LIVERPOOL JOHN MOORES UNIVERSITY

Digital Electronics

Module Information

2022.01, Approved

Summary Information

Module Code	4615IYO
Formal Module Title	Digital Electronics
Owning School	Engineering
Career	Undergraduate
Credits	10
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
Study Group

Learning Methods

Learning Method Type	Hours
Lecture	12
Seminar	24

Module Offering(s)

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

Aims and Outcomes

Aims	To provide an introduction to Boolean Logic and the operation of combinational and sequential digital logic circuits.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Understand the principles of Boolean logic and algorithms.
MLO2	2	Examine electronics through analysing and designing basic combinational digital circuits.
MLO3	3	Identify sequential digital circuits and applications.
MLO4	4	Apply the knowledge in digital electronic circuit design.

Module Content

Outline Syllabus	Logic Gates and Functions, DeMorgan's Theorems and gate equivalence. Combinational Logic and Boolean Algebra' Boolean expression from logic diagrams and truth tables, truth tables from logic diagrams and Boolean expressions, commutative, associative and distributive properties, loading Karnaugh map from a truth table, multiple and overlapping groups.Applications of Karnaugh map: multiple output networks, decoders, code conversion network.Digital logic and combinational circuitsLatches and Flip-Flops: SR latch, Latches as contact-bounce eliminators, Edge triggered SR, D-type, J-K Flip-Flops.Digital Counters: asynchronous and synchronous counters concept, Counter design using S-R/JK/D-type flip-flops. Shift Registers: serial shift registers, serial in-parallel out shift registers, bidirectional shift registers.Sequential circuits design.Use CAD tools to carry out circuit design and simulation.
Module Overview	
Additional Information	This module is devised for students to gain fundamental knowledge and practical skills in digital electronics circuit analysis and design.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Exam	Exam	100	2	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Lonnie Readioff	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings