

**PROGRAMME SPECIFICATION**

<b>1</b>	<b>Awarding Institution</b>	Newcastle University
<b>2</b>	<b>Teaching Institution</b>	Newcastle University
<b>3</b>	<b>Final Award</b>	MSc
<b>4</b>	<b>Programme Title</b>	Computer Game Engineering
<b>5</b>	<b>UCAS/Programme Code</b>	5152F
<b>6</b>	<b>Programme Accreditation</b>	British Computer Society
<b>7</b>	<b>QAA Subject Benchmark(s)</b>	Non appropriate in computing PG
<b>8</b>	<b>FHEQ Level</b>	7
<b>9</b>	<b>Date written/revised</b>	May 2023

**10 Programme Aims**

1. To equip students with the skills and knowledge required to develop computer game software
2. To provide a qualification enhancing employment prospects in the computer games industry
3. To provide an international perspective on advancements in computer game development
4. To provide a programme which meets the FHEQ at Masters level and takes appropriate account of the draft benchmarking standards for Taught Masters Degrees in Computing developed under the sponsorship of the Conference of Professors and Heads of Computing (CPHC) with the support of the QAA

**11 Learning Outcomes**

The programme provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, skills and other attributes in the following areas. The programme outcomes have references to the benchmark statements for Computing.

**Knowledge and Understanding**

On completion of the programme, students will be able to:

- A1. Demonstrate a knowledge of advanced techniques for programming appropriate software for solving computer game related problems
- A2. Understand how to design computer games to ensure user requirements for game play are satisfied
- A3. Be aware of major professional, legal and ethical issues associated with work in computer game development
- A4. Understand the international character of contemporary developments in the computer game industry

**Teaching and Learning Methods**

The primary means of imparting knowledge and understanding (A1, A2, A3 and A4) is lectures. In the case of A1 and A2, these are supplemented by practical classes. Practical classes allow students to check their learning in an environment supervised by a member of staff while working on a number of module specific exercises. In A3 and A4 lectures are supplemented by seminars. Seminars afford an opportunity for guided discussion, allowing students to realise where their opinions fit with those of others. A4 has an additional element of learning that specifically encourages independent reading in the form of a short research literature survey supervised by a member of staff. During this survey students are given extensive support and guidance on reading materials and how to use them in producing a critical evaluation on a games related subject. An independent research

project carried out under the supervision of a member of staff during the summer months also aid in students attaining A1, A2, A3, and A4.

**Assessment Strategy**

Knowledge and understanding of the subject is primarily assessed by written examinations (A1, A2, A3, and A4). This is supplemented in the case of A1 and A2 with practical work to assess technical ability in the development of computer games. A4 is supplemented with a literature survey to assess the ability to form arguments expressing an individual's opinion on recent developments in the games industry. A summer research project is designed to assess the ability to apply knowledge and understanding in a practical engineering exercise associated to the development of computer game related technologies (A1, A2, A3, and A4).

**Intellectual Skills**

On completing the programme students should be able to:

- B1. Realise most appropriate solution for computer game related problems
- B2. Analyse technologies relevant to computer games
- B3. Evaluate the appropriateness of computer game content and their interfaces
- B4. Evaluate contemporary developments in computer technologies

**Teaching and Learning Methods**

Intellectual skills are developed through practical classes (B1 and B2), seminars (B2 and B3), and literature surveys together with research projects (B3 and B4). Students are encouraged to acquire intellectual skills through analysing case studies during practical classes (B1 and B2), solving problems arising from these (B1 and B2) and by completing a literature survey and a research project, both supervised by a member of staff (B3 and B4).

**Assessment Strategy**

Intellectual skills are assessed by unseen written examinations (B1, B2, B3 and B4), assessed practical work (B1 and B2) and by completing a literature review and research project supervised by a member of staff (B1, B2, B3 and B4).

**Practical Skills**

On completing the programme students should be able to:

- C1. Design and implement software suitable for computer games
- C2. Organise and take part in systematic optimisation of computer game software
- C3. Apply the leading techniques for game software development
- C4. Develop methods for assessing game software performance
- C5. Assess computer game interfaces

**Teaching and Learning Methods**

Practical skills are developed in practical classes (C1, C2 and C3) and seminars (C3). Research project and literature survey will encourage "learning by doing" (C1, C2, and C3) via the development of their own solutions to computer game related problems. Throughout all practical classes, seminars and research project students will develop an ability to apply critical reasoning to judge the suitability of approaches to ensure appropriate game performance requirements and interfaces are satisfied (C4 and C5).

**Assessment Strategy**

Practical skills are assessed by coursework exercises (C1, C2, C3 C4 and C5) as well as research projects (C1, C2, C3, and C4).

<b>Transferable/Key Skills</b>
<p>On completing the programme students should be able to:</p> <p>D1. Use computer-based resources for research in the professional literature and the capacity to undertake critical review  D2. Use a mathematical approach in determining suitability of approaches to problem solving  D3. Work as part of a team, including group-based learning, research and development activity  D4. Recognise and respond to opportunities for innovation  D5. Manage time and identify appropriate milestones and working patterns to accomplish a project  D6. Convey to others their opinions in both a technical and non-technical way</p>
<b>Teaching and Learning Methods</b>
<p>Information literacy (D1) and numeracy (D2) is developed in lectures, seminars and practical classes. In addition, D1 and D2 are also promoted by encouraging “learning by doing” via literature survey and research project supervised by a member of staff as are creativity (D4) and planning (D5). D3 is developed during group based practical work supervised by a member of staff. D6 is achieved via lectures and seminars within which presentation techniques and delivery of material via non-written mediums are emphasised.</p>
<b>Assessment Strategy</b>
<p>D1 and D2 are assessed by practical exercises and unseen written examinations. D3, D4 and D5 are assessed by literature survey research project. D6 is assessed within team work exercises and individual talks given by students in relation to their literature surveys and research projects.</p>

<b>12 Programme Curriculum, Structure and Features</b>
<b>Basic structure of the programme</b>
<ul style="list-style-type: none"> <li>• Duration: 1 Year</li> <li>• Stages: Progression step between taught element and summer research project</li> <li>• Credit Arrangement: 180 credits</li> <li>• Options: All modules are compulsory</li> </ul>
<b>Key features of the programme (including what makes the programme distinctive)</b>
<ul style="list-style-type: none"> <li>• Industrial advisory board made up from high profile UK games companies</li> <li>• Industrial placements at leading game studios</li> <li>• Technical focus on game engineering (as opposed to social elements found in similar courses)</li> </ul>
<b>Programme regulations (link to on-line version)</b>
<p>5152F: <a href="#">-R5152F</a></p>

<b>13 Support for Student Learning</b>
<p>Generic information regarding University provision is available at the following link.  <a href="#">Generic Information</a></p>

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

##### *Accreditation reports*

The BCS have approved this programme for accreditation for CITP Further Learning Element, CEng/CSci (Partial Fulfilment).

##### *Additional mechanisms*

An industrial advisory board meets once a year and provides comments on programme content. Such comment is viewed as a valuable addition to the process of tailoring the programme to reflect employer requirements.

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

[Generic Information](#)

#### **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: <https://www.ncl.ac.uk/postgraduate/>  
Degree Programme and University Regulations: <http://www.ncl.ac.uk/regulations/docs/>

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.