1. Awarding Institution: Newcastle University
2. Teaching Institution: Newcastle University
3. Final Award: MSc
4. Programme Title: Computer Game Engineering
5. UCAS/Programme Code: 5152
6. Programme Accreditation: British Computer Society
7. QAA Subject Benchmark(s): Non appropriate in computing PG
8. FHEQ Level: Masters
9. Date written/revised: May 2016

### 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

### 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 gameplay 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 individuals 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).

Transferable/Key Skills

On completing the programme students should be able to:

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

Teaching and Learning Methods

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.

Assessment Strategy

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.

12 Programme Curriculum, Structure and Features

Basic structure of the programme

- Duration: 1 Year
- Stages: Progression step between taught element and summer research project
- Credit Arrangement: 180 credits
- Options: All modules are compulsory

Key features of the programme (including what makes the programme distinctive)

- Industrial advisory board made up from high profile UK games companies
- Industrial placements at leading game studios
- Technical focus on game engineering (as opposed to social elements found in similar courses)

Programme regulations (link to on-line version)

The Student Services portal provides links to key services and other information and is available at: https://my.ncl.ac.uk/students/

Induction
During the first week of the first semester students attend an induction programme. New students will be given a general introduction to University life and the University’s principal support services and general information about the School and their programme, as described in the Degree Programme Handbook. New and continuing students will be given detailed programme information and the timetable of lectures/practicals/labs/tutorials/etc. The International Office offers an additional induction programme for overseas students.

Study skills support
Students will learn a range of Personal Transferable Skills, including Study Skills, as outlined in the Programme Specification. Some of this material, e.g. time management is covered in the appropriate Induction Programme. Students are explicitly tutored on their approach to both group and individual projects.

Numeracy support is available through Maths Aid and help with academic writing is available from the Writing Development Centre (further information is available from the Robinson Library).

Academic and Pastoral support
Each undergraduate and taught postgraduate student will be assigned a personal tutor.* A personal tutor is one part of a wider network of advice and guidance available to students to support their personal and general academic development. The module leader acts as the first point of contact for subject-specific academic advice. Thereafter the Degree Programme Director or Head of School may be consulted. Issues relating to the programme may be raised at the Student-Staff Committee, and/or at the Board of Studies. Within the academic unit, students may also receive additional academic and pastoral advice from a range of other student-facing staff including degree programme directors, dissertation/project supervisors, and administrative support staff.

*Arrangements may vary for students taking special types of provision.

The University also offers a wide range of institutional services and support upon which students can call, such as the Writing Development Centre, Careers Service and Student Wellbeing Service. This includes one-to-one counselling and guidance or group sessions / workshops on a range of topics, such as emotional issues e.g. stress and anxiety, student finance and budgeting, disability matters etc. There is specialist support available for students with dyslexia and mental health issues. Furthermore, the Student Union operates a Student Advice Centre, which can provide advocacy and support to students on a range of topics including housing, debt, legal issues etc.

Support for students with disabilities
The University's Disability Support Service provides help and advice for disabled students at the University - and those thinking of coming to Newcastle. It provides individuals with: advice about the University's facilities, services and the accessibility of campus; details about the technical support available; guidance in study skills and advice on financial support arrangements; a resources room with equipment and software to assist students in their studies.

Learning resources
The University's main learning resources are provided by the Robinson and Walton Libraries (for books, journals, online resources), and the University’s IT Service (NUIT) which supports campus-wide computing facilities.

All new students whose first language is not English are required to take an English Language Proficiency Test. This is administered by INTO Newcastle University Centre on
behalf of Newcastle University. Where appropriate, in-sessional language training can be provided. The INTO Newcastle University Centre houses a range of resources which may be particularly appropriate for those interested in an Erasmus exchange.

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

#### Module reviews
All modules are subject to review by questionnaires which are considered by the Board of Studies. Changes to, or the introduction of new, modules are considered at the Board of Studies. Student opinion is sought at the Student-Staff Committee and/or the Board of Studies. The introduction of new modules and major changes to existing modules are subject to approval by the Faculty Learning Teaching and Student Experience Committee (FLTSEC).

#### Programme reviews
The Board of Studies conducts an Annual Monitoring and Review of the degree programme and reports to FLTSEC. The FLTSEC takes an overview of all programmes within the Faculty and reports any Faculty or institutional issues to the Taught Programmes Sub-Committee.

#### External Examiner reports
External Examiner reports are considered by the Board of Studies. External Examiner reports and the response to the External Examiner from the Board of Studies are shared with institutional student representatives, through the Student-Staff Committee.

#### Student evaluations
All modules, and the degree programme, are subject to review through online questionnaires. Informal student evaluation is also obtained at the Student-Staff Committee, and the Board of Studies. The results from student surveys are considered as part of the Annual Monitoring and Review of the programme and any arising actions are captured at programme and School / institutional level and reported to the appropriate body.

#### Mechanisms for gaining student feedback
Feedback is channelled via the Student-Staff Committee and the Board of Studies.

#### Faculty and University Review Mechanisms
Every six years degree programmes in each subject area undergo Learning and Teaching Review. This involves both the detailed consideration of a range of documentation, and a review visit by a review team (normally one day in duration) which includes an external subject specialist and a student representative. Following the review a report is produced, which forms the basis for a decision by University Learning, Teaching and Student Experience Committee on whether the programmes reviewed should be re-approved for a further six year period.

#### 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.

### 15 Regulation of assessment

#### Pass mark
The pass mark is 50
Course requirements
Progression is subject to the University’s Postgraduate Taught Progress Regulations and Examination Conventions. There are reassessment opportunities, with certain restrictions. Additional programme-specific requirements can be found in the Programme Regulations.

The University employs a common marking scheme, which is specified in the Taught Postgraduate Examination Conventions, namely:

<table>
<thead>
<tr>
<th>Summary description applicable to postgraduate Masters programmes</th>
<th>Summary description applicable to postgraduate Certificate and Diploma programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;50</td>
<td>Fail</td>
</tr>
<tr>
<td>50-59</td>
<td>Pass</td>
</tr>
<tr>
<td>60-69</td>
<td>Pass with Merit</td>
</tr>
<tr>
<td>70 or above</td>
<td>Pass with Distinction</td>
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</table>

Role of the External Examiner
An External Examiner, a distinguished member of the subject community, is appointed by the University, after recommendation from the Board of Studies. The External Examiner is required to:

i. confirm whether the standards of the University’s awards meet or exceed the academic standards specified in external reference points such as the Framework for Higher Education Qualifications, the UK Quality Code, subject benchmark statements, and, where appropriate, the requirements of professional, statutory and regulatory bodies;

ii. confirm whether the academic standards of the University’s awards are consistent with those of similar programmes in other UK higher education institutions;

iii. report on whether the University’s processes for assessment measure student achievement rigorously and fairly and are conducted in line with University policies and regulations;

iv. identify, where appropriate, examples of exemplary practice and innovation in learning, teaching and assessment;

v. comment on opportunities to enhance the quality of the learning experience provided to students.

In addition, information relating to the programme is provided in:

The University Prospectus:  http://www.ncl.ac.uk/postgraduate/

Degree Programme and University Regulations:  http://www.ncl.ac.uk/regulations/docs/

The Degree Programme Handbook

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. The accuracy of the information contained is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.