London South Bank University

EST 1892

Module Guide

Technical, Research and Professional Skills

EEB_7_882

School of Engineering

Level 7

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1. MODULE DETAILS

Module Title:	Technical, Research and Professional Skills
Module Level:	L7
Module Reference Number:	EEB_7_882
Credit Value:	20
Student Study Hours:	200
Contact Hours:	26
Private Study Hours:	174
Prerequisite Learning (If applicable):	
Co-requisite Modules (If applicable):	
Course(s):	All MSc & MEng courses in ENG
Year and Semester	Year 1 MSc & Final Year MEng
Module Coordinator:	Prof. Simon Philbin
MC Contact Details (Tel, Email, Room)	020 7815 7559, philbins@lsbu.ac.uk, T810
Teaching Team & Contact Details (If applicable):	Prof. Simon Philbin
Subject Area:	Engineering
Summary of Assessment Method:	Coursework & Presentation
External Examiner appointed for module:	

2. SHORT DESCRIPTION

This module is taught to students from MSc and MEng courses in the School of Engineering and it provides training for the skills that are necessary for successful completion of the MSc and MEng courses in engineering studies in the near future and for professional development in the long-term future.

More specifically, the course teaches how to search and gather relevant technical information, how to extract the essence from a piece of technical literature, how to carry out a critical review of a research paper, how to write a feasibility report, how to give presentations and communicate your thoughts effectively, and how to manage a project in terms of time and progress in a project environment. The module has been designed to enhance the technical and analytical background that is necessary for the respective MSc and MEng courses in the School of Engineering.

3. AIMS OF THE MODULE

To ensure that engineering students from MSc and MEng courses can undertake research and project work in a professional way and communicate their technical proposals effectively. Additionally, students are given support to enhance their technical and analytical background that will enable them to manage complex technical projects.

4. LEARNING OUTCOMES

4.1 Knowledge and understanding

- Organise and conduct independent research and summarise the results of the research in a report. Ability to analyse technical material and carry out a feasibility study of complex technical projects. (*A1, A3*)

4.2 Intellectual skills

- Selection of appropriate research methods and techniques for successful completion of a research focused dissertation. Compose technical and analytical plan for organisation and management of technical projects. (*B1, B3, B4*)
- Demonstrate ethical and value management; recognise ethical situations and apply ethical and organisational values to situations and choices. Communicate effectively, negotiate and persuade or influence others and the preparation of written technical reports. (*B1, B3, B4*)

4.3 Practical skills

- Use research strategies for the design and enhancement of engineering project management processes. (*C1, C4, C6*)
- Ability to write a feasibility report, give oral and visual presentations effectively, project management in terms of time and progress. Become self-critical, reflecting on one's own practice. (*C1, C4, C8*)

4.4 Transferable skills

- Write technical reports with clarity of thoughts. Demonstrate self-awareness, self-management and time management skills. (*D1, D2, D5, D6*)

5. ASSESSMENT OF THE MODULE

This module is assessed through 100% coursework. The assessment comprises of two distinct elements, which are summarized as follows.

Research and Professional Skills (70%)

This component has a weighting of 70% – with a pass mark of 40%: This component will be assessed by way of an individual formal report covering the feasibility study of the proposed project for MSc and MEng courses by engineering students. This will constitute 70% of the final mark for the module. **Formal reports should be no more than 3,000 words**.

Technical and Presentation Skills (30%)

This component has a weighting of 30% – with a pass mark of 40%: This component will be assessed by way of an individual presentation covering the topic of the feasibility study of the proposed project from the MSc and MEng courses by engineering students. This will constitute 30% of the final mark.

6. FEEDBACK

- Feedback will normally be given to students 15 working days after the final submission of an assignment or as advised by the module leader.

7. INTRODUCTION TO STUDYING THE MODULE

7.1 Overview of the main content

A. Literature search and gathering of information; using library and web resources to obtain information, types of information available, and techniques for its retrieval.
B. Analysis and reviews; assessing information retrieved, writing critical reviews, based on past research papers.
C. Project management; use of standard techniques (such as project scheduling) and techniques for project planning, time and resource estimation, availability.
D. Feasibility report writing; creating a good impression, structure of reports, writing and presentation styles, deciding on the contents of the main text and appendices.
E. Oral and visual presentation; assessing the audience and purpose, barriers to oral communication, organization of presentation, delivery, audio-visual aids.

7.2 Overview of types of classes

- This encompasses the teaching and learning activities planned for the 26 contact hours. In lectures, underlying concepts are introduced and supporting information will be provided. Existing theory and/or practice related to the Technical, Research and Professional Skills module are identified and examples used to encourage exploration of the topic by further directed reading.

