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BSc (Honours) Multimedia Computing and Animation
BSc (Honours) Multimedia Computing and Animation with Foundation

Programme Specification 2011/12

PROGRAMME SPECIFICATION

Course Record Information	
Name and level of final & intermediate Awards	The BSc (Hon) Multimedia Computing and Animation The BSc (Hon) Multimedia Computing and Animation (Sandwich) BSc Multimedia Computing and Animation BSc Multimedia Computing and Animation (Sandwich) Diploma in Higher Education (Dip HE) in Multimedia Computing and Animation Certificate in Higher Education (Cert HE) in Multimedia Computing and Animation
Awarding Body	University of Westminster
Location of Delivery	Central London (Cavendish)
Mode of Study	3 years full-time or 4 years full-time sandwich or 4 years full-time with foundation.
UW Course Code	U09FUMMC
JACS Code	G450
UCAS Code	GW4P, (GW46 Foundation)
QAA Subject Benchmarking Group	Computing
Professional Body Accreditation	
Date of initial course approval/last review	2009
Date of Programme Specification	2011

Admissions Requirements
Current University Requirements:
BSc Multimedia Computing and Animation:240 UCAS points
BSc Multimedia Computing and Animation with Foundation: 160 UCAS points

Aims of the course

Computer graphics and animation play an increasingly key role in the multimedia and entertainment software industries with an increasing corresponding demand for professionals with the skills and knowledge to develop appropriate solutions for the broad range of sectors. The prevalent use of both interactive and visual animations within education, e-commerce, promotion, digital marketing, DVD production, mobiles, games, websites and entertainment is increasing both in quantity and the quality of the media. It is also a critical reference point that the industry is composed of both large and small operators requiring graduates with both specialised and contextual knowledge. This course addresses these requirements by providing a structured curriculum that integrates and relates the key technologies, methodologies and techniques of multimedia, computer graphics and animation production and workflow.

The course however underpins these with a solid grounding in the theoretical and practical underpinnings of computer science as a discipline to enable graduates to continue to efficiently work within an ever evolving, changing and complex sector both in terms of the technology as well as end-user/customer requirements. Our aim is to ensure that our graduates will be capable of designing and developing multimedia applications and create new tools.

To support this aim the core modules in level 4 are designed to ensure that all our graduates have an appreciation and understanding of the fundamentals of computer science and computer programming.

Considerable emphasis will be given to practical applications and hands-on experience as well on higher education and career management (HE&CM) skills.

Both curriculum design and teaching and learning strategies incorporate the need for a range of skills and it is anticipated that students who progress through the course will improve their abilities in these areas, as well as in subject specific skills.

Employment and Further Study Opportunities

Today's organisations need graduates with both good degrees and skills relevant to the workplace, i.e., employability skills. The University of Westminster is committed to developing employable graduates by ensuring that:

- career development skills are embedded in all courses;
- opportunities for part-time work, placements and work-related learning activities are widely available to students;
- staff continue to widen and strengthen the University's links with employers in all sectors, involving them in curriculum design and encouraging their participation in other aspects of the University's career education and guidance provision;
- staff are provided with up-to-date data on labour market trends and employers' requirements which will inform the service delivered to students.

The Course has been designed to enable graduates to possess the practical skills and theoretical knowledge to develop a range of careers within the multimedia industry. Interactive design principles, design evaluation, project management provide the opportunity for graduates to engage fully within design teams working along with creative designers. An understanding of the characteristics of time-dependent and time-independent media and their manipulation, animation and graphics modelling, provide students with the necessary expertise for the development of such systems.

Career opportunities are widespread existing in areas such as Web site design and development, multimedia product development (in areas as diverse as education/training, museums and libraries) the Internet and e-commerce. Potential employers include, publishing companies, broadcast organisations, media production companies and Web site designers. Job titles include multimedia programmer, new media developer, interactive developer/designer, digital designer, user interface designer etc. Successful graduates are well equipped to follow Masters programs in areas such as Human Computer Interaction, Multimedia, Interaction Design, and Experience Design.

Learning Outcomes for Level 3 (Foundation year)
Learning outcomes are statements on what successful students have achieved as the result of learning. They threshold statements of achievement and are linked to the knowledge, understanding and skills that a student will have gained on successfully completing a course.

Knowledge and Understanding

Upon successful completion of the course, students will be able to:
- understand basic algebraic and arithmetic properties,
- write structured programs,
- use a range of software tools in the computing environment;
- model well defined problems, mathematically and computationally;
- describe, at various levels, the function of a computer and its components,
- apply appropriate communication skills in an academic environment,
- make an informed choice of degree option from the alternatives presented.

Specific Skills

Upon successful completion of the course, students will be able to:
- solve mathematical problems involving basic numeracy, algebra, trigonometry and coordinate geometry; number systems, Boolean algebra, logic circuits, sets and relations,
- demonstrate skills in the use of operating systems and a range of application packages,
- specify, select and evaluate hardware to implement a specified computer system,
- apply theory and practice to the analysis, design, implementation and testing of software.

Key Transferable skills

Upon successful completion of the course, students will be able to:
- produce structured written work in a variety of formats;
- make oral presentations and participate in discussions and seminars;
- use a range of learning resources to support their work;
- manage self directed learning with support;
- work effectively in a group environment,
- apply time management techniques to organise effectively study time and resources,
- apply note taking skills in order to develop more useful revision resources.

Learning Outcomes for Level 4
Learning outcomes are statements on what successful students have achieved as the result of learning. They threshold statements of achievement and are linked to the knowledge, understanding and skills that a student will have gained on successfully completing a course.

Knowledge and Understanding (Level 4)

By the end of level 4 students should be able to demonstrate achievement of the following outcomes:

- the history and context of the field
- core foundational programming principles and concepts
- the fundamentals of how computers work
- the different fields of computer science and how they are related to each other
- the different applications of Multimedia Computing
- the variety of components of Multimedia

Specific Skills (Level 4)

By the end of level 4 students should be able to demonstrate achievement of the following outcomes:

- Describe the fundamental principles of the key components of computer science with the appropriate terminology
- Use standard techniques to analyse, design and test key aspects of computer hardware and software systems that are fundamental to understanding the main concepts in computer science.
- Demonstrate the ability to use software development environments to implement and test software solutions.
- Describe a range of widely used computing applications and identify implications with their use.
- Show awareness of the professional issues involved in the sector.
- Describe and apply the fundamental principles and techniques of animation.
- A basic understanding of the nature of animation workflow
- Apply analytical, creative and generative skills to the design of an interface meeting defined requirements.

Key Transferable skills (Level 4)

By the end of level 4 students should be able to:

- Take responsibility for individual study with appropriate guidance
- Prepare and present the findings from literature and personal tutorial activities in an appropriate academic form of communication
- Carry out a literature research on a given topic, with guidance, using a range of resources
- Evaluate and reflect on their own strength and weaknesses, with guidance.

Learning Outcomes for Level 5
Knowledge and Understanding (Level 5) The second year introduces additional optional Multimedia and Animation specific modules, which allow a degree of specialisation by students. These modules are able to build onto the fundamental conceptual knowledge built in level 4 to apply it to field specific subjects.   - Applied knowledge of the wide diversity of multimedia applications and production issues   Principle techniques of multimedia applications development and design   - The digital development, reproduction, manipulation, storage and transmission of digital information   Techniques and theory of image manipulation and processing   - Theory and techniques of Human Computer Interaction, including human psychology, user centred design and evaluation   Project management concepts and toolsets Production techniques and approaches for web and interactive 2D animation.
Specific Skills (Level 5) By the end of level 5 students should be able to: - Apply appropriate HCI methods to develop and assess user interfaces within a user centred focus   - Select appropriate formats for a variety of digital media with respect to their planned usage, respecting storage and manipulation limitations   - Produce interactive animation, computer graphics and models and to use a range of core skills in the development of these artefacts   - Demonstrate knowledge of 3D graphics programming.   - Demonstrate an applied understanding of the variety of media and tools used for media production design   - Design and produce simple interactive multimedia applications using appropriate industry standard production tools   - To apply creativity and innovative thinking in the development and production of animation, effects, media and applications.
Key Transferable skills (Level 5) By the end of level 5 students should be able to: - Interact effectively within a team or group, planning, designing, collaborating and exchanging information and ideas to a specified outcome   - Carry out literature searches on a given subject to locate relevant academic books, electronic resources or journal articles, evaluating their relevance   - Present ideas and arguments in a clear and structured manner in written or oral form with reference to sources   - Develop self-awareness and responsibility with reference to career decision making

Learning Outcomes for Level 6

Knowledge and Understanding (Level 6)

By the end of level 6 students should be able to:

- Achieve higher level of specialisation and detailed knowledge of a particular field chosen for the project
- The algorithms, operators, technologies, models and techniques that form the basis of animation and apply this knowledge to maximising output and quality. Comprehend the nature of animation production and management within the various business models involved
- The nature of workflow, production processes, and management within the various business models involved.
- Potentials and limitations of existing methods, technologies and delivery mechanisms
- Applied knowledge in a variety of application toolsets within the conceptual and professional frameworks for production and animation workflows.

