Machine Design II

Module Information

2022.01, Approved

Summary Information

Module Code	5501ICBTME
Formal Module Title	Machine Design II
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Tutorial	15

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks

SEP-PAR	PAR	September	12 Weeks

Aims and Outcomes

Aims	This module aims to develop the knowledge and understanding of advanced mechanical engineering systems and practically integrated complex engineering systems. The students are to be given in-depth knowledge and practical exposure on industry level engineering simple to moderately complex real applications.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Analyse designs of simple to moderately complex mechanical engineering systems and demonstrate an understanding of how different areas of engineering are integrated in these engineering systems.
MLO2	2	Apply and solve complex problems of engineering systems using theoretical calculations and finite element modelling.
MLO3	3	Apply modern CAD, CAE (Computer aided engineering) to carry out complex engineering analysis. (Finite Element Analysis).
MLO4	4	Analyse designs and produce cost estimation and cost optimisations.

Module Content

Outline Syllabus	Advanced vibration systems- Apply Newton-Euler methods to 3D rigid body dynamicsAdvanced Stress Analysis – 3D stress analysis Introduction to Computational Fluid Dynamics Finite Element Analysis and ApplicationsMechanical Transmissions – design of complex gear drives, couples, pulleys and keys Introduction to TribologyJoining of Materials – Welding, brazing and soldering Curve and surface design using CubicsPrinciples of Computer Numerically Controlled machinesComputer aided process plaining
Module Overview	
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Practical Assignment	60	0	MLO3, MLO4
Exam	Exam	40	1	MLO1, MLO2

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings