Dynamics and Control

Module Information

2022.01, Approved

Summary Information

Module Code	6113MECH
Formal Module Title	Dynamics and Control
Owning School	Engineering
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	11
Online	11
Practical	6
Tutorial	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To develop knowledge and experience of analytic and simulative methods applied tomodelling of open and closed loop engineering systems with multi-physics dynamics.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Apply modelling methods to derive the dynamic equations governing mechanical systems, thermal systems and fluid systems.
MLO2	2	Derive dynamic system models in State-Space or Transfer Function notation.
MLO3	3	Use modern computer aided methods to simulate system dynamics.
MLO4	4	Design and implement open and closed loop control systems using frequency domain methods.

Module Content

Outline Syllabus	Outline syllabusUse classical modelling methods to derive the differential equations for a dynamic system.Apply simulation methods to determine the response of a dynamic system in time and frequency domain.Apply computer aided techniques to design closed loop feedback systems.Validate design methods using simulation techniques and assess the improvement in system dynamics.
Module Overview	Within this module, you will develop knowledge and experience of analytic and simulative methods applied to modelling of open and closed loop engineering systems with multi-physics dynamics.
Additional Information	In this module the student develops knowledge and experience of analytic and simulative methods applied to modelling of open and closed loop engineering systems with multi-physics dynamics. The module exposes the student to modern object orientated simulation.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	70	2	MLO1, MLO2, MLO3, MLO4
Essay	Portfolio	30	0	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Dan Stancioiu	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings