

Nottingham Trent University

Course Specification

Basic Course Information

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| 1. | Awarding Institution: | Nottingham Trent University |
| 2. | School/Campus: | School of Science & Technology |
| 3. | Final Award, Course Title and Modes of Study: | MSc Computing Systems
FT, SW or PT |
| 4. | Normal Duration: | FT 1 year, SW 2 years, PT up to 2.5 years |
| 5. | UCAS Code(s): | COMP065-FT, COMP090-SW, COMP112-PT |

6. Overview and general educational aims of the course

The overall aim of the course is to provide graduates with advanced level education in applied software engineering for computing systems in industry, business and research.

During the course you will gain experience in the analysis, design and development of computing systems solutions relevant to a wide range of applications in industry and business. You will acquire knowledge and skills in the use of suitable programming languages and their development environments for the production of efficient software solutions. The course will provide you with knowledge of computer technology, architecture and communications as a means to developing computer-based systems in industrial environments. Overall, you will participate in activities that develop your ability to research and critically assess material and techniques relevant to a particular problem or project. You will have the opportunity to develop through the major MSc project from June till September, a specialism in a technologically advanced area relevant to industry.

On completing the course you should be able to use suitable programming languages and their development environments to produce new software solutions. The course material will enable you in your future career to devise multi-tasking software solutions using both high level and assembler language and implement suitable architecture-software constraints for computer applications. This often involves having to participate creatively in the development of distributed systems using advanced platforms, languages and environments and be fully aware of the rapidly evolving nature of the computing industry. Also, as a team member, you will be able to effectively contribute novel solutions to the creation and management of large computing projects and appreciate the techniques employed in managing such projects.

The option of an industrial placement of up to one year, provides you with additional opportunities for experience and professional development, and leads to an additional qualification of a Placement Diploma (or Certificate) in Industrial Studies.

7. Course outcomes

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

<p>Knowledge and understanding By the end of the course you should be able to:</p>
<p>C1. Demonstrate an understanding of computer systems and critically analyse a range of software engineering concepts. (B)</p> <p>C2. Demonstrate advanced understanding of software implementation principles in a variety of contexts relevant to the production of industrial/business systems. (B)</p> <p>C3. Demonstrate a comprehensive understanding of issues that arise in the identification, planning and implementation of mobile interactive systems.</p> <p>C4. Conduct research in a range of advanced computing applications based upon the body of knowledge.</p>
<p>Skills, qualities and attributes By the end of the course you should be able to:</p>
<p>C5. Analyse, design and develop robust software systems, with accompanying documentation. (B)</p> <p>C6. Implement software in a variety of contexts relevant to the production of industrial/business systems, showing analytical judgement in the selection and use of tools and techniques.</p> <p>C7. Exercise critical judgement about the use of novel platforms, languages and environments and the techniques employed in managing computing projects. (B)</p> <p>C8. Show innovative problem solving and critical evaluation skills and the ability to apply appropriate testing and quality control measures to a range of computing applications. (B)</p> <p>C9. Identify mechanisms for continuing professional development and lifelong learning;</p> <p><i>(B) indicates that the outcome has been mapped to the Computing benchmark standards http://www.qaa.ac.uk/Publications/InformationAndGuidance/Documents/QAA386_Computing.pdf The Computing benchmark standards provide a national framework for describing the content and standards of a Master's degree in Computing disciplines.</i></p>
<p>8. Teaching and Learning Methods</p>
<p>In planning the course, 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.</p> <p>Reflecting the relative maturity of postgraduate students, your 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.</p> <p>The aims of these various teaching methods are:</p> <ul style="list-style-type: none"> • 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.

The research project module will integrate the knowledge base of the taught modules to enable highly-specialised knowledge and research skills to be developed.

If you are an international student where English is not your first language, language support will be provided where appropriate by the School 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 course uses a variety of methods of assessment to ensure that you can demonstrate the range of higher-level learning outcomes. Subject knowledge and understanding is mainly tested through unseen coursework reports, while 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 study to assess problem solving skills and creativity in design solutions.

Laboratory/workshops are used to test a range of practical skills and those outcomes associated with hypothesis testing, data capture and interpretation. Typical assessments include coursework reports and presentations.

The major project assesses an important range of skills relevant to the world of work, including research and technical skills, technical presentation skills, time and resource management.

Throughout the course, formative feedback will be given during seminars and laboratory/workshop sessions, and summative feedback is given for coursework.

The assessment type and methods used vary for each module depending on the requirements, content and learning outcomes of the module. The following table summarises the course assessment schedule.

