Module Code	EEU33C13
Module Name	Electronic Circuits
ECTS Weighting[1]	5 ECTS
Semester taught	Semester 1
Module Coordinator/s	Dr Justin King
Module Learning Outcomes with reference to the Graduate Attributes and how they are developed in discipline	On successful completion of this module, students should be able to: *(Note: The mapping to Programme Outcomes (POs) are listed below each module Learning Outcome. Each PO is listed only once but may be mapped to by more than one LO.)* LO 1) Explain the operating principles of ideal and practical electronic components (diodes, MOSFETs and filters) and their limitations PO1(ii,iii) LO 2) Choose suitable models for basic components and discuss the limitations and range of applicability of both the components and models PO1(i), PO2(ii) LO 3) Analyse electronic components and circuits using appropriate mathematical methods and identify and classify the application(s). PO2(iii) LO 4) Apply circuit design techniques to meet a given specification involving diode circuits, small-signal amplifiers and filters. PO3(i,ii) LO 5) Use simulations and laboratory equipment to facilitate design and validation of practical electronic circuits PO4(ii) **Graduate Attributes: levels of attainment** To act responsibly - Not embedded To think independently - Enhanced To develop continuously - Enhanced To communicate effectively - Enhanced
Module Content	This module provides a foundation in electronic devices and circuits, including diodes, MOSFETs, amplifiers and active filters. It aims to equip students with knowledge of the operational principles, modelling, and practical limitations of basic linear and nonlinear components. Students will develop skills in analysis techniques and in designing circuits to meet a given specification. Since the components covered are the basic building blocks of almost all electronic systems, the applications are wide ranging: from the filter used in a mobile phone to

[1] TEP Glossary

	tune into only one conversation or data stream, the amplifier that takes the weak signal from a guitar pickup and boosts it to fill an auditorium, to the circuit that turns the alternating mains voltage from a socket on the wall to a constant and smooth voltage capable of powering and charging laptops and electronic tablets. Through laboratory sessions, students will gain hands-on experience in designing, constructing, and measuring electronic circuits based on discrete components.
Teaching and Learning Methods	Lectures Tutorials Problem Sets Online "Test Your Understanding" formative problems

Assessment Details[2]
Please include the following:

- **Assessment Component**
- **Assessment description**
- **Learning Outcome(s) addressed**
- **% of total**
- **Assessment due date**

Assessment Component	Assessment Description	LO Addressed	% of total	Week due
Laboratory	Practical	3	20	10, 11
Midterm Exam	In-Class MCQ	1	10	6
Final Exam	Written	1 – 5	70	End-of-Term Exams

Reassessment Requirements	Written Exam (100%)

Contact Hours and Indicative Student Workload[2]	**Contact hours:** 44
	Independent Study (preparation for course and review of materials): 20
	Independent Study (preparation for assessment, incl. completion of assessment): 55
Recommended Reading List	Microelectronic Circuits. A.S. Sedra and K.C. Smith, 7th Edition 2014. Active and Passive Analog Filter Design L. P. Huelsman (McGraw-Hill)
Module Pre-requisite	EEU22E06 or equivalent
Module Co-requisite	
Module Website	Blackboard
Are other Schools/Departments involved	No

[2] TEP Guidelines on Workload and Assessment

in the delivery of this module? If yes, please provide details.	
Module Approval Date	
Approved by	Prof. Naomi Harte
Academic Start Year	September 2025
Academic Year of Date	2025/2026