

## Liverpool John Moores University

Title: ELECTRONICS  
Status: Definitive  
Code: **5022TECH** (105423)  
Version Start Date: 01-08-2016

Owning School/Faculty: Electronics and Electrical Engineering  
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Mahamoud Ahmed	Y

**Academic Level:** FHEQ5  
**Credit Value:** 24  
**Total Delivered Hours:** 122  
**Total Learning Hours:** 240  
**Private Study:** 118

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Practical	48
Tutorial	24

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	50	2
Essay	AS2	Written Assignment	25	
Essay	AS3	Laboratory Assignment	25	

### Aims

*To provide a practical knowledge of Digital & Analogue Electronics.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Design a sequential counter
- 2 Analyze the operation of synchronous and asynchronous sequential circuits
- 3 Design synchronous sequential circuits
- 4 Use simple integrated circuits to build more complex digital systems
- 5 Use combinations of operational amplifiers, transistor, diodes etc.

### **Learning Outcomes of Assessments**

The assessment item list is assessed via the learning outcomes listed:

EXAM	1	2	3	4	5
CW	3	5			
CW	1	5			

### **Outline Syllabus**

*Synchronous and asynchronous circuits. Operation, timing diagrams and state diagrams.*

*Design of synchronous circuits: counters and shift registers.*

*MSI logic elements: Multiplexes, Demultiplexes, encoders, decoders, counters etc.*

*Operational amplifiers; real versus ideal behavior.*

*Practical circuits using op amps, diodes and transistors for signal conditioning.*

*Frequency response, cascading amplifiers.*

*Differential amplifiers, noise and interference.*

### **Learning Activities**

A series of lectures, tutorials and practical sessions

### **Notes**

This module provides a practical knowledge of Digital & Analogue Electronics.