1. **Title of the module**

EENG8850 (EL885) - Research Methods and Project Design for Mobile Apps

1. **School or partner institution which will be responsible for management of the module**

Engineering and Digital Arts

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 7

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn and Spring

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

MSc/PGDip Mobile Application Development

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**

8.1 Carry out a comprehensive literature survey on a selected topic using library and electronic information sources.

8.2 Identify the current status of a particular research area and define the state-of-art in that research area.

8.3 Identify and formulate further research, which could usefully be undertaken in a defined area of technology.

8.4 Plan a research project, including the definition of objectives, project management, experimental design and data collection and processing within time and resource constraints.

8.5 Undertake research using logical and effective methodologies.

8.6 Use common software packages for project management and presentation.

8.7 Communicate with peers by way of conference and journal publications.

8.8 Understand general issues concerning research including IPRs and research ethics.

1. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**

Learn to use ICT, and will develop core key skills, such as learning effectively, critical thinking and time management.

9.1 This module will help the students to gain a thorough appreciation of methodologies of research which are essential to engineers involved in research and development projects.

9.2 Students will demonstrate the ability in generating, analysing, presenting and interpreting data and will develop core key skills in ICT, project and time management, effective communication and team working.

1. **A synopsis of the curriculum**

Literature Survey:

Surveys using networked electronic information sources, on-line databases, inter-library loan facilities, private communications, etc. Identification of a technical area worthy of research, definition of the state-of -the-art in a given field, definition of the research project, and research proposals. Patent search.

General Issues and Practice:

Choosing the field of interest. Concept of originality. Research theories: background theory, focal theory, data theory. Contribution towards knowledge. Types of research project (blue sky, basic, applied and experimental research). Research uncertainty. Risk management. Research approaches.

Research Project Management:

Time management. Resources management. Project management software (MS Project). Use of logbooks. Data management. Data security. Team working skills.

Research Process:

MSc research projects. MPhil/PhD research projects. Academic research and industrial R&D. Project planning, proposals and budgeting. Design of experimental tests. Modelling and simulation.

Research Publications:

Structure, content and procedures. Project reports and theses. Journal and conference papers. Technical presentations. Use of references. Writing up of abstract, introduction and conclusions. Submission, refereeing and amendments. Effective use of figures, drawings and tables. MS WORD, ENDNOTE and LATEX.

Presentations of Research Results:

Objectives and structure. Audience analysis. Rehearsal and delivery. Design of visual aids. Use of computerized projection facilities. Multi-media approach. Poster design and poster presentation. Handling questions.

Intellectual Property Rights:

Patents, patent rights and know-how. Copyright and copying. Design rights and registered designs. Research contracts and agreements. Confidentiality agreement.

Research Ethics:

Ethics in engineering research. Research supervision. Modelling and simulation versus real experimental work. Processing and presentation of experimental data. Obfuscation in writing up research papers.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**
* Phillips, E.M., Pugh, D.S., How to get a PhD - A Handbook for Students and their Supervisors
* Cryer, P., The Research Student's Guide to Success
* Greenfield, T., Research Methods - Guidance for Postgraduates
1. **Learning and teaching methods**

Total contact hours: 20

Private study hours: 130

Total study hours: 150

1. **Assessment methods**
	1. Main assessment methods

Assignment (10%)

Assignment (80%)

Assignment (10%)

13.2 Reassessment methods

Like-for-like

1. **Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *8.6* | *8.7* | *8.8* | *9.1* | *9.2* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Private Study** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| *Lectures* | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| *Laboratory workshops* |  |  |  | **X** |  | **X** |  |  |  | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| *Literature review report* | **X** | **X** |  |  |  |  |  |  | **X** |  |
| *Full MSc project proposal (including literature review)* | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |
| *Poster Design and Presentation* | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |  |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Consideration is made of international research and researchers, publication in international journals and conferences and the range of international patents and patent bodies.

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**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
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Revised FSO Jan 2018