# Module Definition Form (MDF)

| Module code: MOD007117 | **Version:** 4 **Date Amended:** 13/Sep/2024 |
|---|---|

| 1. Module Title |
|---|
| Research Methods and Individual Project |

| 2a. Module Leader |
|---|
| Hassan Shirvani |

| 2b. School |
|---|
| School of Engineering and the Built Environment |

| 2c. Faculty |
|---|
| Faculty of Science and Engineering |

| 3a. Level |
|---|
| 6 |

| 3b. Module Type |
|---|
| Project or dissertation (fine graded) |

| 4a. Credits |
|---|
| 30 |

| 4b. Study Hours |
|---|
| 300 |

**5. Restrictions**

| Type | Module Code | Module Name | Condition |
|---|---|---|---|
| Pre-requisites: | None | | |
| Co-requisites: | None | | |
| Exclusions: | None | | |
| **Courses to which this module is restricted:** | None | | |

## LEARNING, TEACHING AND ASSESSMENT INFORMATION

### 6a. Module Description

This module enables you to conduct an individual research project in the corresponding (for example, Mechanical, Mechatronics, Robotics, Electronics, Electrical, Medical, Pharmaceutical, etc) Engineering subject area. You must identify a problem, break it into more manageable components, and critically analyse it. You will conduct a literature review (review of the current knowledge in the field of choice), formulate research questions, and collect primary data via experimentation, numerical analysis, case study, interviews, or questionnaires to perform a qualitative or quantitative analysis.

The focus of the assessment of this module is on critical thinking and organising a significant research thesis/volume with an introduction, methodology, results, discussion, and conclusion. You will have guest lectures from industry professionals to acknowledge the industry requirements and the latest trends in the engineering enterprise, reaching out to professional bodies such as the Institution of Mechanical Engineers (IMechE) and the Institution of Engineering and Technology (IET).

**This module is exempt from the full ethical approval process in accordance with section 6 of the Academic Regulations** (www.anglia.ac.uk/academicregs). Expires September 2028

### 6b. Outline Content

1. Recognise a suitable research topic for study, and examine and analyse the limitations of the topic, techniques and ethical requirements.
2. Provide an up-to-date CPD (personal development plan), Exit Plan, Gantt Chart and CV.
3. Provide a research proposal and ethical research applications.
4. Understand and implement the requirement of a BEng degree dissertation associated with the corresponding Engineering subject area.
5. Recognise and execute a good literature review and evaluate the relevance of the technical information to the problem.
6. Design and formulate research hypotheses/research questions based on engineering judgement.
7. Collect primary data via experimentation, numerical analysis, case studies, interviews or questionnaires to perform an analysis.
8. Identify and execute research methodology, analyses, evaluation and interpretation of data.
9. Manage the research findings and provide a suitable discussion of the results.
10. Drawing appropriate and substantiated conclusions from the analysis.
11. Conduct an appropriate citation and referencing style (ARU-Harvard style).
12. Develop appropriate communication skills, present research data and results orally to non-technical audiences, and provide poster presentations and a written dissertation.

| 6c. Key Texts/Literature |
|---|
| The reading list to support this module is available at: https://readinglists.aru.ac.uk/ |

| 6d. Specialist Learning Resources |
|---|
| Computer rooms, Labs for experimental research |

**7. Learning Outcomes (threshold standards)**

| No. | Type | On successful completion of this module the student will be expected to be able to: |
|---|---|---|
| 1 | Knowledge and Understanding | Demonstrate the capacity to select and apply appropriate computational and analytical techniques to analyse and model a complex engineering problem, recognising its scope, constraints, and limitations. |
| 2 | Knowledge and Understanding | Demonstrate the ability to search and evaluate technical literature; Judge the relevance of the information to complex problems. |
| 3 | Knowledge and Understanding | Evaluate the environmental and societal impact of solutions to a complex engineering problem and discuss reducing adverse effects. |
| 4 | Intellectual, practical, affective and transferrable skills | Identify and analyse ethical concerns and make reasoned ethical choices according to professional codes of conduct in the Engineering field. |
| 5 | Intellectual, practical, affective and transferrable skills | Establish the proficiency to communicate effectively on complex engineering subjects orally and in writing, with technical and non-technical audiences. |
| 6 | Intellectual, practical, affective and transferrable skills | Enhanced lifelong learning ability, identify a range of key transferable skills, plan for life-long learning, and record self-learning and development as the basis for lifelong learning/CPD. |

**8a. Module Occurrence to which this MDF Refers**

| Year | Occurrence | Period | Location | Mode of Delivery |
|---|---|---|---|---|
| 2026/7 | ZZF | Template For Face To Face Learning Delivery | | Face to Face |

| 8b. Learning Activities for the above Module Occurrence | | | |
|---|---|---|---|
| **Learning Activities** | **Hours** | **Learning Outcomes** | **Details of Duration, frequency and other comments** |
| Lectures | 0 | None | None |
| Other teacher managed learning | 16 | 1-6 | Two hours of classroom contact in first 6 weeks of Semester 1. Assumes the minimum of 4 supervision tutorials. |
| Student managed learning | 284 | 1-6 | Self Directed Learning |
| TOTAL: | 300 | | |

**9. Assessment for the above Module Occurrence**

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

| Assessment No. | Assessment Method | Learning Outcomes | Weighting (%) | Fine Grade or Pass/Fail | Qualifying Mark (%) |
|---|---|---|---|---|---|
| 010 | Coursework | 1 3 | 10 (%) | Fine Grade | 30 (%) |
| **1000 words including Research Proposal (500 words)+ Exit Plan and an up-to-date CPD record (500 words), a CV (no word limits), and Gantt Chart. The assessment is associated with the requirements of Engineering Council learning outcomes LO3(C7) and LO6(C18).** | | | | | |
| **Assessment No.** | **Assessment Method** | **Learning Outcomes** | **Weighting (%)** | **Fine Grade or Pass/Fail** | **Qualifying Mark (%)** |
| 011 | Coursework | 1-6 | 0 (%) | Pass/Fail | 100 (%) |
| **Submit ethical approval; this assessment is aligned with Engineering Council learning outcome LO4 (C8).** | | | | | |
| **Assessment No.** | **Assessment Method** | **Learning Outcomes** | **Weighting (%)** | **Fine Grade or Pass/Fail** | **Qualifying Mark (%)** |
| 012 | Coursework | 1-6 | 90 (%) | Fine Grade | 30 (%) |
| **Dissertation including oral presentation (15 minutes of oral presentation and Q&A) and 8500 words equivalent Final assessment; this assessment is aligned with Engineering Council learning outcomes LO1 (C3), LO2 (C4), LO5 (C17).** | | | | | |

| Assessment components for Element 012 | | | | |
|---|---|---|---|---|
| **Component No.** | **Assessment Title** | **Submission Method** | **Weighting (%)** | **Components needed for Mark Calculation?** |
| 012/1 | Dissertation | Canvas | 85 (%) | All |
| 012/2 | Presentation | Canvas | 15 (%) | |

**In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).**

**In addition, students are required to:**
**(a) achieve the qualifying mark for each element of fine graded assessment as specified above**
**(b) pass any pass/fail elements**

**[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]**