



Faculty of
Computing, Engineering
and Mathematical Sciences

FdSc Games Technology (Wiltshire College)

Programme Specification

2008

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Programme Specification

Section 1: Basic Data

Awarding institution/body	University of the West of England
Teaching institution	Wiltshire College, Trowbridge
Faculty responsible for programme	Environment and Technology
Programme accredited by	N/A
Highest award title	FdSc Games Technology
Default award title	
Interim award title	Certificate of Higher Education in Games Technology
Modular Scheme title (if different)	
UCAS code (or other coding system if relevant)	
Relevant QAA subject benchmarking group(s)	Computing
On-going/valid until* (*delete as appropriate/insert end date)	
Valid from (insert date if appropriate)	1st September 2008
Authorised by...	Date:...
Version Code <i>For coding purposes, a numerical sequence (1, 2, 3 etc.) should be used for successive programme specifications where 2 replaces 1, and where there are no concurrent specifications. A sequential decimal numbering (1.1; 1.2, 2.1; 2.2 etc) should be used where there are different and concurrent programme specifications</i>	

Section 2: Educational Aims of the Programme

The FdSc (Hons) Games Technology has the following general aims:

1. To enable students to embark upon professional careers by developing problem-solving and other transferable skills, and by providing a foundation of knowledge and understanding.
2. To develop study skills that will enable students to become independent, lifelong learners.
3. To prepare students for progressing to study for top-up and higher degrees in digital media.
4. To serve local and regional needs of industry by providing appropriate opportunities to enhance the skills and education of the workforce, both current and potential.
5. To encourage reflection on the way that academic study underpins employed work and contributes to insights that can improve practice.

The FdSc (Hons) Games Technology has the following specific aims:

1. To provide insight into computer game design and implementation. This involves understanding the creative potential that exists between the artistic, narrative and technological elements that constitute electronic games and the exploration of the cultural and technological contexts out of which they arise.
2. To provide practical skills in the creation of computer games and related digital media content in a variety of deployment environments including dedicated consoles, desktop computers and mobile devices.
3. To develop the students' ability to make innovative and robust contributions to companies engaged in the development of computer games entertainment and related digital media.
4. To develop the students' understanding of the importance of project management within computing, with particular reference to the development of computer games and related digital media artefacts.
5. To provide a foundation of ability and achievement to enable progression onto final year degree level programmes in games development particularly BSc (Hons) Games Technology at UWE, and related occupational sectors.

Section 3: Learning Outcomes of the Programme

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, intellectual skills, subject-specific skills and transferable skills, as shown below. A grid mapping learning outcomes to modules is included in appendix A.

A. Knowledge and Understanding

<i>Knowledge and Understanding of:</i>	<i>Teaching/Learning Methods and Strategies</i>	<i>Assessment</i>
<p>Students of this programme will gain knowledge and understanding of:</p> <ol style="list-style-type: none"> 1. historical and cultural perspectives of computer games and related supporting technologies 2. principles and applications of games design, interactivity and user involvement 3. games programming design concepts, methods, notations and algorithms 4. hardware components and supporting software technologies required for the production and deployment of contemporary game environments 5. the role of artificial intelligence (AI) within computer games and associated algorithms and programming techniques 6. professional issues surrounding the development and deployment of computer games within a commercial market place 	<p>Throughout the programme there is a strong emphasis on coupling theory with practice. In most modules knowledge and understanding is developed through discussion of theory in lectures and in small groups, and a consolidation of that theory in a practical context. In some modules a theoretical discussion will be followed by a practical exercise, in others theory is extracted by analysis of practical activities. In the early stages of the programme practical activities are well-defined and well-bounded. As the programme progresses activities become less prescribed and students are encouraged to become reflective, independent learners. Wherever possible students are encouraged to consider their learning in relation to established working practices.</p> <p>Knowledge development in the areas listed pervades the entire programme; nonetheless, specific examples of places where these outcomes can be identified are listed below:</p> <p>Acquisition of 1 is through core module Games – Development & Evolution (UFCEQA-20-1).</p> <p>Acquisition of 2 is through Playing Games (UFIEQD-20-2) and UFCEQA-20-1 Games Development and Evolution</p> <p>Acquisition of 3 is introductory and generic within Computational Intelligence (UFCE3H-20-1), elementary but specific through Games Development & Evolution (UFCEQA-20-1) with further depth from Play & Games (UFIEQD-20-2) and application provided within Coding for Game Development (UFCET3-20-2).</p>	<p>The outcomes are formally assessed through the use of examinations and coursework. Coursework includes the production of games related artefacts: game scenarios, sketches, design ideas, completed designs, software and user documentation, as well as reports and presentations. Formative assessment also plays a vital role in this programme.</p>

	<p>Acquisition of 4 is through 3D Modelling & Animation (UFCEKT-20-3) and Web Games Programming (UFCEKU-20-3).</p> <p>Acquisition of 5 is through Computational Intelligence (UFCE3H-20-1) and extended and applied within Coding for Game Development (UFCET3-20-2).</p> <p>Acquisition of 6 is through Games - Development and Evolution (UFCEQA-20-1) and Work based Production 1 and 2.</p>	
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B. Intellectual Skills

<i>Intellectual Skills</i>	<i>Teaching/Learning Methods and Strategies</i>	<i>Assessment</i>
<p>Students of this programme will develop their intellectual skills in areas of:</p> <ol style="list-style-type: none"> 1. critical thinking 2. analysis 3. synthesis of different types of information 4. evaluation 5. problem solving 6. appreciating problem contexts 7. balancing conflicting objectives 8. creative and interpretive thinking 9. understanding the dynamics of the working environment and their place within it. 	<p>Programmes in the general areas of computing readily lend themselves to the development of the cognitive skills listed on the left. This particular programme has, as a central focus, the development of design and implementation skills relating to Computer Games. Thus, throughout the programme, students are required to consider games scenarios and to devise solutions that meet the constraints and requirements of those scenarios. At level 1, the contexts presented are well-bounded and usually defined by the tutor in charge of the module in which it occurs. As the student moves through the programme, they are required to be increasingly self-directed in terms of the scenarios that are devised. The problems presented to them increasingly have conflicting requirements, the resolution of which they need to evaluate and justify.</p> <p>At all levels students are required to synthesise (3) the knowledge and skills acquired in several modules and determine new ways of working. The students' development of the necessary coherent strategies to deal with these issues also develops their ability to think critically (1).</p> <p>At level 1 analysis (2), evaluation (4) and problem solving (5) are developed through small-scale programming activities and problems on a number of modules. The focus is on a conceptual understanding of a problem and its practical solution free from the complications and constraints of large scale products within a commercial environment. This also allows students to address these issues without the need to examine alternatives and to balance conflicting goals.</p> <p>At level 2 there is a move away from small-scale problems to the design of larger systems. With this comes the need to evaluate (4) alternative methods and designs and to balance conflicting objectives (7).</p> <p>By requiring the students to reflect on how their studies inform and develop behaviour in the work-place, the work-based learning modules in years 1 and 2 particularly contribute towards skills 4, 6, 7, 8 and 9.</p>	<p>Games development requires demonstration of all of the intellectual skills. At level 1 the focus in programming coursework assessment, undertaken in a number of modules, is on the skills of analysis (2), evaluation (4) and problem solving (5). At level 2 the emphasis grows to include all the remaining skills. Many of the coursework assessments and exam papers include elements of programming work.</p> <p>Independent reading is used to enable students to focus on their own areas of interest and in the process assess skills 1-4 in the submitted reports, essays and exam answers.</p> <p>Design-work, even when not implemented in a programming language, requires demonstration of skills 1, 2, 5, 6 and 7 and a number of coursework assessments and exam questions are devoted to such work.</p> <p>Finally, all of the examinations assess skills 1-4 whilst skills 5-7 are covered in many exams.</p>

