Module specification

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Module Code	ENG5B8
Module Title	Emerging Technologies
Level	5
Credit value	20
Faculty	FAST
HECoS Code	100184
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
WGU Summer School aligned to BEng (Hons) Electrical and Electronic Engineering for QA and assessment purposes	Core

Pre-requisites

None

Breakdown of module hours

Learning and teaching hours	30 hrs
Supervised learning e.g., practical classes, workshops	0 hrs
Total active learning and teaching hours	30 hrs
Guided independent study	170 hrs
Module duration (total hours)	200 hrs

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Initial approval date	18/05/2023
With effect from date	18/05/2023
Date and details of revision	
Version number	1

Module Aim

The aim of this module is to allow students to identify and examine a range of current and future technical and social issues in computing, engineering and technology and, in so doing, develop an awareness of the impact of current and emerging research and development. It will enable students to gain a broad general knowledge of some current research areas in computing and engineering and their application in industry, commerce and further afield. In a general sense, the module will introduce students to the field of ‘Futurology’. Both the

emphasis on looking ahead and the clear balance between technological advancement and social implications are essential features of the module.

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

1	Identify and analyse current and future issues in computing or engineering.
2	Assess emergent computing or engineering technologies that have been deployed in the respective field.
3	Evaluate various aspects of emerging technologies and their application and impact in the short, medium and long-term future

Assessment

Indicative Assessment Tasks:

Assessment One: An individually prepared portfolio consisting of a range of assessments such as case studies, laboratory work and Moodle Quiz, introducing the topic areas of each learning outcomes. Guidance material will be provided, which the students will use to generate a Portfolio of work. Assessment one is an individual prepared portfolio and represents 100% of the overall module mark.

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

Derogations

N/A

Learning and Teaching Strategies

A series of workshop style lectures with student-led seminars and small group activities. Directed learning using library and internet resources will be facilitated using Moodle and MS Teams. This module will also follow the ALF (Active Learning Framework) guidelines, which will include alternative methods of assessment and a blended approach to delivery, with some theory and software sessions being delivered online (depending on requirements and student experience).

Indicative Syllabus Outline

The syllabus will be reviewed regularly but the focus for students will always be how to identify and analyse current issues in computing and engineering, be able to put developed arguments supporting and refuting issues, otherwise known as ‘Futurology’.

Typical content, based on current directions, could include:

- The ‘Internet of Things’ and Big Data Analytics
- Social implications of emerging technology
- The ‘STEEPLED’ model (BCS LSEPIs)
- Computers and the Environment/Green IT and environmental computing
- Computer Forensics
- Accessibility and Usability
- Optical, Quantum or Biological Computing
- Parallel and Grid Computing
- Interactive Television
- Intelligence in Future Imaging Technology
- AI, AGI and Robotics
- Models of Intelligence
- Human-Computer Interaction/Evolving interfaces
- Ethics, privacy, etc,
- Health and safety
- Security and threats
- Political aspects of technology
- Ethical hacking
- Computing in the developing world
- Philosophical principles/Computational philosophy
- Technology adoption
- New aspects of Computer Storage
- New Developments in CPU/Architecture
- New Platforms
- Radio Frequency Identification (RFID) and other technologies
- The Technological Singularity (and other ‘singularities’)
- Social Media and its Impact

Indicative Bibliography:

Essential Reads

Weinersmith, K. and Weinersmith, Z. (2017), Soonish: Ten Emerging Technologies That Will Improve and/or Ruin Everything. Particular Books.

Other indicative reading

"Future Internet" (a scholarly open access journal on Internet technologies and the information society, published quarterly online by MDPI) http://www.mdpi.com/journal/futureinternet

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
Ethical

Key Attitudes
Commitment
Confidence
Adaptability

Practical Skillsets
Digital Fluency
Organisation
Critical Thinking
Communication