

PROGRAMME SPECIFICATION

Course record information

Name and level of final award	<p>BSc (Honours) Computer Games Development BSc (Honours) Computer Games Development with Industrial Experience</p> <p>The BSc (Honours) Computer Games Development is a BSc (Hons) degree that is Bologna FQ-EHEA first cycle degree or diploma compatible.</p>
Name and level of intermediate awards	<p>Diploma of Higher Education in Computer Games Development Diploma of Higher Education in Computer Games Development with Industrial Experience Certificate of Higher Education in Computer Games Development</p>
Awarding body/institution	University of Westminster
Teaching Institution	University of Westminster
Status of awarding body/institution	Recognised Body
Location of delivery	Central London (Cavendish)
Language of delivery and assessment	English
Mode, length of study and normal starting month	<p>Full time, three years, September start OR Full time, four years with Industrial Experience, September start</p>
QAA subject benchmarking group(s)	<p>QAA subject benchmark for Computing British Computer Society guidelines on accreditation</p>
Professional statutory or regulatory body	<p>British Computer Society (BCS) Re-accreditation is pending</p>
Date of course validation/review	2019
Date of programme specification approval	September 2019
Valid for cohorts	2020-2021
Course Leader	Markos Mentzelopoulos
UCAS code and URL	westminster.ac.uk/courses/undergraduate
Westminster course code	BSMGM01F
Westminster route code	

Admissions requirements

There are standard minimum [entry requirements](#) for all undergraduate courses. Students are advised to check the standard requirements for the most up-to-date information.

For most courses a decision will be made on the basis of your application form alone. However, for some courses the selection process may include an interview to demonstrate your strengths in addition to any formal entry requirements.

More information can be found here: westminster.ac.uk/courses/undergraduate/how-to-apply

Recognition of Prior Learning

Applicants with prior certificated or experiential learning at the same level of the qualification for which they wish to apply are advised to visit the following page for further information: westminster.ac.uk/recognition-of-prior-certified-learning.

Aims of the course

The *BSc Computer Games Development* course has been designed to:

1. To provide students with a comprehensive knowledge and understanding of the fundamental principles and technologies that underpin the discipline of computing with emphasis on the technical skills and theories required in computer games development;
2. To give students technical expertise and specialisation in computer games development and practical experience enabling them to be effective in a rapidly developing range of careers in wider creative industry;
3. To equip students with solid knowledge and understanding of software development principles across the whole game production procedure;
4. To provide students with a full game development experience, from concept to software design to final implementation by incorporating industry software tools, game engines and API's;
5. To provide a motivating and inclusive environment with the opportunity to develop themselves intellectually and socially and to encourage students to develop as independent and self-critical problem solvers;
6. To prepare graduates with professional attitudes with awareness of ethical, legal, and social issues, interpersonal and entrepreneurial skills required in the industry;
7. To prepare graduates with awareness, knowledge and practical skills in the field of computer games for continued study at an advanced level in either formal postgraduate study or as continued professional development.

Computer game development combines technology and creativity in a multidisciplinary way. The game industry is still an expanding and challenging sector with continually evolving ideas and cutting-edge technologies. Thus, it requires practitioners to exercise more flexibility in software

specifications and functionality through adapting their approaches to design and management while keeping abreast of broad changes to technology. This course covers all major technical aspects of the computer games development process from design to production. It aims to prepare students for a career in the games industry targeting graduate attributes for software development and the creative industry.

The course provides students with a solid understanding of game technologies including programming, applied maths, computer graphics, game engines, games networking and Artificial Intelligence. Meanwhile, students are supported to expand a broad range of knowledge and skills including mobile and web application development, and human computer interaction. The course offers a number of talks from creative industry and supports students to take participation in prestige game competitions and digital fairs as well as seek industrial placements and internships.

Upon completion of the course students will be expected to gain a software developer role in the games industry and the wider related creative industry. However, since the games industry relies on the work of multidisciplinary groups, in order to enhance student employability, the course includes specialised modules which includes work-based learning experience (WBL). These modules target a range of design, production and management modules as well as enhancing graduate attributes and transferable skills.

As an integrated course of programming and design, it offers diverse career opportunities including game designer and game producer in well-established game companies as well as small and medium sized game studios. Additionally, the skill set gained fully prepares graduates for other software career within general computing sectors. Graduates will possible continue further research study at an advanced level in either creative computing or general computer science areas

What will you be expected to achieve?