Specific Skills (Level 6)

By the end of level 6 students should be able to:

- Create character animation sequences that demonstrate innovative design and animation style
- Apply efficiently, to a production, a range of computer animation techniques to a professional specification
- Apply a range of practical post-production methods and techniques
- Plan and manage a major project, including costing, time-management and task/resource allocation
- Critically review and evaluate the theory and products available w. r. t. their chosen topic for the major project
- To demonstrate creativity and technical proficiency in production, documentation and communication.
- To use a range of core skills in the development of artefacts
- Demonstrate research competence

- ***In a specialist field provided in options:***
- Develop complex animation combining a variety of methods and tools
- Apply artificial intelligence techniques to the development of interactive multimedia applications
- Apply a variety of algorithms to develop 3D modelling
- Develop an advanced practical ability in the creation of animations with a critical awareness of motion-capture technology
- The role and applications of artificial intelligence in multimedia applications

Key Transferable skills (Level 6)

By the end of level 6 students should be able to:

- Work professionally in a group in a variety of situations and on a range of tasks and deal independently with a range of situations within group work
- Autonomously manage a project with respect to time and task management
- Make decisions independently with respect to the needs and limitations of a task or project
- Produce coherent reports showing evidence of critical thinking
- Retrieve and analyse information and ideas from a range of print and electronic media
- Communicate ideas and information by oral, visual and electronic means.

Learning, Teaching and Assessment Methods

Level 4
Core knowledge and understanding are promoted via lectures, student centred tutorials, group work. Assessment method: Phase tests, normally consisting of multiple choice and short answer questions; coursework; group presentations; exams.

Specific skills are promoted via demonstrations and tutorial activities in the PC labs, guided independent study (GIS). Assessment method: Phase tests, normally consisting of multiple choice and short answer questions; coursework; exams.

Key skills are promoted overtly within the common first year core module Computer Organisation via student centred activities in tutorials; these include group discussions, group work, construction of a portfolio, writing reflective statements.

Level 5
Core knowledge and understanding are promoted via lectures, student centred tutorials, group work. Assessment method: Coursework, consisting of problem based exercises, essays, literature reviews; group presentations; exams.

Specific skills are promoted via tutorial activities in the PC labs. Assessment method: coursework consisting of problem based exercises, programming activities and problems; independent research for reports and essays; exams and guided independent study (GIS).

Key skills are promoted via student centred activities in tutorials; these include group discussions, group work. Coursework assignments provide a vehicle for students to practice writing academically, including essay and report writing, as well as group work and group presentations, both orally and in writing. Evaluation of the literature and existing work is fostered through seminar discussions and as part of the assessments. Assessment method: group presentation, written coursework (essay, report), tests and exams.

Level 6
Core knowledge and understanding are promoted via lectures, student centred tutorials, group work. Assessment method: major final year project, coursework; group presentations; exams.

Specific skills are promoted via tutorial activities in the PC labs, problem based scenarios, guided independent study (GIS) Assessment method: major final year project, coursework; group presentations; exams

Key skills are promoted via student centred activities in tutorials; these include group discussions, group work. Coursework assignments provide a vehicle for students to practice writing academically, including essay and report writing, as well as group work and group presentations, both orally and in writing. Critical evaluation of the literature and existing work is fostered through seminar discussions and as part of the assessments. All key skills converge in the major final year project where they are supported by the student's supervisor. Assessment method: group presentation, written coursework (essay, report, literature search), tests, exams, major final year project

Course Structure

This section shows the core and option modules available as part of the course and their credit value. Full-time Undergraduate students study 120 credits per year.

