

MODULE CODE: M5X01241
TITLE: Product Simulation and Analysis
DATED: 03/07/2014

LEVEL: 5
CREDITS: 20

JACS CODE: W240

AIM

- To apply simulation and analytical methodologies to representative models for predictive design evaluation of concept proposals and to optimise performance and manufacturability.

LEARNING OUTCOMES

Upon the successful completion of this module, the student should be able to demonstrate the ability to:

1. Select and demonstrate competence in the application of analytical tools for simulating and evaluating performance and manufacturability of design solutions;
2. Demonstrate the ability to interpret model analysis, and make informed design changes to validate and optimise design performance and functionality;

INDICATIVE CONTENT

- Model integrity analysis
- Finite element analysis
- Manufacturing integrity analysis
- Material flow analysis
- Assembly simulation
- Kinematics and mechanism simulation

LEARNING AND TEACHING STRATEGY

The TLA approach is CAD studio based, with interactive demonstrations and on-line tutorials designed to introduce the students to the software analysis tools appropriate to the level of study. Theoretical lectures will be delivered as part of the CAD studio period. Students will be required to apply the appropriate software tools to analyse and modify where necessary defined model solutions as part of the assessment profile. Where possible, collaborative projects will be undertaken to support design outcomes within other modules. Case studies will also be used to develop understanding and application of the simulation techniques.

The allocation of teaching to deliver the module is:

Activity type	Hours	Percentage
Scheduled learning	60	30%
Independent learning	140	70%
Placement learning	---	---
TOTAL	200	100%

ASSESSMENT

Assessment Component 1 – 60%

Application of Simulation Tools

Assessment Component 2 – 40%

Written Assignment on Analysis, Validation and Optimisation of Product Functionality (2000 words)

Assessment Summary

Activity type	Percentage
Written	0%
Coursework	100%
Practical	0%
TOTAL	100%

BIBLIOGRAPHY

Essential

Appropriate software on-line help and tutorials

Recommended

Averill M Law 2006 Simulation Modeling and Analysis McGraw-Hill HE;
4th Ed.

Websites

www.solidworks.com