Learning outcomes are statements on what successful students have achieved as the result of learning. These are threshold statements of achievement the learning outcomes broadly fall into four categories:

- The overall **knowledge and understanding** you will gain from your course (KU).
- **Graduate attributes** are characteristics that you will have developed during the duration of your course (GA).
- **Professional and personal practice learning outcomes** are specific skills that you will be expected to have gained on successful completion of the course (PPP).
- **Key transferable skills** that you will be expected to have gained on successful completion of the course. (KTS)

Level 4 course learning outcomes: upon completion of level 4 you will be able to:

L4.1 - Analyse small scale problems focusing on games and design their solutions by applying algorithmic and mathematical techniques. (KU)

L4.2 - Apply core mathematical elements to solve algorithmic problems in games development. (KU, PPP)

L4.3 - Apply programming principles and constructs to implement solutions to small scale problems. (KU, PPP)

L4.4 - Work effectively as a team member and methodically capture game requirements and create a game specification that meets them. (KTS, PPP)

L4.5 - Describe, create and manipulate simple data collections through their underlying representation for a computer games application. (PPP)

L4.6 - Describe the structure of a computing system, the design of its basic components and explain the interactions of hardware and software components to support the development and deployment of a game architecture. (KU).

L4.7 – Understand principles behind games networking architecture with respect to client design and security implications. (PPP)

L4.8 - Recognise and explain behaviour constraints of a professional code of conduct towards third parties in a Computer Games working environment and show awareness of the ethical issues involved in data life cycle. (KTS)

L4.9 - Following guidance, review literature in Computer Games and present in written and oral form own work and learning, critically comparing, contrasting and evaluating the findings. (KTS)

L4.10 - Understand principles behind modelling and integrating game assets in a game application. (PPP)

Level 5 course learning outcomes: upon completion of level 5 you will be able to:

L5.1 - Demonstrate competency in object-oriented design and algorithmic and mathematical approaches to solve a computer game problem. (KU, PPP)

L5.2 - Employ appropriate mathematics and physics for a computer game. (KU, PPP)

L5.3 - Develop user requirements, specifications and models of a medium-scale computer game into an implemented solution with appropriate digital assets, following an object-oriented approach. (KTS)

L5.4- Demonstrate how information is modelled, persistently stored, manipulated and retrieved, as data, to serve scalable solutions to medium-scale object-oriented computer games problems. (KTS)

L5.5 - Employ a standard process such as storyboarding to design, represent and formally communicate the specification of a computer game. (KU, PPP)

L5.6 - Analyse and evaluate game engines and explain their architecture and execution mechanisms. (KU)

L5.7 - Identify and explain security risks and their implications for computer games. (PPP)

L5.8 - Identify, evaluate, and improve on interface issues between human users and computer games using multiple platforms. (KU, PPP)

L5.9 - Demonstrate professional responsibility in the development of quality computer games solutions in a global context and the presentation and defence of these in multiple communication forms, supported by methodical research. (KTS)

Level 6 course learning outcomes: upon completion of level 6 you will be able to:

L6.1 - Methodically and independently develop requirements to a solution for a large-scale computer games problem using appropriate languages and tools. (KTS)

L6.2 - Demonstrate understanding of a range computer game AI technique's and apply them on given scenarios. (KU, PPP)

L6.3 - Demonstrate technical skills in the production of 2D/3D game prototype with real time graphics algorithms using industry standard game development API. (KU, PPP)

L6.4 - Demonstrate and appraise the main threats to computer systems and networks security and integrity. (PPP)

L6.5 - Demonstrate complete handling of the full lifecycle of a computer games project underpinned by an entrepreneurial approach and a focus on the needs of real clients and the wider society (KTS)

L6.6 - Apply appropriate research methodologies in carrying out independent research in computer games and produce a report demonstrating evidence of critical thinking (KTS)

Course level learning outcomes and graduate attributes are mapped to the core modules in which they will be delivered under section "Employment and further study opportunities".

How will you learn?

Your course is a collection of learning opportunities. The teaching and learning methods are directly related to the aims and learning outcomes identified above. You will be led from a broad understanding and skills across the course as well as key theoretical concepts focussing on transferred knowledge and specialised skills in depth preparing you for your future career and life in general. At the point of graduation, you will have gained a thorough subject knowledge, together with an appreciation of the industrial environment, and further demonstrated an ability to identify the professional opportunities open to you for your future careers.

