

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 Computer Games Systems FT, SW or PT |
| 4. | Normal Duration: | FT 1 year, SW 2 years, PT up to 2.5 years |
| 5. | UCAS Code(s): | COMP041-FT, COMP089-SW, COMP113- PT |

| 6. | Overview and general educational aims of the course |
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| | <p>The overall aim of the course is to provide graduates with Masters level education in the principles of games computing systems and their application in industry.</p> <p>The course will provide you with the knowledge and experience necessary for you to specialise in the design of games systems. As part of achieving this aim you will gain experience in the analysis, design and development of computing system solutions relevant to the games computing industry. The course will develop your knowledge and skills in the use of suitable programming languages and their development environments for the production of efficient games software solutions. You will learn computer technology, architecture and communications as a means to developing computer-based systems in games environments. Furthermore, the course will develop your ability to research and critically assess material and techniques relevant to a particular problem or project for both the games industry and for the broader computing applications industry. One third of the credit points assigned to the course are gained through a suitable major Masters project. Through the study of this MSc project, you will develop a specialism in a technologically advanced area relevant to the games industry.</p> <p>On completing the course you should be able to use suitable programming languages and their development environments to produce new games software solutions. You should be able to incorporate artificial intelligence techniques into games design and development and apply 3D image generation and interfacing techniques to games and graphics hardware accelerators. You should be able to participate creatively in the development of distributed and virtual-reality games systems using novel platforms, languages and environments and be fully aware of the rapidly evolving nature of the industry.</p> <p>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.</p> |
| 7. | Course outcomes |
| | <p>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> |

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| <p>Knowledge and understanding</p> <p>By the end of the course you should be able to:</p> |
| <p>C1. Demonstrate a sound understanding of the underlying principles of the design and development of computer games, and critically evaluate them. (B)</p> <p>C2. Demonstrate critical understanding of advanced software solutions for games using both low and high level languages. (B)</p> <p>C3. Demonstrate knowledge and awareness of the rapidly evolving nature of the games industry.</p> <p>C4. Demonstrate a deep appreciation of the problems involved in the creation and management of large games projects. (B)</p> |
| <p>Skills, qualities and attributes</p> <p>By the end of the course you should be able to:</p> |
| <p>C5. Perform requirements analysis for a game and make suitable choices from available software and hardware tools, ranging from assembler and third generation languages to rapid prototyping systems. (B)</p> <p>C6. Design, create, test and evaluate a game subsystem or a small game using any suitable desktop or mobile development platforms.</p> <p>C7. Conduct research to identify or discover novel solutions to problems in game design and implementation. (B)</p> <p>C8. Participate in the development of distributed and virtual-reality games systems using novel platforms, languages and environments. (B)</p> <p>C9. Communicate effectively about research in advanced games technology.</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>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. <p>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 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</p> |

University's own Virtual Learning Portal will also be used for communication between students and staff.

The major 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 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 assessment 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 Points | Status | Assessment | |
|---------------------------------|---------------|--------|------------|------|
| | | | Coursework | Exam |
| Advanced Software Engineering | 20 | Core | 100% | |
| 3D Games Algorithms | 20 | Core | 100% | |
| Computer Games Development | 20 | Core | 100% | |
| Applied Artificial Intelligence | 20 | Core | 100% | |
| Mobile Interactive Systems | 20 | Core | 100% | |
| Research Methods | 20 | Core | 100% | |
| Major Project | 60 | Core | 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

- Advanced Software Engineering
- 3D Games Algorithms

Weeks 11-30

- Computer Games Development
- Applied Artificial Intelligence
- Mobile Interactive Systems
- 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 they are delivered to full time students, and it is important that the Research Methods module is delivered before students undertake their major project. . Advanced Software Engineering is a pre-requisite for other modules and so must be taken in the first half of the first year. It follows that 3D Games Algorithms must be taken in the first half of the second year. Students may choose when they take the second-half modules to suit their own circumstances. Here is one suggested plan:

Year 1:

Weeks 1-10

- Advanced Software Engineering

Weeks 11-30

- Mobile Interactive Systems
- Computer Games Development

Available throughout the year

- Major Project 60cp

Year 2:

Weeks 1-10

- 3D Games Algorithms

Weeks 11-30

- Research Methods
- Applied Artificial Intelligence

Available throughout the year

- Major Project 60cp

11. **Admission to the course**

Candidates should have an honours degree or equivalent in 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 the student's 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) and Institution of Electrical and Electronics Engineers (IIEE)), Institution of Mechanical Engineers (IMechE). All 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 University's own e-learning environment (NOW) is used to support student learning activities.

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

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| School's Placement Office. | |
| 13. | Graduate destinations / employability |
| <p>There is a wide range of career opportunities in the computer games 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> | |
| 14. | Course standards and quality |
| <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 | |
| 15. | Assessment regulations |
| <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> | |
| 16. | Additional Information |
| 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 |