

PROGRAMME SPECIFICATION (Taught Postgraduate)	 Newcastle University
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1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Microelectronics: Systems and Devices Electronic Engineering (exit award)
5	Programme Code	5393F 5468F (exit award)
6	Programme Accreditation	
7	QAA Subject Benchmark(s)	Engineering
8	FHEQ Level	7
9	Last updated	May 2025

10	Programme Aims
The programme aims: - to gain an advanced knowledge and understanding of specialist topics in Microelectronics systems and devices - 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 the area of microelectronics systems and devices - to provide a foundation for further postgraduate studies	

11	Learning Outcomes
The programme provides opportunities for students to develop and demonstrate knowledge, understanding, skills and other attributes associated with the theme of Microelectronics, covering both systems and devices aspects. On completing the programme students should have gained and be able to demonstrate the following AHEP4 Learning Outcomes: M1. Apply comprehensive knowledge of mathematics, statistics, natural science and engineering principles to the solution of complex problems. Much of the knowledge will be at the forefront of the particular subject of study and informed by a critical awareness of new developments, and the wider context of engineering. M2. Formulate and analyse complex problems to reach substantiated conclusions. This will involve evaluating available data using first principles of mathematics, statistics,	

natural science and engineering principles, and using engineering judgement to work with information that may be uncertain or incomplete, discussing the limitations of the techniques employed.

M3. Select and apply appropriate computational and analytical techniques to model complex problems, discussing the limitations of the techniques employed.

M4. Select and critically evaluate technical literature and other sources of information to solve complex problems.

M5. Design solutions for complex problems that evidence some originality and meet a combination of societal, user, business and customer needs as appropriate. This will involve consideration of applicable health and safety, diversity, inclusion, cultural, societal environmental and commercial matter, codes of practice and industry standards.

M7. Evaluate the environmental and societal impact of solutions to complex problems (to include the entire life-cycle of a product or process) and minimise adverse impacts.

M16. Function effectively as an individual, and as a member or leader of a team. Evaluate effectiveness of own and team performance.

M17. Communicate effectively on complex engineering matters with technical and non-technical audiences, evaluating the effectiveness of the methods used.

AHEP Learning outcomes M6, M8, M9, M10, M11, M12, M13, M14, M15 and M18 are achieved at previous level of study.

Teaching and Learning Methods

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

12 Programme Curriculum, Structure and Features

Basic structure of the programme

The course comprises 90 taught credits, plus 15 credits of laboratory based coursework. MSc students also complete an individual project with dissertation (60 credits) and a group project module (15 credits).

The course is offered once per year in a three semester structure with all lectured material and the research methods module being in semesters 1 and 2. The project will take place in Semester 2 and 3.

Key features of the programme (including what makes the programme distinctive)

This programme is aimed at students who wish to pursue advanced studies in the area of Electrical Power.

Advanced knowledge and understanding of specialist topics in Automation and Control are gained primarily through the selected modules. This is reinforced through tutorial exercises and coursework assignments.

Intellectual abilities are introduced through the chosen modules and are reinforced through tutorial exercises, coursework assignments. Tutorial exercises and coursework assignments also develop practical skills and transferable skills.

The research project involves individual acquisition of knowledge and abilities, project planning and execution. Experience is also gained of practical skills. Satisfactory completion of the dissertation and examination requires command of the transferable skills.

Programme regulations (link to on-line version)

[-R5393F.pdf](#)

13 Support for Student Learning

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

[Generic Information](#)

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

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

[Generic Information](#)

Accreditation reports

Additional mechanisms

15 Regulation of assessment

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

[Generic Information](#)

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

The University Prospectus: <http://www.ncl.ac.uk/postgraduate/courses/>

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

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.