

<b>Module code</b>	SP-2302		
<b>Module Title</b>	Electronics: Analogue and Digital		
<b>Degree/Diploma</b>	Bachelor of Science (Applied Physics)		
<b>Type of Module</b>	Major Option		
<b>Modular Credits</b>	4	<b>Total student workload</b>	8 hours/week
		<b>Contact hours</b>	4 hours/week
<b>Prerequisite</b>	SP-1202 or SP-1302 Electricity and Magnetism		
<b>Anti-requisite</b>	TG-2309 Electronic Instrumentation		
<b>Aims</b>			
To provide an understanding of electronics from introductory level to electronic circuit design and implementation level			
<b>Learning Outcomes:</b>			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	-recognise basic electronic components and devices used for different electronic functions	
Middle order :	50%	-manage the tools in a basic electronic laboratory and use electronic simulation tools -use basic techniques for analysing analogue and digital electronic circuits	
Higher order:	20%	- able to design analogue and digital electronic circuits at block level - interpret the results of analyses, and make an appropriate report for an effective communication	
<b>Module Contents</b>			
- Analog: Ohm's Law, resistors in series and parallel, voltage dividers, Thévenin's and Norton's theorems, capacitor, inductor, impedance and reactance, power in reactive circuits, ac circuits, parallel and series resonant circuits, passive filters, diodes and their applications, operational amplifier circuits, active filters, oscillators, basic bipolar and metal oxide semiconductor transistors circuits.			
- Digital: Number systems and codes, concept of bits and word, basic logic functions, Boolean algebra, Karnaugh map, simplification of expression, Flip-flops and their applications.			
- Laboratory sessions: 12 laboratory sessions of 2 hours each will be incorporated into this module.			
<b>Assessment</b>	Formative assessment	Laboratory experiments, assignments and feedback	
	Summative assessment	Examination: 60% Coursework: 40% - 2 class tests (30%) - 2 written laboratory reports (10%)	