Credit Level 3 (Foundation)

Code	Title	Status	Value
EBSY301	Thinking About Technology	Core	15
EICG301	Introduction to Programming & Games Design Project	Core	15
ECSC302	Foundation Mathematics	Core	15
EECT300	The Computer	Core	15
EBSY302	Spreadsheets & Databases	Core	15
ECSC301	Discrete and Continuous Maths	Core	15
EBSY300	Professional & Transferable Skills	Core	15

Credit Level 4 (1st Year)

Code	Title	Status	Value
ECSC410	Software Development Principles I	Core	30
EIMM401	Introduction to Multimedia	Core	15
EIMM402	Design and Scripting	Core	15
ECSC405	Software Development Principles II	Core	15
EIGA401	Fundamentals of (Computer) Animation	Core	15
ECSC407	Web Technology	Core	15
ECSC400	Communications and Learning Skills in Computer Science	Core	15

Award of Certificate of Higher Education in Multimedia Computing and Animation available.

NB: Not all option modules will necessarily be offered in any one year.

Credit Level 5 (2nd Year)

Code	Title	Status	Value
EIMM514	HCI Design	Core	15
EIGA504	3D Animation	Core	15
EIMM508	Image Processing	Core	15
EIGA501	Introduction to 3D Graphics	Core	15
EICG506	3D Games modelling	Core	15
ECSC500	Professional Practice in Computer Science	Core	15
EBSY501	Project Management	Option	15
EIMM507	Multimedia Development Tools	Option	15
EICG507	Real Time Graphics	Option	15
EICG503	Games Engines and Platforms	Option	15
ECWM506	Mobile Computing Principles	Option	15
ECWM511	Mobile Application Development	Option	15
EICG502	Physics for Games Programming	Option	15
EBSY505	Database Design and Practice I	Option	15

Award of Diploma of Higher Education in Multimedia Computing and Animation available.

NB: Not all option modules will necessarily be offered in any one year.

Credit Level 6 (3rd Year)

Code	Title	Status	Value
EIMM699	Project	Core	30
EIGA602	Advanced Animation Techniques	Core	15
EIMM607	Compositing and Postproduction	Core	15
EIMM610	Pervasive Computing and Interactive Platforms	Option	15
EIMM602	Experimental Usability	Option	15
EMM604	Sound and Music Production	Option	15
EIMM609	Mobile User Experience	Option	15
ECWM601	Native Programming	Option	15

Award of B.Sc. in Multimedia Computing and Animation available
Award of B.Sc. (Honours) in Multimedia Computing and Animation available.

NB: Not all option modules will necessarily be offered in any one year.

Academic Regulations

The BSc (Honours) Multimedia Computing and Animation and its intermediate awards operate in accordance with the University's Academic Regulations and the *Framework for Higher Education Qualifications in England, Wales and Northern Ireland* published by the Quality Assurance Agency for Higher Education (QAA) in 2008.

All students should make sure that they access a copy of the current edition of the general University handbook called **Essential Westminster 2010/11** which is available at westminster.ac.uk/essential-westminster. The following regulations should be read in conjunction with the Modular Fr*amework for Undergraduate Courses* and relevant sections of the current *Handbook of Academic Regulations*.

A *pass* in a module is achieved when the overall mark is greater then or equal to 40%; with at least 30% in the final assessment and any qualifying marks and/or sets achieved as detailed in the module handbook.

Condoned Credit
A student may be awarded condoned credit at Levels 3 and 4 four only, on the condition that the failed element(s) of assessment has been attempted at both the first and referred opportunity, and where he/she has achieved:

a)   an overall module mark of greater than or equal to 30% but less than 40%;
b)   an overall mark of 40% or greater but not reached the required qualifying
        mark(s) and/or qualifying set(s) as detailed in the module handbook.

Where a student is awarded condoned credit, the recorded module mark will be capped at 40%. Condoned credit will count towards any credit limits for specified awards. Where a student is awarded condoned credit in a module but subsequently achieves an overall pass at a re-take, credit may contribute only once to an award.

Progression
To progress from Level 3 to Level 4 and from Level 4 to Level 5 in full time study, a student must achieve an average of 40% across 120 credits; to progress from Level 5 to Level 6 full-time study, a student must pass at least 165 credits, including 75 credits at Level 5.

To qualify for the award of Multimedia Computing and animation, a student must:
a)   Obtained at least 360 credits including:
        - passed 75 credits at Level Four or higher and achieved at least a condoned
          credit in each of the remaining modules worth 45 credits at Level 4; and
        - a minimum of 120 Credits at Level 5 or higher; and
        - a minimum of 120 credits at Level 6 or higher.
b)   attempted modules with a maximum value of 330 credits at Levels 5 and 6
c)   Satisfied the requirements contained within any course specific regulations for
        the relevant course Scheme.

The class of the Honours degree awarded is decided by two criteria: the average of the best 105 credits passed at Level 6 being in the range of the class to be awarded, and the average of the next best 105 credits passed at Levels 5 and 6 provided the next best 105 credits passed are no more than one classification below this.

Support for Students
On arrival, an induction programme will introduce students to the staff responsible for the course, the campus on which they will be studying, the Library and IT facilities and to the School Registry. Students will be provided with the Course Handbook, which provides detailed information about the course. Students are allocated a personal tutor who can provide advice and guidance on academic matters. Learning support includes the Library which, across its four sites, holds print collections of 360,000 books, 1,600 journal subscriptions and substantial audio visual collections. Access to all resources including over 6,500 electronic resources (databases, e-journals, e-books, exam papers and links to recommended websites) is facilitated through Library Search, a new online service There are over 3,500 computers spread over the four University campuses available for students use. The University uses a Virtual Learning Environment called Blackboard where students can access course materials and communicate with staff and other students via message boards. At University level, Services for Students provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers and the chaplaincy providing multi-faith guidance. The International Office provides particular support for international students. The University of Westminster Students' Union also provides a range of facilities to support all students during their time at the University.

Reference Points for the course
Internally University Teaching and Learning policy statements, University Quality Assurance Handbook and Modular Frameworks, and staff research. Externally QAA Subject Benchmark statements, Professional, Statutory, Regulatory Body requirements/guidance, University and SEEC (credit consortium) level descriptors.

Quality Management and Enhancement

Course Management
The BSc (Honours) Multimedia Computing and Animation course is under the Computer Science and Software Engineering Department (CSSE) and the management structure supporting the course is as follows:

- Dr Daphne Economou, Course Leader is responsible for day to day running and overall management of the course and development of the curriculum
- Dr Alexandra Psarrou, Head of Department, holds academic responsibility for the course and other courses within the Department
- Professor Graham Megson, Dean of School, holds overall responsibility for the course, and for the other courses run by the School

Course approval, monitoring and review
The course was initially approved by a University Validation Panel in 2009. The Panel included internal peers from the University and external subject specialists from academia and industry to ensure the comparability of the course to those offered in other Universities and the relevance to employers. Periodic Course Review helps to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers.

The course is monitored each year by the School to ensure it is running effectively and that issues which might affect the student experience have been appropriately addressed. Staff will consider evidence about the course, including the outcomes from each Course Committee, evidence of student progression and achievement and the reports from External Examiners, to evaluate the effectiveness of the course. The Annual Monitoring Sub-Committee considers the School action plans resulting from this process and the outcomes are reported to the Academic Council, which has overall responsibility for the maintenance of quality and standards in the University.

Student involvement in Quality Assurance and Enhancement
Student feedback is important to the University and student comment is taken seriously. Student feedback is gathered in a variety of ways. The most formal mechanism for feedback on the course is the Course Committee. Student representatives will be elected to sit on the Committee to represent the views of their peer group in various discussions. The University and the Students' Union work together to provide a full induction to the role of the Course Committee.
All students are asked to complete a Module Feedback Questionnaire at the end of each module. The feedback from this will inform the Module Leader on the effectiveness of the module and highlight areas that could be enhanced. The University also has an annual Student Experience Survey which provides valuable feedback about a range of University services.

Students meet with Review Panels when the periodic review of the course is conducted to provide oral feedback on their experience on the course. Student feedback from Course Committees are part of the Schools' quality assurance evidence base.

For more information about this course:

Multimedia Computing and Animation BSc Honours;
http://www.westminster.ac.uk/schools/computing/subjects/human-interaction-and-multimedia/bsc-honours-multimedia-computing-and-animation

For further information and advice contact the Course Enquiries Team on +44 (0)20 7915 5511 or course-enquiries@westminster.ac.uk

Admissions Tutor: Mark Baldwin
E: baldwim@wmin.ac.uk

Senior Tutor: Wendy Purdy
E: purdyw@westminster.ac.uk

Disability Officer: Cheng Lee
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Please note – This programme specification provides a concise summary of the main features of the course and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities that are provided. This specification should be read in conjunction with the Course Handbook provided to students and Module Handbooks which provide more detailed information on the specific learning outcomes, content, teaching, learning and assessment methods for each module.