	Computer assessment: Component	80	3	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Andrew Naylor	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings