UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Research Methods and Skills
Module Code	ELE7008-B
Academic Year	2022/3
Credits	20
School	Department of Biomedical and Electronics Engineering
FHEQ Level	FHEQ Level 7

Contact Hours	
Type	Hours
Lectures	22
Seminars	12
Practical Classes or Workshops	10
Directed Study	156

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2

Module Aims

1.To equip the student with state-of-the-art, up-to-date information that could form the basis for future research and development programmes.

2.To expose the student to the stages involved in making a detailed programme of work for a research project in the form of gantt chart and the research, preparation and presentation of a research paper.

3.Enable students to gain and enhance the Matlab required for an MSc Project

Outline Syllabus
1. A combination of lectures, seminars and a workshop event. 2. Lecture sessions covering essential research skills including intellectual property and plagiarism, ethics, health and safety and sustainability, library sessions, citation and referencing, writing clear aims and objectives, project planning; use of MATLAB. Lecture sessions will combine with practicals where students will have the opportunity to practise the research skills learnt from the lecture. 3. The seminars will provide state-of-the-art presentations that go beyond what is normally delivered in taught modules. 4. The workshop event will provide the opportunity to produce an academic paper in a relevant subject and to present the results in a workshop environment. Here, the emphasis shall be on demonstrating an understanding of the processes involved in preparing and subsequently presenting a technical paper. This will involve research using library and web facilities.

Learning Outcomes	
Outcome Number	Description
01	Demonstrate a critical understanding of the latest state-of-the-art concepts in your chosen topic of study
02	Demonstrate a practical understanding of how established techniques of research and enquiry are used to create and interpret knowledge in the discipline
03	Understand the processes and requirements of developing a project plan and evaluate the potential ethical, sustainability and safety issues that could arise from a project
04	Critically appraise an engineering problem, model the problem in an advanced programming language such as Matlab and be able to interpret and validate the results
05	Produce a technical, research-oriented paper based on knowledge gained through the seminar series and through research into the subject
06	Assimilate and interpret information
07	Present and communicate information to an informed audience in written and oral formats
08	Demonstrate an independent learning ability required for continuing professional development

Learning, Teaching and Assessment Strategy
The Research Seminar part of this module will comprise a series of regular, hour-long seminars, presented by invited leading experts from industry and academia, with the aims of broadening understanding outside of the normal realms of study and to highlight good practice. Learning and teaching methods include a combination of synchronous online lectures and seminars, and an online workshop event. The ability to work cooperatively with others to achieve a common goal, perform research into a chosen topic and to assimilate and articulate the results will be assessed through the organisation of a group workshop on a research area of current interest at which each group member will present an individual paper covering a different aspect of the research area. Individual abstracts will be prepared for formative feedback. The Research Skills part of the module will comprise a series of workshops and practical sessions covering different aspects of research skills including: intellectual property and plagiarism, ethics, health and safety and sustainability, library sessions, citation and referencing, writing clear aims and objectives, project planning; use of MATLAB as a numerical and symbolic tool and as a programming language. This will be assessed through presentation of a portfolio of personal development evidence. Both formal and summative assessments are used to assess learning outcomes: Formative assessment: - Peer reviewed presentation prior to the assessed oral presentation Summative assessements: - A 3000-word academic paper demonstrating a portfolio of evidence research skills - A 20-min oral presentation PSRB requirements: LO1: SM1fl, D1fl, EP2fl LO2: EP1i,D1fl LO3: D2fl, ET1fl, ET2fl LO4: EA1fl, EA2fl, EA3fl LO5: SM3fl, D2fl, D3fl LO6: EA3fl, D1fl

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Presentation	Presentation of the academic paper (20 Mins)	25%
Summative	Coursework - Written	3000 word equivalent academic paper	75%
Formative	Presentation	Peer-reviewed presentation	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.
