

## MODULE DESCRIPTOR

### Module Title

Individual Engineering Research Investigation

|           |            |             |         |
|-----------|------------|-------------|---------|
| Reference | ENM214     | Version     | 11      |
| Created   | March 2023 | SCQF Level  | SCQF 11 |
| Approved  | April 2006 | SCQF Points | 60      |
| Amended   | June 2023  | ECTS Points | 30      |

### Aims of Module

To develop skills in the investigation and analysis of engineering problems and creativity in devising effective solutions, through detailed research of one selected topic.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Synthesise technical and non-technical contents from across all or some areas of the MSc Programmes to produce a project proposal detailing specific engineering problems and appropriate scientific and/or engineering methodologies to solve them.
- 2 Critically analyse relevant literature in a specific subject area of engineering to demonstrate in-depth understanding of problems and gaps in knowledge and/or practice in the subject area.
- 3 Generate practical and/or theoretical solutions to an engineering problem through correct implementation of appropriate scientific and/or engineering methodologies.
- 4 Produce a detailed and coherent report of an original and independent research project, demonstrating critical discussion and analysis of the research outcome and the underlying assumptions, and communication skills.

### Indicative Module Content

The project constitutes a major component of the course of study for MSc degree programmes in the School. Following a successful transition through the taught stage of the programmes and a detailed literature review of the chosen research topics, students will begin work on the project by producing a project proposal. Students are required to identify and source a project, subject to the approval of the School. Students will be encouraged and guided by the project module coordinator to produce a project brief and a plan of programme of events for consideration. Students should also make every effort to establish industrial contacts at an early stage and keep the designated supervisors up to date on progress. Early attention should be devoted to the establishment of the project as a viable concern through a detailed literature review and summary of the important aspects of the proposed study. On completion of the project practical work, students are expected to produce a detailed written report outlining the project findings to the standards specified in the Project Handbook, and detailing the important aspects of the work undertaken.

### Module Delivery

The project will be carried out on an individual basis, with the students having access to a supervisor(s) to provide guidance and support, as required. Students are expected to meet with their supervisors regularly throughout the duration of their project work. As part of the module activities and formative assessment, students are expected to develop their project proposals and submit them for approval before starting the project implementation work. The students will be prepared for the proposal development activity and provided with vital information and advice through a project seminar facilitated by the Module Coordinator and Programme Administrator. Whilst developing their proposal, further guidance and feedback would be provided to the students by the Module Coordinator or another academic tutor as appropriate. In addition, resource materials such as the Project Handbook and exemplars of high-quality proposal and project work are available to the students on CampusMoodle throughout the duration of their project.

### Indicative Student Workload

|  | Full Time | Part Time |
|--|-----------|-----------|
| Contact Hours  | 20        | 20        |
| Non-Contact Hours  | 580       | 580       |
| Placement/Work-Based Learning Experience [Notional] Hours                    | N/A       | N/A       |
| TOTAL  | 600       | 600       |
| <i>Actual Placement hours for professional, statutory or regulatory body</i> |           |           |

### ASSESSMENT PLAN

*If a major/minor model is used and box is ticked, % weightings below are indicative only.*

#### Component 1

|              |   |            |      |                    |            |
|--------------|---|------------|------|--------------------|------------|
| Type:        | Coursework  | Weighting: | 100% | Outcomes Assessed: | 1, 2, 3, 4 |
| Description: | Thesis: students are expected to use knowledge gained over the taught modules to develop their project proposals, execute the project works and write their project thesis. |            |      |                    |            |

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

Component 1 comprises 100% of the module grade. To pass the module, a D grade is required.

| Module Grade | Minimum Requirements to achieve Module Grade:                                  |
|--------------|--|
| <b>A</b>     | A  |
| <b>B</b>     | B  |
| <b>C</b>     | C  |
| <b>D</b>     | D  |
| <b>E</b>     | E  |
| <b>F</b>     | F  |
| <b>NS</b>    | Non-submission of work by published deadline or non-attendance for examination |

**Module Requirements**

|                          |  |
|--------------------------|--|
| Prerequisites for Module | The taught modules amounting to 120 points at SCQF 11 level must have been satisfactorily completed. In addition, normally, a UK honours degree in Engineering or a related discipline, proficiency in English language for academic purposes (or IELTS score of 6.5 or equivalent). |
| Corequisites for module  | None.  |
| Precluded Modules        | None.  |

**ADDITIONAL NOTES**

Extensive specialised reading specific to individual projects is required. Where necessary, arrangements can be made to protect commercial confidence.

**INDICATIVE BIBLIOGRAPHY**

- 1 RGU MSc Energy Programme, "The Energy Programme MSc Project Handbook" and "Frequently Asked Questions" documents. (All MSc project students in Engineering are issued with copies of these documents).
- 2 Tanaka, M. L. 2020. A Thesis Proposal Development Course for Engineering Graduate Students; Journal of biomechanical engineering, 2020, Vol.142 (11); available online.
- 3 Wallwork A. 2014. User Guides, Manuals, and Technical Writing - A Guide to Professional English. Springer, New York NY.