

PROGRAMME SPECIFICATION

1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Electrical Power
5	UCAS/Programme Code	5441F
6	Programme Accreditation	
7	QAA Subject Benchmark(s)	
8	FHEQ Level	7
9	Date written/revised	April 2019

10 Programme Aims

The programme aims:

- to gain an advanced knowledge and understanding of specialist topics in Electrical Power Engineering
- to develop transferable skills in research and knowledge acquisition
- to satisfy the professional development needs of the individual and his/her employers; providing relevant training to engineering graduates who wish to pursue a career as design and development engineers in power electronics, electrical machines and electrical drives systems
- to provide a foundation for further postgraduate studies, and employment

11 Learning Outcomes

The programme provides opportunities for students to develop and demonstrate knowledge, understanding, skills and other attributes associated with the theme of Electrical Power Technology.

Knowledge and Understanding

A successful student will have gained and be able to demonstrate:

- A1 A knowledge and understanding of a broad range advanced topics in the field of Electrical Power Engineering. A2 The technical expertise that underpins informed project planning, design and decision making in the area of Electrical Power Engineering
- A3 Knowledge of computer aided design and analysis techniques appropriate to Electrical Power. Use of software packages such as MATLAB, Simulink, PSpice, MagNet, and ERACS
- A4 Knowledge of a particular topic connected with Electrical Power studied in-depth as part of a research project
- A5 Enhanced knowledge of a particular Electrical Power Technology, studied in depth as a technology review project.

Teaching and Learning Methods

Acquisition of A1 to A5 is through a combination of lectures, tutorials, student centred

learning, coursework and project work

Assessment Strategy

Formative assessment in particular areas occurs through tutorial exercises (computer based and written) and coursework. The primary means of assessing factual knowledge is through closed book written examination. This is supported through assessed coursework and case studies. In depth individual learning forms part of the research project, which is assessed by a literature survey, a presentation exercise, dissertation and oral examination.

Intellectual Skills

On completing the programme students should be able to:

- B1 Select and apply appropriate methods for modelling and analysing problems in key Electrical Power technology areas, including; Electric Drives, Electrical Machines, Power Electronics and Power Systems
- B2 Use scientific principles in the modelling and analysis of engineering systems, processes and products
- B3 Select and apply appropriate methods for developing solutions to practical Electrical Power Engineering problems
- B4 Produce engineering solutions to practical problems through the application of knowledge and understanding in Electrical Power Engineering
- B5 Create new designs in Electrical Power Engineering through synthesis of ideas from a wide range of sources
- B6 Develop ideas and opinions through the critical appraisal of information from a wide range of sources

Teaching and Learning Methods

Acquisition of B1 to B6 is through a combination of lectures, tutorials, coursework and project work

Assessment Strategy

Intellectual abilities are assessed through a mixture of written examinations and coursework assignments. The research project, which is assessed by dissertation and oral examination, provides evidence of the ability to carry out a research project

Practical Skills

On completing the programme students should be able to:

- C1 Use relevant test and measurement equipment
- C2 Use software packages relevant to Electrical Power Engineering
- C3 Plan, execute and report a research project
- C4 Design a system or component in selected areas of Electrical Power
- C5 Search for and retrieve information from a wide range of sources

Teaching and Learning Methods

Acquisition of C1 to C5 is through a combination of lectures, tutorials, coursework and project work

Assessment Strategy
C1 to C5 are not explicitly assessed but are necessary for successful completion of coursework and project modules
Transferable/Key Skills
A successful student will be able to: D1 Communicate effectively D2 Critically appraise information from a wide range of sources D3 Create and innovate in problem solving D4 Use general IT tools such as word processors, spreadsheets D5 Manage time and resources
Teaching and Learning Methods
D1 to D5 are introduced and developed via a combination of tutorial examples, coursework and project work
Assessment Strategy
Skills D1 to D3 are necessary to complete examinations and assignments to a satisfactory standard Skills D4 and D5 are essential for satisfactory completion of the project

12 Programme Curriculum, Structure and Features
Basic structure of the programme
The course comprises of 240 credits, split across 2-years. The programme comprises 135 taught credits, plus 15 credits of laboratory based coursework. MSc students also complete a 60 credit individual project with dissertation, a 15 credit group project module, and a 15 credit technology review project (literature review based). The course is offered once per year in a two semester structure with all lectured material, coursework, research methods, and individual project modules being in semesters 1 and 2. Unlike existing 1-year MSc programmes, no material will be presented in Semester 3.
Key features of the programme
This programme is aimed at students who wish to pursue advanced studies in the area of Electrical Power Engineering. Advanced Electrical Power Engineering is an enhanced 2-year, 240 credit, MSc programme. It is designed to meet growing international demand for 2-year MSc programmes. Advanced knowledge and understanding (A1 to A3) of specialist topics in Advanced Electrical Power Engineering are gained primarily through the selected modules. This is reinforced through tutorial exercises and coursework assignments. Intellectual abilities (B1 to B6) are introduced through the chosen modules and are reinforced through tutorial exercises, coursework assignments. Tutorial exercises and coursework assignments also develop practical skills (C1, C2, C4, C5) and transferable skills (D1 to D5). The research project involves individual acquisition of knowledge and abilities (A2 to A4, B1

to B5), project planning and execution (C3). Experience is also gained of practical skills (C1 to C5). Satisfactory completion of the dissertation and examination requires command of the transferable skills (D1 to D5).

The Technology Review Project provides student with an opportunity to develop further expertise in a specialist topic of choice (A5). This provides additional scope for developing individual acquisition of knowledge and abilities (B5), practical skills (C5), and transferable skills (D1 to D5).

Programme regulations (link to on-line version)

[-R5441F.pdf \(ncl.ac.uk\)](#)

13 Support for Student Learning

Generic information regarding University provision is available at the following link.

https://www.ncl.ac.uk/regulations/programme/2019-2020/documents/qsh_progspec_generic_info.pdf

14 Methods for evaluating and improving the quality and standards of teaching and learning

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https://www.ncl.ac.uk/regulations/programme/2019-2020/documents/qsh_progspec_generic_info.pdf

Accreditation reports

Additional mechanisms

15 Regulation of assessment

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https://www.ncl.ac.uk/regulations/programme/2019-2020/documents/qsh_progspec_generic_info.pdf

In addition, information relating to the programme is provided in:

The University Prospectus: <http://www.ncl.ac.uk/undergraduate/degrees/#subject>

Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

Please note. This specification provides a concise summary of the main features of the programme and of the learning outcomes that a typical student might reasonably be expected to achieve if she/he takes full advantage of the learning opportunities provided.