



The  
University  
Of  
Sheffield.

Electronic & Electrical  
Engineering.

## **EEE6604      MSc(RES) RESEARCH PROJECT**

**Credits:            90**

### **Course Description including Aims**

This unit aims to provide a structured individual project to enable the student to carry out practical and/or theoretical work which underpins his/her academic studies and allows for the acquisition and demonstration of a wide range of practical skills.

### **Outline Syllabus**

Individual investigative research project.

### **Time Allocation**

18 weeks full time (approximately 720 hours) in the lab and in report writing.

### **Recommended Previous Knowledge**

All courses studied as part of the MSc(Res) relevant to the particular project.

### **Assessment**

Continuous assessment. Submission of a project report and a combined oral/poster presentation and viva examination in September.

### **Objectives**

At the end of the project, successful students will have:-

1. A detailed appreciation of the methodology of application of science or engineering principles to the solution of problems or to the realisation of systems in a topic related to the subject of the MSc(Res) degree.
2. Experience of the effective collection and interpretation of data to evaluate physical principles, making conclusions and developing their own work based on them.
3. The ability effectively to communicate complex technical ideas both orally and in writing.
4. An extensive awareness of the state of the art as portrayed in the literature in the general area of their project.
5. Experience of working at the forefront of knowledge.
6. The experience of project management, record keeping, technical planning and time scheduling.

## UK-SPEC/IET Learning Outcomes

Outcome Code	Supporting Statement
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SM1m	Projects from all research groups are offered. Significant design and evaluation is required.
SM4m	Literature reviews of project area are required.
SM3	Projects can have requirements from outside EEE, which can have a major impact on the design solution.
SM6m	Projects can involve a very diverse range of specialisations, which students will have to engage with and apply within their project.
EA1p	Projects require a range of fundamental techniques in order to solve the challenges.
EA5m	Projects have research elements, where novel solutions need to be developed.
EA2p	The latest modelling and analysis techniques are employed in developing solutions.
EA3p	Projects develop or use computer simulation or design tools to help achieve the objectives.
EA3m	Simulation tools are validated against measurements to understand limitations and uncertainties.
EA4p	Projects inherently require a systems approach in order for individual aspects to feed in to an overall solution.
EA6m	Projects will have some part that is unfamiliar to the students and require them to find and interpret appropriate literature. Projects use computer based tools in the development of solutions.
D2p	The starting point of all projects is to define a project specification, which includes risk, CoSHH etc.
D1m	Projects have very specific user defined outcomes that must be met.
D5p/D5m	Projects have a budget which must be adhered to.
D4i	Projects are set up not to have off the shelf solutions so that innovation is a requirement.
D4p	Full product life cycle planning is a part of projects.
D5p/D5m	This is an inherent part of the project process.
D8m	Projects are research based and require innovation.

<b>ET3m</b>	Project planning and risk analysis is carried out by students.
<b>EP2p</b>	Specialised equipment is used in all projects, requiring intimate knowledge.
<b>EP9m</b>	State of the art practices and equipment are employed.
<b>EP2m</b>	All themes of EEE are covered in this.
<b>EP3m</b>	Projects require the use of practical assessment and characterisation in all themes.
<b>EP1p/EP1m</b>	This is part of the initial specification and also the final thesis.
<b>EP10</b>	All projects are given constraints.
<b>EP4p/EP4m</b>	Initial literature reviews define possible solutions and are assessed.
<b>EP6p/EP6m</b>	All projects require solutions that conform to industry standards.
<b>EP8p/EP8m</b>	The risk register that students must prepare at an early stage defines strategies for dealing with uncertainty.
<b>EA1m</b>	All projects require the understanding of engineering principles and the ability to apply them to undertake critical analysis of key engineering processes.
<b>EA2m</b>	Projects involve either describing the performance of systems and components through the use of analytical methods to assess and evaluate prototypes or test experimental results against hypotheses, or critical use of modelling techniques.
<b>D5i</b>	Projects involve project planning, risk analysis and evaluation of results against project specifications. A small project budget limit ensures cost drivers for some projects.
<b>D6i</b>	Students give a presentation to their 2nd assessor, who is not a specialist on the given topic. Furthermore, students describe their work to a general audience at a poster session at the end of their project.
<b>D6p</b>	Students give a presentation to their 2nd assessor, who is not a specialist on the given topic. Furthermore, students describe their work to a general audience at a poster session at the end of their project.
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<b>ET6p</b>	students need to fulfil health and safety requirements before commencing a project, including full risk assessment, as well as a project risk analysis and mitigation strategy.

