

Nottingham Trent University Programme Specification

Basic Programme Information

1	Awarding Institution:	Nottingham Trent University
2	School/Campus:	School of Computing and Informatics
3	Final Award, Programme Title and Modes of Study:	MRes in Electronic Systems FT / PT
4	Normal Duration:	1 year FT, 2 year PT
5	UCAS code:	n/a

6 Overview and general educational aims of the programme

The aim of the Masters by Research Degree in Electronic Systems is to train you in research methodology and critical evaluation techniques as appropriate to a specialist field of Electronic Systems, by undertaking a specified Masters Level programme of research under the guidance of appropriate specialists. This training will include the ability to analyse the literature and relevant artefacts, and to produce a Masters Dissertation.

The programme provides the opportunity for you to develop your research skills by working on an individually tailored programme of study that is built around the specific 120 credit point research project to be defined at the start of the programme. A 20 credit point module on Research Methods (delivered across all MSc. Programmes) is a core requirement, with the additional technical taught component consisting of two appropriate 20 credit point modules selected from the current portfolio of MSc. programmes offered in the School.

The specified programme of research – the research project – is the major feature of the programme, and will provide you with experience of undertaking original research as well as the required technical skills and team working skills necessary to work with one of the established research groups in the School.

Completion of an MRes will consequently build on your individual academic background in technology by enhancing your knowledge in the specific area relevant to the chosen project. This will develop your theoretical and practical skills at Masters level for a career in electronic systems and related industries, and will additionally allow you to develop your analytical skills to fully equip you for the option of PhD. study.

7

Programme outcomes

Programme outcomes describe what you should know and be able to do by the end of your programme if you take advantage of the opportunities for learning that we provide.

Knowledge and understanding. By the end of the programme you should be able to:

- P1.** Demonstrate an in-depth understanding of advanced technology principles and techniques and their applications to solve a wide range of problems.
- P2.** Use appropriate tools to design, develop and critically evaluate innovative solutions to a range of complex and challenging problems.
- P3.** Use knowledge to investigate new and emerging technologies in electronic systems and adapt to specific purposes as necessary.
- P4.** Demonstrate an understanding of research methodologies and apply them to critically appraise and evaluate issues related to an electronic systems based research case study in the form of a major project.
- P5.** Demonstrate a professional competence in: problem solving; analysis and interpretation; critical thought and reasoning.

Skills, qualities and attributes. By the end of the programme you should be able to:

- P6.** Write comprehensive rationales, aims and objectives for project documents.
- P7.** Undertake a critical review of publication in the area in order to synthesise and appraise ideas from a wide variety of sources.
- P8.** Design and/or develop an innovative solution to a complex and challenging technical problem.
- P9.** Develop appropriate research methodologies to undertake original research or to offer original interpretation of existing work
- P10.** Communicate the operation and/or results of the solution to a professional standard via the production of a Masters Dissertation and oral presentation.
- P11.** Learn independently to expand on the knowledge and understanding developed during the course.

8 **Teaching and Learning Methods**

The primary element of this programme is the 120 credit point research project. This will be an investigation into the approved topic in order for you to demonstrate an understanding of research methods appropriate to the chosen area of electronic systems. The programme also includes a 20 credit point module on Research Methods which will enable you to learn and practice the appropriate skills necessary to develop a robust research methodology. Additional advanced level theory and practice appropriate to the approved topic will be developed via the two specialist 20 credit point taught modules that will be selected as part of the programme approval process.

The individual MRes programme plan for each student will be approved by MRes Programme Leader prior to commencement to ensure that the choice of taught modules is appropriate for the specialist area chosen for the research project, and is matched to both the prior learning experience of the student and the learning outcomes of the MRes. This Programme Approval process will commence with the identification of a suitable project supervisor (or team of supervisors, as appropriate) to be determined by the specialist research area chosen by the student. This will be selected from one of the research specialisms of the School, and the MRes Programme Leader will then consult with the appropriate Research Group Leader to identify supervisor(s). In line with the University policy on ethics, the projects will also be subject to approval by the School Research Ethics Committee.

The majority of your contact time for the project work will consist of one to one supervision. Additionally, you will be required to present your project aims and progress as well as your final results at a presentation and viva voce session.

In planning the taught modules that will constitute 60 credit points (one third of the programme), we have used an outcome based approach, which incorporates the experience that has been developed in the School over a number of years based on feedback, review and reflection. The purpose is to create a student centred learning environment and teaching and learning methods are selected to facilitate student engagement in activities that are appropriate to the outcomes.

Reflecting the relative maturity of postgraduate students, the teaching and learning is designed to enable independent learning. The majority of taught modules will be centred on lectures supported by seminars, workshops and laboratories to provide a significant knowledge resource. You will be able to apply this knowledge through case study and project work either at the University or away from the University.

The various teaching methods are:

- lectures to introduce and develop concepts and to explore the application of these concepts;
- workshops and laboratories to develop skills and appreciate concepts;
- seminars to provide academic support;
- case study and project work to develop a deeper understanding of concepts and applications.

Comprehensive teaching material will be available to support the learning process utilising the World Wide Web and e-learning where applicable. Such teaching material will typically comprise of written information, recommended reading, tutorial questions, self-assessment tests and computer based learning and teaching instructions. It is a normal practice of the School to invite external professional staff to contribute to learning material and to give lectures on a 'visiting faculty' basis. The web and the University's own Virtual Learning Portal will also be used for communication between students and staff.

If you are an international student where English is not your first language, language support will be provided where appropriate by the University to enhance your learning experience and to improve your presentation skills. If necessary, you may be required to attend advanced English language classes as a supplementary module.

9 **Assessment Methods**

The programme uses a variety of methods of assessment to ensure that you can demonstrate the range of Masters-level learning outcomes.

Taught module related subject knowledge and understanding is mainly tested through coursework reports, with, in some cases, written examinations. The skills to apply principles and techniques are assessed through assignments and case studies. These also assess a range of transferable skills including competence in written communication and oral presentations.

Simulated problems are used in case studies to assess problem solving skills and creativity in designing programming solutions to intelligent systems problems.

The research project assesses a similar range of skills as for the specialist taught modules but the emphasis is on individual research and technical skills as well as

self-organisational skills. The project will be assessed via the production of a dissertation, and the defence of the work at a viva voce examination.

10 Programme structure and curriculum

The programme for the Full Time route is studied on a one year basis, commencing in October or January.

Part Time students can complete the programme in a minimum of two years with the start date determined on an individual basis as part of the initial programme approval process.

Prior to enrolment, a programme approval document will be agreed between the student, the Programme Leader and the project supervisor. This will define the research topic to be investigated and will identify the two technical Masters Level modules that will be studied in addition to the Research Methods module. Technical modules will be selected from the Postgraduate Portfolio of MSc. provision currently being offered by the School and will be chosen to enhance and build on prior knowledge as relevant to the chosen area of research into electronic systems.

The Research Methods module is run in October and January, so is available at both FT entry points as an initial taught module. PT students will attend the first available Research Methods module, depending on their start date.

MRes Students will undertake the taught modules at the University and will be expected to undertake the project work in close collaboration with the relevant research group using the appropriate research facilities available on campus. In some cases, the student may undertake the practical research work at facilities based in industry, subject to approval by the Programme Leader and where regular supervisor meetings with the academic supervisor are arranged.

11 Admission to the programme

For admission to the programme, you should normally have a good honours degree, or equivalent, in Science, Engineering or Technology.

If you are a mature candidate with a good honours degree outside of these subjects, but with relevant industrial experience, you are welcome to apply. You will normally be expected to provide a portfolio of accredited supporting evidence and to attend an interview, where appropriate.

Selection is by application form, supported by documentary evidence of academic qualifications/attainments and references.

For international students

If you are an international student, where English is not your first language, you will need to have an English language qualification, normally IELTS 6.5 or CBTOEFL 213.

This requirement may be waived if you can demonstrate language skills that indicate you have the potential to succeed on the programme. These may include good passes in English Language examinations at appropriate levels taken as part of the Bachelor degree programme, or confirmation from academic referees/institutions that the medium of instruction throughout the degree study programme is English. If you are already studying in the UK, assessment may be based on the outcomes of an interview.

Applicants who have successfully completed the Graduate Diploma foundation programme in technology run by the Nottingham Trent International College will be eligible for entry to this programmes.

12 **Support for Learning**

There is an induction programme (including IT and Library use) and you will receive a programme handbook that provides all the essential information about the programme and the support we provide for your learning.

Staff teaching on the programme are members of professional institutions including the Institution of Electrical and Electronics Engineers (IEEE) and the Society for Information Display. All staff are active researchers; many undertake industrial consultancy and collaborations.

The Programme Leader, who is responsible for the day-to-day operation of the programme, oversees all students enrolled on the programme. Additionally, your project supervisor will take a pastoral role as your Personal Tutor who is accessible by you on an individual basis throughout your time on the programme.

The library and other learning resources (equipment/IT) are continually updated to ensure they are fit for purpose. The University central student Support Services offers a range of general, specialist and professional support services for students.

There is a strong research community within the School, with a large population of research students and post doctoral researchers working alongside the research active academic staff in the recently opened C&I building at Clifton. The purpose built accommodation includes IT laboratories, specialist IT, multimedia, communications, cybernetics and virtual environment research laboratories, and informal meeting areas. Also at the Clifton site is the Imaging and Display Research Facility that houses state of the art electronic devices and systems laboratories, including a Class 100 Clean Room and thin film deposition facility.

MRes students have the opportunity of working with the most appropriate research

group related to their project interest, and will benefit from the expertise and research infrastructure available within each group.

13 Graduate destinations/ employability

The aim of the Masters by Research Degree is to train candidates in research methodology and critical evaluation techniques as appropriate to their particular field of study. This will equip graduates with the skills and knowledge necessary to undertake a research career either in industry or in academia. In addition, there is a wide range of potential career opportunities in the science, technology, engineering & IT sectors and related industries. The School of Computing and Informatics at Nottingham Trent University has an enviable graduate recruitment record. If you choose to work in the areas related to the subject discipline studied, we have an excellent employment record.

Some graduates may choose to venture into other sectors where they are likely to be equally successful in gaining employment because of the transferable skills gained on the programme. Other graduates can go on to study for a PhD.

The University Careers Service is available to all students, offering individual consultation. Link: [Careers](#).

14 Programme standards and quality

- A programme committee monitors student feedback on module delivery.
- You will be given feedback on all assessed work.
- There is one External Examiner, who submits an annual report on the standards and quality of the programme.
- The draft postgraduate subject benchmarks produced by the Council of Professors and Heads of Technology in March 2004 have informed the programme's learning outcomes.
- The University was the subject of a successful institutional audit by the Quality Assurance Agency in May 2004 – the report is available here: [QAA Audit Report](#).

15 Assessment regulations

This programme is subject to the University's Common Assessment Regulations (located in its [Academic Standards and Quality Handbook](#)). Any programme-specific assessment features are described below:

There are no programme specific exceptions from the University regulations.

16 Additional Information

Collaborative partner(s):	
Programme referenced to national QAA Benchmark Statements:	
Programme recognised by:	n/a
Date implemented:	September 2006

Any additional information:	
n/a	