Process Control

Module Information

2022.01, Approved

Summary Information

Module Code	6312SBC
Formal Module Title	Process Control
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 6
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Sino British College of USST

Learning Methods

Learning Method Type	Hours
Lecture	44
Tutorial	11

Module Offering(s)

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

Aims and Outcomes

Aims	To appreciate the problems associated with the design of closed-loop control of process systems. To understand the principles of cascade, feedforward and ratio control. To analyse non-linear process systems, systems containing large dead-time and coupled multi-loop systems.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Identify the principles of cascade, feed-forward and ratio control of process plants, with typical applications
MLO2	2	Appraise typical components in process systems and develop process models for analysis and controller design
MLO3	3	Characterise strategies for controlling systems possessing dead-time, inverse response and interaction properties
MLO4	4	Use computer based software packages for analysis, design and simulation of process control systems

Module Content

Outline Syllabus	Actuator and sensor dynamics for processes, dynamics of time delay, stability of systems involving time delays, frequency response stability criteria, fitting first and second order models using step tests.Transfer function modelling using linearisation and deviation variables, digital PID control, cascade, ratio, feed-forward + feedback control, internal model control, Smith predictor, multivariable control systems.
Module Overview	
Additional Information	This Level 6 module describes the analysis and design principles of closed-loop control of process systems.

Assessments

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

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Barry Gomm	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings