

PROGRAMME SPECIFICATION

1	Awarding Institution	Newcastle University
2	Teaching Institution	Newcastle University
3	Final Award	MSc
4	Programme Title	Automation and Control Electrical Engineering (exit award)
5	UCAS/Programme Code	5057F 5467F (exit award)
6	Programme Accreditation	IET
7	QAA Subject Benchmark(s)	N/A
8	FHEQ Level	7
9	Date written/revised	May 2023

10 Programme Aims

The programme aims:

1. To gain an advanced knowledge and understanding of specialist topics in Automation and Control;
2. To develop transferable skills in research and knowledge acquisition.
3. 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 systems engineers in the fields of intelligent manufacturing, production units and distributed control systems, or in general modern control applications
4. 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 Automation and Control.

Knowledge and Understanding

On completing the programme students should have gained and be able to demonstrate:

- A1 A knowledge and understanding of a total of 6 advanced topics in the field of Automation and Control selected from: Industrial Automation, Robotics and Artificial Intelligence, Distributed Control Systems, Advanced Control Systems, State Space Analysis and Controller Design, Signal Processing and Estimation, Advanced Multimedia Systems, Power Electronics, Control of Electric Drives and Power Systems Operation.
- A2 The technical expertise that underpins informed project planning, design and decision making in the area of Automation and Control
- A3 Computer aided design and analysis techniques appropriate to Automation and Control, for example the use of software packages such as MATLAB, Simulink, PSpice
- A4 A particular topic connected with Automation and Control studied in-depth as part of a research project.

Teaching and Learning Methods
Acquisition of A1 to A4 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 Automation and Control
B2 Use scientific principles in the modelling and analysis of engineering systems, processes and products
B3 Select and apply appropriate methods for developing Automation and Control solutions to practical problems
B4 Produce engineering solutions to problems through the application of knowledge and understanding in Automation and Control
B5 Create new designs in Automation and Control 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 B5 is through a combination of lectures, tutorials, coursework and project work.
Assessment Strategy
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.
Practical Skills
On completing the programme students should be able to:
C1 Use relevant test and measurement equipment.
C2 Use software packages relevant to Automation and Control
C3 Plan, execute and report a research project
C4 Design a system or component in selected areas of Automation and Control
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.
Transferable/Key Skills
On completing the programme students should 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 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
This programme is aimed at students who wish to pursue advanced studies in the area of Automation and Control. Advanced knowledge and understanding (A1 to A3) 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 (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).

Programme regulations

-R5057F.pdf (ncl.ac.uk)

13 Support for Student Learning
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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

<i>Accreditation reports</i>

<i>Additional mechanisms</i>

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:
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The University Prospectus: https://www.ncl.ac.uk/postgraduate/ Degree Programme and University Regulations: http://www.ncl.ac.uk/regulations/docs/
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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.
