Liverpool John Moores University

Title:	COMPUTER AIDED DESIGN
Status:	Definitive
Code:	**7025ENG** (105371)
Version Start Date:	01-08-2016
Owning School/Faculty:	Electronics and Electrical Engineering
Teaching School/Faculty:	Electronics and Electrical Engineering

Team	Leader
Adam Papworth	Y

Academic Level:	FHEQ7	**Credit Value:**	20	**Total Delivered Hours:**	84
Total Learning Hours:	200	**Private Study:**	116		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	12
Practical	48
Tutorial	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Individual design assignment	50	
Report	AS2	Group design assignment	50	

Aims

To develop knowledge and understanding of the potential of modern parametric computer aided design systems to support a systematic approach to integrated product design

Learning Outcomes

After completing the module the student should be able to:

1 Generate 3D models using advanced solid and surface modelling methods.
2 Create assemblies using both Top down and Bottom up design techniques.
3 Use algebra-based and geometry-enhanced methods to validate designs.
4 Understand the advanced capabilities of 3D parametric solid modeling.
5 Analyse and optimise 3D models by applying loads, specifying materials, constraints, design variables, and parameters.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Individual design assignment	1	2	5	
Group design assignment	1	2	3	4

Outline Syllabus

Advanced 3D solid and surface modeling techniques. Techniques used to deal with legacy data. Surfacing techniques used to create empirical data. Industry specific techniques to create surfaces for mould and industrial design.
Top down and bottom up approaches to design. Tolerance build-up analysis. Produce part drawing-, and assembly-mode files using 3D parametric solid modeling software while employing advanced, accurate and careful file management.
Design changes and configurations of parts. Design tables and equations. Large assemblies. Advanced mate techniques. Assembly design tables and display states. Sheet metal forming and weldments automation software, part and assembly configurations to show how the design process efficiency can be improved for designers. Finite element analysis, sensitivity studies and design optimization by applying loads, specifying materials, constraints, design variables, and parameters.

Learning Activities

Lectures, guided computer workshops, tutorials and case studies.

Notes

The module will provide the student an insight into the power of a 3D modelling system and parametric modelling.