C. Subject, Professional and Practical Skills

Subject/Professional/Practical Skills	Teaching/Learning Methods and Strategies	Assessment
<p>Students will be able to:</p> <ol style="list-style-type: none"> 1. produce artefacts that are appropriate to the task 2. write games programs that conform to designs 3. create high-level and low-level game designs that correspond to stated requirements 4. evaluate games comparatively 5. apply appropriate AI techniques to games development 6. perform adequate tests and analysis of user involvement whilst developing programs 7. know how to utilise existing components and frameworks to build new applications 8. employ a range of tools and notations to support the activities listed above: e.g. RAD environments, Maya, C, C++, Java etc. 	<p>Throughout the program, the skills listed are developed through a combination of theoretical discussion, practical laboratory based work, classroom based tutorial exercises, work-based projects and self-directed study. If the term “artefact” is taken to include not only designs, code, drawings etc. but also the presentation of those things, then skill 1 can be viewed as the fundamental skill that underpins the entire programme. Throughout, but especially in the WBL modules, students are required to think about how the task at hand fits in to the larger context and, if necessary, to modify their output in order to ensure that it is fit for purpose. This is achieved through direct instruction in lectures and tutorials and through feedback on tasks, for example by making presentations to stakeholders and through reflection on the success of activities.</p> <p>Many of the skills listed (2, 3, 5, 6, 7 and 8) are introduced at level 1 and then drawn into sharper focus at level 2. Therefore the general teaching/learning method is to impart these practical/professional skills by a process of moving from an overview of each skill set towards the application and integration of these skills at increasingly higher level.</p>	<p>The possession of these skills is demonstrated both by the development of a practical piece of coursework (software), by presentations and evaluative reports and by examination. The practical nature of the skills to be acquired means that some are specifically addressed by particular modules (4 and 7). The more generic skills (1, 2, 3, 5 and 6) are assessed across the modules.</p> <p>Skills such as conformance to requirements and design (1, 2 and 3) and the construction of adequate testing strategies (6) are fundamental to professional software development of any sort, and thus contribute to the assessment of all the practical work produced.</p>

D. Transferable Skills and Other Attributes

Transferable skills are developed throughout the programme by the means listed below. These skills are acquired at increasing levels of sophistication as the student moves through the programme. Thus at level 1 a student is required to engage in activities that are closed, highly structured and carefully directed; at level 2 tasks are less prescriptive and increasingly interdependent between students, groups and tutors.

<i>Transferable Skills and Other Attributes</i>	<i>Teaching/Learning Methods and Strategies</i>	<i>Assessment</i>
1. Communication skills: to communicate orally or in writing to peers and/or 'problem owners' including, for instance, the results of technical investigations.	1. Skill one is developed through a variety of methods and strategies including the following: <ul style="list-style-type: none"> • maintaining laboratory log books • participating in electronic conferences, workshops, and groupwork sessions. • participating in discussion tutorials • presenting research topic findings in tutorials • participating in individual tutorials 	These skills are demonstrated in a variety of contexts including: <ul style="list-style-type: none"> • examination • poster presentation. individual and group projects • practical assignments • portfolio of exercises • work based placement/ client project.
2. Self-management skills: to manage one's own time; to meet deadlines; to work with others having gained insights into the problems of team-based systems development.	2. Skill two is developed through a variety of methods and strategies including the following: <ul style="list-style-type: none"> • conducting self-managed practical work • participating in practically-oriented tutorial laboratory sessions • working through practical work-sheets in teams • practising design and programming 	In addition skill two is assessed by both peers and tutors.
3. IT Skills in Context (to use software in the context of problem-solving investigations, and to interpret findings)	3. Skill three is developed widely throughout the programme.	

<p>4. Problem formulation: to express problems in appropriate notations.</p>	<p>4. Skill four is developed through a variety of methods and strategies including the following:</p> <ul style="list-style-type: none"> • developing problem solving programs • practising design and programming • sketching designs of larger systems 	
<p>5. Progression to independent learning: to gain experience of, and to develop skills in, learning independently of structured class work. For example, to develop the ability to use on-line facilities to further self-study.</p>	<p>5. Skill five is developed through a variety of methods and strategies including the following:</p> <ul style="list-style-type: none"> • practising programming to extend their skills • developing problem-solving programs • students are encouraged to research relevant topics 	
<p>6. Comprehension of professional literature: to read and to use literature sources appropriate to the discipline to support learning activities.</p>	<p>6. Skill six is developed through a variety of methods and strategies including the following:</p> <ul style="list-style-type: none"> • students are encouraged to access appropriate material 	
<p>7. Working with others: to be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring.</p>	<p>7. Skill seven is developed through a variety of methods and strategies including the construction of game assets and the following:</p> <ul style="list-style-type: none"> • work-based placement/ client project 	

