

Module Title:	Introduction to Electronics
Language of Instruction:	English
Credits:	10
NFQ Level:	6
Module Delivered In	No Programmes
Teaching & Learning Strategies:	(a) A combination of lectures, class discussion, tutorials, practicals and demonstrations will be used. (b) Particular emphasis will be placed on active learning including problem/project based learning
Module Aim:	To introduce students to the field of electronics and in particular give them an appreciation of how different electronic sub circuits (which will be studied in more detail in subsequent modules) are combined to form a complete electronic system.

Learning Outcomes	
<i>On successful completion of this module the learner should be able to:</i>	
LO1	Work in an electronic laboratory with due regard for his/her safety and that of others.
LO2	Describe the characteristics of basic electronic components and the functional operation of common electronic systems
LO3	Describe the characteristics of common electronic digital and analogue signals
LO4	Analyse the operation of common electrical and electronic circuits
LO5	Design, simulate, build and take accurate measurements in electrical/electronic circuits

Pre-requisite learning
Module Recommendations <i>This is prior learning (or a practical skill) that is recommended before enrolment in this module.</i>
No recommendations listed
Incompatible Modules <i>These are modules which have learning outcomes that are too similar to the learning outcomes of this module.</i>
No incompatible modules listed
Co-requisite Modules
No Co-requisite modules listed
Requirements <i>This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed.</i>
No requirements listed

Module Content & Assessment

Indicative Content
Circuit Analysis Use Kirchhoffs and Ohms laws to solve for unknow voltages and currents in a resistor network circuit.
Block Diagrams System design using block diagrams
Power Supplies Voltage sources & power supplies
Signals Generation and characteristics of signals
Amplifiers Voltage amplifiers – Introduction to Operational Amplifiers
Semiconductors Basic semiconductor devices e.g. diodes, zener diodes & BJT
AC to DC conversion Designing a AC to DC converter using rectifiers, transformers, filters and regulators.
Filters Basic Analogue Filter Characteristics
Displays Displays
Number Systems Binary and Hexadecimal Number Systems
Logic Gates Digital Schematic design using Logic gates
Boolean Algebra Gate minimization using Boolean algebra rules
Timing Diagrams Timing diagrams for combinational and sequential digital circuits
Counters Synchronous and Asynchronous Counters
Decoders and Multiplexers Decoders and Multiplexers
Microprocessor Architectures Microprocessor Architectures
Flip Flops D, JK, SR flip flop and latches

Assessment Breakdown	%
Continuous Assessment	20.00%
Practical	20.00%
End of Module Formal Examination	60.00%

Continuous Assessment				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Other	Students will be assigned a number of assignments as part of the assessment of this module. Students may be asked to complete assignments during tutorials or as homework	2,4,5	20.00	n/a

No Project

Practical				
Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Practical/Skills Evaluation	Students will complete practical assignments during the course of the module. Students will be required to maintain a laboratory logbook and write a brief report on each assignment.	1,4,5	10.00	Every Week
Practical/Skills Evaluation	Each student will complete two formal practical tests. A mark of up to 5% of the overall mark will be assigned for each test.	1,2,3,4,5	10.00	Week 24

End of Module Formal Examination				
<i>Assessment Type</i>	<i>Assessment Description</i>	<i>Outcome addressed</i>	<i>% of total</i>	<i>Assessment Date</i>
Formal Exam	A final written examination will assess the degree to which the student has attained the skills, competencies and knowledge as defined in the learning outcomes.	2,3,4	60.00	End-of-Semester

SETU Carlow Campus reserves the right to alter the nature and timings of assessment

Module Workload

Workload: Full Time		
<i>Workload Type</i>	<i>Frequency</i>	<i>Average Weekly Learner Workload</i>
Lecture	Every Week	2.00
Tutorial	Every Week	1.00
Practicals	Every Week	2.00
Total Hours		5.00