- Seminars are a forum for students to air opinions, clear doubts and organise thoughts. This gives the module leader an opportunity to determine the extent to which concepts and techniques have been communicated, and consider the adequacy of each student's understanding with a view to taking due action. Seminars are reinforced by use of the VLE site set up for the module.

7.3 Importance of student self-managed learning time

- Student responsibility in the learning and development process will be emphasised. Students are required to undertake directed self-study and prepare solutions/discussions to questions relative to various topic areas.

- Students will be encouraged to identify for themselves problems or issues and to use seminar discussions, where appropriate, for the resolution of these. Students must regularly access the Moodle site for this module. They should download the class/lecture material from the Moodle site, and do any recommended reading, before each lecture/class.

- Where appropriate, students are also expected to download the relevant seminar questions and study them in advance of each seminar, in order to derive maximum benefit from seminar time. The programme of teaching, learning and assessment gives guidance on any textbook reading required for each week, the purpose of which is to encourage further reading both on and around the topic.

- All of the material covered in lectures will be based on the core textbook:
  Research Planning and management, MIG Consulting Ltd, London. (see details in section 10 of this guide). The recommended texts contain all the background material required for the course. Lectures slides will be provided to students after lectures have been given (made available via the VLE).

7.4 Employability

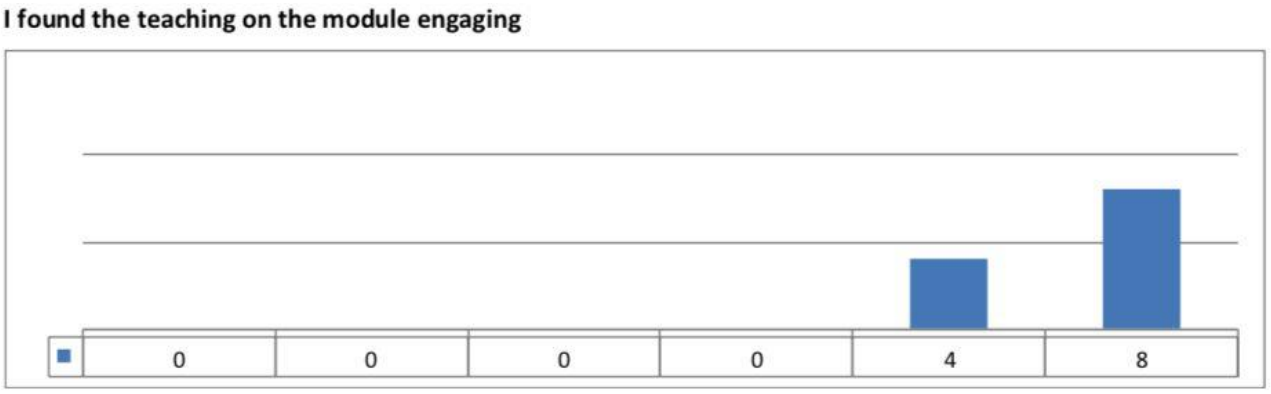
- This module will provide students with skills in planning and execution of a research project in engineering and utilisation of methods of analysing results and preparing reports as well as presentation to disseminate these results. These skills are very much desirable for graduate/postgraduate-level employment.

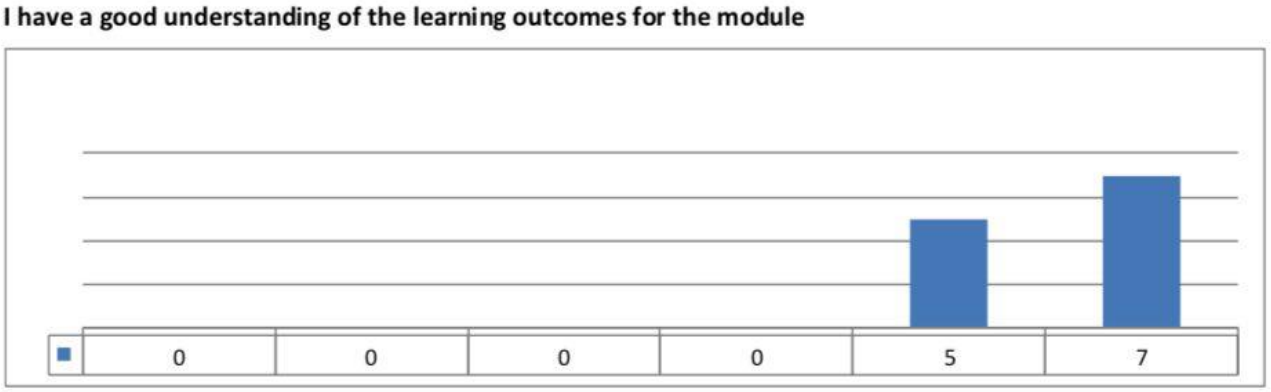
8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