Section 4: Programme Structure

Programme Structure for FdSc Games Technology (full-time)

For September 2008

Year 2	Web Games Programming UFCEKU-20-3	Work Based Production 02 UFPEV8-20-2	Play & Games UFIEQD-20-2	3D Modelling & Animation UFCEKT-20-3	Coding for Game Development UFCET3-20-2	Software Design UFCE4B-20-2
Year 1	Introduction to Artificial Intelligence UFCE3H-20-1	Work Based Production 01 UFPEV7-20-1	Games Development & Evolution UFCEQA-20-1	Developing 3D Interactive Environments UFCEQB-20-1	Critical Awareness UFCEV6-20-1	Program Development UFCEUP-20-1

ON SUCCESSFUL COMPLETION OF THIS PROGRAMME STUDENTS ARE ABLE TO PROGRESS TO YEAR THREE OF BSc (HONS) GAMES TECHNOLOGY AT UWE.

PLEASE NOTE: REFER TO THE FACULTY ON-LINE INFORMATION SYSTEM FOR UP-TO DATE STRUCTURE INFORMATION

<http://www.cems.uwe.ac.uk/exist/index.xql>

Programme Structure for FdSc Games Technology (part-time)

For September 2008

Year 3	Web Games Programming UFCEKU-20-3	Work Based Production 02 UFPEV8-20-2	Play & Games UFIEQD-20-2	Software Design UFCE4B-20-2
Year 2	Introduction to Artificial Intelligence UFCE3H-20-1	Work Based Production 01 UFPEV7-20-1	Coding for Game Development UFCET3-20-2	Games in C++ UFCEV9-20-2
Year 1	Program Development UFCEUP-20-1	Developing 3D Interactive Environments UFPEV7-20-1	Games Development & Evolution UFCEQA-20-1	Critical Awareness UFCEV6-20-1

ON SUCCESSFUL COMPLETION OF THIS PROGRAMME STUDENTS ARE ABLE TO PROGRESS TO YEAR THREE OF BSc (HONS) GAMES TECHNOLOGY AT UWE.

PLEASE NOTE: REFER TO THE FACULTY ON-LINE INFORMATION SYSTEM FOR UP-TO DATE STRUCTURE INFORMATION

<http://www.cems.uwe.ac.uk/exist/index.xql>

Section 5: Entry Requirements

At least 4 GCSE passes (at grade C or above), including Maths and English together with one or more of the following: 80 UCAS points, one pass at Advanced GCE level, one pass in a 6-unit vocational A-level, a broader base of studies incorporating AS-level, success in an Access to Higher Education course, formally assessed outcomes acquired through APL or APEL..

Section 6: Assessment Regulations

The Modular Assessment Regulations apply to this programme

Section 7: Student Learning: Distinctive Features and Support

Class Activities The mode of delivery of a module is determined by its Module Leader and, typically, involves a combination of one or more lectures, tutorials, 'lectorials', laboratory classes, group activities, individual tutor support and individual project work. Modules on the Foundation Degree which require laboratory classes are commonly delivered by means of a combination of lecture and practicals or tutorials. Other modules are often delivered by means of 'lectorials', classes for groups of 15-18 students with no distinction between lectures and tutorials, and this has proved to be an effective mechanism for modules especially at Level 1.

Academic Support Academic advice and support is the responsibility of the staff delivering the module in question. Staff are expected to be available outside normal timetabled hours, either by appointment or during published "surgery" hours, in order to offer advice and guidance on matters relating to the material being taught and on its assessment.

Pastoral Care The college offers pastoral care through the appointment of a personal tutor, who will hold regular personal tutorials to support students progress and achievement.

Progression to Independent Study

Many modules require students to carry out independent study, such as research for projects and assignments, and a full range of facilities are available at the site and through its distance learning facility. The philosophy is accordingly to offer students both guided support and opportunities for independent study. Guided support, mainly in the form of timetabled sessions, takes the form of lectures, tutorials, seminars and practical laboratory sessions. Students are expected to attend all sessions on their timetable, and this is especially important because of the high content of practical work in the programme.

The progression to independent study will also be assisted by the nature of the support offered in individual modules. Typically, module leaders will provide a plan for the module indicating the activities to be carried out and the forms of learning to be undertaken during the delivery of the module, with a view to encouraging students to plan ahead and to take responsibility for managing their time and resources. Students will also have additional access to specialist computer studios with technician support.

