UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Information and Communications Technologies
Module Code	ENB3001-B
Academic Year	2023/4
Credits	20
School	Department of Mechanical and Energy Systems Engineering
FHEQ Level	RQF Level 3

Contact Hours	
Type	Hours
Lectures	24
Directed Study	128

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Academic Year

Module Aims

1. Provide students with an understanding of the different branches of engineering so that he/she can make an informed decision when deciding upon a future academic pathway and professional career.

2. Develop engineering problem solving skills using software packages and numerical techniques.

3. Acquire the personal transferable skills needed for academic study on an engineering programme and in a professional career after graduation.

Outline Syllabus

The syllabus covers four main areas of knowledge and skills relevant to future academic study of an accredited engineering programme:

The engineering profession - keynote lectures on civil, mechanical, biomedical, chemical engineering, computing, software and cybersecurity, industrial placement opportunities, the professional responsibilities of the modern engineer; sustainability and ethical considerations; professional accreditation and gaining CEng status after graduation. Facilitate an appreciation of the United Nations sustainable development goals and the key role of the engineering profession in their achievement.

Using ICT for engineering problems solving - software applications for engineers; knowledge in the use of spreadsheets for engineering using Microsoft Excel; data entry, complex formulas, creating and interpreting graphs; analysis and problem-solving techniques; drawing engineering diagrams using Microsoft Visio, using the web to access online engineering resources.

Communication and research skills for engineers ? effective reading, note and record taking; library searching for academic materials and references of sources; presenting information using Microsoft PowerPoint; using Microsoft Word to prepare laboratory reports and project work.

Personal transferable skills for engineers - time management; examination techniques; planning your career; evaluation, prioritising and decision making; technical report and essay writing; avoiding plagiarism and ensuring academic integrity; communicating detailed engineering knowledge and concepts; effective group and teamwork; becoming an independent and lifelong learner; reflective and critical thinking.

Learning Outcomes

Outcome Number	Description
LO1	Understand the professional challenges and activities associated with the different branches of the engineering profession.
LO2	Use Microsoft Excel and Microsoft Visio to solve mathematical problems in engineering and apply techniques of file and data management, access online library resources.
LO3	Use Microsoft PowerPoint and Microsoft Word to support oral presentations and written communications of complex engineering concepts and ideas to a broad range of audiences.
LO4	Have developed effective personal transferable skills in group and teamwork, personal management, be able to appreciate the integrated nature of engineering problems and become independent learners able to link academic resources and to reflect on the outcomes.

Learning, Teaching and Assessment Strategy

The teaching and learning methods are aligned with the programme aim of gradually developing the confidence of students and uses several methods of delivery:

* Concepts, theories and principles are introduced explored in formal lectures and practiced in tutorials.

* Practical skills are gained in laboratory sessions.

* Cognitive and personal skills are developed in problem solving exercises and classroom discussion/presentations involving group and teamwork

The assessment strategy of the module is similarly commensurate with the educational philosophy of the programme specification and uses a range of assessments to evaluate the learning outcomes.

* The online academic integrity and referencing test assesses the library sessions relating to understanding how to correctly source and cite engineering material and avoid plagiarism.

* The group presentation and 1000-page report from each student is designed to development research skills and enhance time management and develop team working and improve communication techniques.

* Two computer-based assessments; (i) Technical report preparation and (ii) Excel test, focus on developing digital literacy and student proficiency in the use of the tools and technologies.

* The reflective essay is designed to assess the lectures given each engineering discipline and computing and written reflective communication related to future career options via a guest lecture series?

Mode of Assessment

Type	Method	Description	Weighting
Summative	Coursework	Submission of powerpoint slides with annotation	15%
Summative	Coursework	Discipline Reflection essay	10%
Summative	Computer-based assessment	Online Assessment: Academic Referencing	10%
Summative	Examination - Open Book	3 Computer Assessments: EWP (1 hr for 10%); Excel 1 (1hr for 20%); Excel 2 (1.5hrs for 35%)	65%
Formative		Examination - practical/laboratory - Online research into careers in engineering and questions and answer session in class ? 30 mins Examination - oral/viva voce Note taking exercise - In-class preparation of PowerPoint presentation to peers - 30 mins and one hour Classroom test Technical/laboratory report preparation exercise ? 1 hour	N/A

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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