*** Note: All lectures are held at 4-6pm on Friday in Keyworth Centre, K-207 apart from during Week 5 (25th Oct 2019) when there is no lecture. This lecture will be held at 12-2pm on Friday 1st Nov 2019 (Week 6) in Keyworth Centre, K-207.**

WEEK	DATE	SEMESTER 1 - WEEKLY LECTURE TOPICS (4pm - 6pm)*
Week 1	Fri, 27/09/2019	**Lecture 1** – Introduction to Technical, Research and Professional Skills
Week 2	Fri, 04/10/2019	**Lecture 2** – Critical thinking and formulating a research problem
Week 3	Fri, 11/10/2019	**Lecture 3** – Critical analysis of academic literature
Week 4	Fri, 18/10/2019	**Lecture 4** – Research methods and strategy
Week 5	Fri, 25/10/2019	NOTE: There is no lecture this week – it is held the following week
Week 6	Fri, 01/11/2019	**Lecture 5** – Research tools and techniques (**12-2pm**)
Week 6	Fri, 01/11/2019	**Lecture 6** – Access to research data and data collection (**4-6pm**)
Week 7	Fri, 08/11/2019	**Lecture 7** – Research data analysis techniques (qualitative and quantitative)
Week 8	Fri, 15/11/2019	**Lecture 8** – Ethics and professional skills
Week 9	Fri, 22/11/2019	**Lecture 9** – Principles of project management
Week 10	Fri, 29/11/2019	**Lecture 10** – Technical report writing and presentation
Week 11	Fri, 06/12/2019	Student presentations # 1
Week 12	Fri, 13/12/2019	Student presentations # 2 | **Coursework electronic submission**
Christmas Holiday - Monday 16th December 2019 to Friday 3rd January 2020		
Week 13	Fri, 10/01/2020	**Feedback**

9. STUDENT EVALUATION





10. LEARNING RESOURCES

10.1 Reading List

Core resources and textbooks:

- Students should also familiarise themselves with electronic resources that are available through the university library website.
- Bezanov, G., 2009. *Research planning and management*, MIG Consulting Ltd.
- Leong, E.C., Heah, C.L.H. and Ong, K.K.W., 2015. *Guide to research projects for engineering students: planning, writing and presenting*. CRC Press.
- Paul D., Leedy, P. and Ormrod, J.E., 2014. *Practical research: Planning and design*. Pearson Education.

Background reading:

- Sides, C. H., 1992. *How to Write and Present Technical Information*, Cambridge University Press.
- Meredith, J.R., Mantel Jr, S.J. and Shafer, S.M., 2017. *Project management: a managerial approach*. John Wiley & Sons.
- Scott, B. and Billing, B., 1998. *Communications for Professional Engineers*, Telford, London, 2nd Ed.

11. BRIEF GUIDE TO UNIVERSITY RESOURCES AND ADVICE ON REGULATIONS

11.1 Library and Learning Resources (LLR)

Resources and research support in the Perry Library

Finding relevant, quality resources is an integral part of the learning process. In addition to the print collection in the Perry Library building, students are provided with over 13,000 e-books and 12,000 e-journals. All of these electronic resources, including key databases like IEEE Xplore and ACM Digital Library can be accessed 24/7 from any location with an Internet connection. Students are welcome to contact the Library if they need help locating research materials for their assignment and how to reference them by emailing: library@lsbu.ac.uk.

Digital Skills Centre (DSC) in the Learning Resources Centre (LRC)

The Digital Skills Centre (DSC) is the home for digital skills training and support for both LSBU staff and students. Based in the Learning Resources Centre (LRC), this custom-built venue provides the LLR Digital Skills Training Team with flexible learning spaces ideal for delivering 1-to-1, Group and Online Sessions on all of the key platforms and software used at LSBU; including Moodle, my.lsbu, Office 365 and SPSS. Email: digitalskills@lsbu.ac.uk.

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11.2 University regulations and policies

General regulations and policies including guides and forms on academic misconduct, assessment, late coursework submission and applying for extenuating circumstances can be found on the Student Portal at https://my.lsbu.ac.uk/page/regulations.

12. NOTES

12.1 Communication

The principle means of communication with students on this Module will be through announcements during lectures or posted on the module's Moodle pages. It is important that students keep checking the module's Moodle site regularly.

13. REFERNCES

Below are resources to provide guidance on the Harvard referencing approach that is used at LSBU.

- https://libguides.lsbu.ac.uk/hrm/referencing.
- https://www.youtube.com/watch?v=prETpsgBU4w.