Computing Facilities The Computing programme area offers a specialised computing facility alongside the general college provisions which include the ORBIT facility. There are six PC-based computing rooms of 18-20 seats all running Windows XP Pro O/S. Of these, four are specialist rooms equipped with specialised software to support games development including the major 3D modelling/animation tools such as Maya/3DsMax/Softimage. Video editing and SFX software includes Premiere Pro and Autodesk Combustion, and in addition specialist rooms are equipped with a comprehensive image editors such as Photoshop/ Illustrator while sound editing is carried out in a computing lab and supported in the audio visual facilities suite. Games coding/editing software

includes licences for Unreal and Steam, Game Maker and the Garage Games Torque Engine SDK. This is supplemented by Microsoft Visual C# / XNA and Visual Studio suites. The computing division also provides dedicated student web servers to load and test web based content.

Careers Support The college provides a Student Support Service to ensure that students develop their employability to a level that will enable them to compete effectively for jobs in the graduate labour market. Careers support can take a range of forms including group workshops and individual guidance and the cross-college provision supports the weekly timetabled group tutorials which also include careers planning elements.

Placement Opportunity The work-based production units in both years of the programme provide an opportunity for students to engage with employer/sponsor work experience, either through a work experience placement or by engagement with a professional brief supported by an external provider. The employer sponsor provides feedback for assessment which is used to support learning and guide personal development and career planning.

Section 8 Reference Points/Benchmarks

In designing this programme, the faculty has drawn upon the following external reference points:

1. The QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland
2. The QAA Foundation Degree Qualification Benchmark
3. The QAA Benchmark Statement for Computing
4. UWE's Learning & Teaching Strategy

The QAA Framework for Higher Education Qualifications in England, Wales and Northern Ireland (January 2001) describes the attributes and skills expected of graduates at Intermediate level. Amongst other attributes, at level 1 graduates will have demonstrated "knowledge and critical understanding of the well-established principles of their area(s) of study" and will have "qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and decision-making". It is our view that the learning outcomes of this programme are fully consistent with these standards, that the programme fulfils the qualification descriptor in the Framework, and hence that graduates will be able to demonstrate that they meet the expectations of the Framework.

The QAA Foundation Degree Qualification Benchmark (October 2004)

The Foundation degree qualification benchmark describes the characteristics of a Foundation degree as depending on the integration of "employer involvement; accessibility; articulation and progression; flexibility; and partnership". The programme is designed to meet the needs of local and regional employers, to provide access to Higher Education to students who might otherwise be deterred from embarking on further study and to allow progression to BSc (Hons) Games Technology at UWE, Bristol. In addition, the programme provides the opportunity for full or part-time study and will be delivered, further developed and monitored by staff at Wiltshire College, the Bristol Institute of Technology at UWE and local employers. It thus strives to meet the defining characteristics of a Foundation degree.

The QAA Subject Benchmark Statement for Computing (2000, amended 2007)

The QAA Subject Benchmark Statement for Computing refers to bachelors degree with honours. Nonetheless, the standards outlined in the statement have been considered in the design of this programme. This proposal falls clearly within the scope of the Computing benchmark, in that it is precisely concerned with "the understanding, design and exploitation of computation and computer technology" (Benchmark Statement, section 1.1). The Games Technology curriculum falls within the cognate area identified in the document and draws from the topics listed at Appendix B of the document, particularly Games Computing, Artificial Intelligence, Graphics and Sound and Multimedia. In terms of the Statement's high-level characterisation of Computing, the programme has at its heart **practice** and **software** though **communication and interaction, theory** and **hardware** are important and significant strands.

Great attention has been paid in the design of this programme to create a teaching and learning programme which will foster a good and effective mix of the cognitive, practical and generic (transferable) skills discussed in section 3 in the Benchmark Statement. The programme matches well with the course design principles listed in section 4 of the Statement.

The Statement also contains (section 5.11 on onward) statements about student motivation and induction. The team is of the view that the proposed programme meets the standards outlined in this section.

UWE's Learning & Teaching Strategy has informed the Faculty's policy for the delivery of its programmes, whose main features are described in section 7.