Module specification

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Module Code	ENG467
Module Title	Analogue and Digital Electronics
Level	4
Credit value	20
Faculty	FAST
HECoS Code	100165
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BEng Electrical & Electronic Engineering	Core
MEng Electrical & Electronic Engineering	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	36 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	36 hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	Feb 2017
With effect from date	September 2022
Date and details of revision	Aug 2022: Module aim, learning outcomes and content update in engineering revalidation
Version number	2

Module aims

- Apply knowledge of analogue electronic components to develop simple analogue circuit designs.
- Apply knowledge of digital electronic components to develop simple digital circuit designs.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Identify the characteristics and operation of analogue electronic components
2	Perform calculations relating to analogue electronic circuits.
3	Identify the characteristics and operation of digital electronic components
4	Perform calculations relating to the common components used in digital electronics.

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

The portfolio may consist of activities such as written assignments, Moodle quizzes or a combination of both. The word count is 4000 words.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3 and 4	Portfolio	100%

Derogations

A derogation from regulations has been approved for this programme which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%.

Learning and Teaching Strategies

The module will align with the principle of the university Active Learning Framework (ALF) and will offer learning and teaching approaches that aid flexibility and accessibility. There will be a learning blend between online and face to face methods, such as:

- In person seminars
- Online synchronous sessions
- Online asynchronous sessions
- Self-directed study tasks that will include videos, podcasts and professional organisation websites

Indicative Syllabus Outline

Analogue Electronics

- Diodes
- Bipolar Junction Transistors
- Field Effect Transistors
- Operational Amplifiers

Digital Electronics

- Numbering Systems
- Combinational Logic
- Boolean Algebra
- Karnaugh Maps
- Sequential Logic
- Analogue to Digital Conversion
- Digital to Analogue Conversion

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

J. Bird, *Electrical Circuit Theory and Technology*, 7th ed. Routledge, 2021.

All the course material for this module will be provided and published on the VLE

Other indicative reading

Plus, various others to be signposted on Moodle.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas.

Core Attributes

Engaged
Creative

Key Attitudes
Commitment
Curiosity
Confidence
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Critical Thinking
Communication