Module	Credit Point	Assessment	
		Coursework	Examination
Software Engineering-1	20	100%	
Systems Analysis & Design	20	100%	
Mobile Interactive Systems	20	100%	
Software Engineering-2	20	100%	
Engineering Interactive Applications	20	100%	
Research Methods	20	100%	
Major Project	60	100%	

Course assessment schedule

Assessment of the optional industrial placement is defined in the specification for the Placement Diploma (or Certificate) of Industrial Studies.

10. Course structure and curriculum

FULL TIME & SANDWICH MODE:

Weeks 1-10

- Software Engineering-1
- Systems Analysis & Design

Weeks 11-30

- Software Engineering-2
- Mobile Interactive Systems
- Engineering Interactive Applications
- Research Methods

** At this point, sandwich students successful of securing a placement position undertake a one-year work placement before returning the following year to start the major project.*

Weeks 31-45

- Major Project 60cp

PART TIME MODE:

In part time mode students will take half of the taught modules in year one and the other half in year two. Modules must be taken at the times that they are delivered to full time students, and it is important that the Research Methods module is delivered before students undertake their major project. Software Engineering-1 is a pre-requisite for other modules and so must be taken in the first half of the first year. It follows that Systems Analysis and Design must be taken in the first half of the second year. Other than that, the order in which the modules are taken may be chosen to meet individual student needs. An example programme is given below.

Year 1:

Weeks 1-10

- Software Engineering-1

Weeks 11-30

- Mobile Interactive Systems
- Engineering Interactive Applications

Available throughout the year

- Major Project 60cp

Year 2:

Weeks 1-10

- Systems Analysis & Design

Weeks 11-30

- Research Methods
- Software Engineering-2

Taken over a 30 week period

- Major Project 60cp

11. **Admission to the course**

Candidates should have an honours degree or equivalent in Computing, Science, Engineering, or Technology.

If you are an international student, where English is not your first language, you will require an English language qualification, normally comprising one of the following: IELTS 6.5, TOEFL 550, or CBTOEFL 213.

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

Mature candidates without a degree but with equivalent academic achievement and relevant industrial experience are welcomed to apply. He/she 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.

Applicants who have successfully completed the postgraduate foundation programme in computing run by the Nottingham Trent International College will be eligible for entry to these courses.

12. **Support for Learning**

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

Staff teaching on the course are members of professional institutions including British Computer Society (BCS), Institute of Mathematics and Its Applications (IMA), Institution of Electrical Engineers (IEE), Institution of Electrical and Electronic Engineers (IIEE), Institution of Mechanical Engineers (IMechE). Most staff are active researchers; many undertake industrial consultancy.

The Course Leader, who is responsible for the day-to-day operation of the course, oversees all students enrolled on the course. Additionally, you will be allocated a Personal Tutor who is accessible by you on an individual basis throughout your time on the course.

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.

For students hoping to take a placement, support and advice is available from the School's Placement Office.

<p>13. Graduate destinations / employability</p>										
<p>There is a wide range of career opportunities in the computing industry and related industries. We have 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.</p> <p>Some graduates choose to venture into other sectors and are equally successful in gaining employment because of the transferable skills gained on the course. Other graduates go on to study for a PhD.</p> <p>The University Careers Service is available to all students, offering individual consultation.</p>										
<p>14. Course standards and quality</p>										
<p>A course committee monitors student feedback on module delivery.</p> <ul style="list-style-type: none"> • 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 course. • The subject benchmarks of the Quality Assurance Agency have been incorporated into the course's learning outcomes. • The University was the subject of a successful institutional audit by the Quality Assurance Agency in October 2010 – the report is available here http://www.qaa.ac.uk/InstitutionReports/Pages/Nottingham-Trent.aspx 										
<p>15. Assessment regulations</p> <p>This course is subject to the University's Common Assessment Regulations (located in its Academic Standards and Quality Handbook). Any course specific assessment features are described below:</p>										
<p>There are no course specific exceptions from the University regulations.</p>										
<p>16. Additional Information</p> <table border="0"> <tr> <td>Collaborative partner(s):</td> <td>None</td> </tr> <tr> <td>Course referenced to national QAA Benchmark Statements – indicated by (B) in section 7- the course outcome:</td> <td>Computing (2011)</td> </tr> <tr> <td>Course recognised by:</td> <td>N/A</td> </tr> <tr> <td>Date implemented:</td> <td>November 2013</td> </tr> <tr> <td>Any additional information:</td> <td>N/A</td> </tr> </table>	Collaborative partner(s):	None	Course referenced to national QAA Benchmark Statements – indicated by (B) in section 7- the course outcome:	Computing (2011)	Course recognised by:	N/A	Date implemented:	November 2013	Any additional information:	N/A
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