The course is organised into a number of modules at each level. These are the building blocks of your course. Each module consists of a number of learning activities over a number of weeks designed to help you achieve the knowledge and skills related to a particular area within your subject. There are a series of practical modules that support increasing depth of skills and knowledge across the three years of the course. These develop professional possibilities for specialisation within game production

The principal aim of your course is to equip you for professional life, or higher study, relevant to your current programme of study.

To prepare you for this, the learning in your course will not take place only in the class. Your learning will use four methods, each supporting the others:

- **Lectures** will give you access to expertise and present you with the knowledge you need in your subject.

- **Practical tutorial** or **laboratory sessions** will allow you to understand, apply and strengthen your skills under the guidance of a tutor.
- **Independent study time** will let you take more control of your own learning and give you the framework that will help you to keep on learning without supervision.
- **Personal development** will allow you to complement your knowledge with the specific specialised skills that meet your individual needs.
- **Real-life** project briefs or **case studies**, normally provided by an organisation, will give you the opportunity to engage with employers and use your knowledge and skills to solve a real-life or a business-related problem.
- **Work placement**, if you choose the option to do a year-long placement as part of your degree, will give you the opportunity to practice and enhance your learning from course.

Whenever possible online resources will be provided through the university virtual learning environment to support you in your learning.

The first year of study (Level 4) provides you an underpinning knowledge of computer science. You are introduced to the key core skills including software development principles, fundamental programming and mathematics. You will also be introduced to the procedure of game production, game design theory and playability for a 2D game group project development as well as the principles behind software production life cycle, including management, communication & writing skills as well as system architecture to withstand a final project release similar to standard game indie game studios. In addition, you will learn principles behind 2D & 3D asset design and deployment/interaction through a professional game engine. In supporting your full transition into Higher Education, the course has additional classes and support sessions at this level that you will need to fully engage with so you can prepare for the advanced study that follows.

To achieve a degree of specialisation in game development, the second year (Level 5) introduces game specific modules with professional practice including game programming patterns using object-oriented programming and principles, math and physics for games, game engine architecture with execution mechanism. You will further develop the ability to integrate knowledge and skills you have learnt to work on a game development group project.

Following that level, you may choose to take a year **placement** in industry to strengthen your understanding of industry needs through direct application of your evolving skills, as well as gain work experience, which is invaluable for your final year of study and long-term career prospects after graduation.

Building upon the comprehensive knowledge and skills attained in Level 4 and 5, the third year (Level 6) introduces advanced techniques and specialised skills in game development including 3D graphics programming, game AI (Artificial Intelligence), networking games & security, and advanced programming using industry standard game development API to design and implement a 3D game prototype. The final year completes your preparation for going into industry and further study, with an ability to handle the complexity of large-scale projects and environments and with full control of your further development needs.

The Course responds to the rapidly developing game industries, with their demand for highly skilled professionals, and the emergence of new approaches to game production. It will prepare you for work in an increasingly challenging and rewarding field by giving you a clear perspective of the current nature and practice of games development. You will be equipped with a broad range of practical and conceptual knowledge and skills specific to game development and also applicable to the wider skills required in creative industry. Throughout all levels of your course you will also develop necessary, distinct, attributes that will help you compete effectively in a global changing environment.

The Graduate Attributes (GA) are developed throughout the course through the knowledge and professional skills modules and are intended to ensure that you have a deep knowledge of the subject area, you are critical and creative thinkers, are professional, socially, ethically and environmentally aware, global in outlook and community engaged, and a literate and effective communicator.

The table below maps the attributes to the core course modules for levels 4 to 6.

	Graduate Attributes	Level 4 course LOs	Applied Mathematics	Programming Methodology I & II	Game Development Group Project	Game Enterprise	Game Design & Asset Creation
KU	Critical and creative thinkers	L4.1 Analyse small scale problems focusing on games and design their solutions by applying algorithmic and mathematical techniques.	✓	✓			
KU PPP	Critical and creative thinkers	L4.2 Apply core mathematical elements to solve algorithmic problems in games development.	✓	✓		✓	
KU PPP	Critical and creative thinkers	L4.3 Apply programming principles and constructs to implement solutions to small scale problems.		✓			
KTS PPP	Critical and creative thinkers	L4.4 Work effectively as a team member and methodically capture game requirements and create a game specification that meets them.		✓	✓	✓	
PPP	Social, ethically and environmentally aware	L4.5 Describe, create and manipulate simple data collections through their underlying representation for a computer games application.		✓			✓
KU	Critical and creative thinkers	L4.6 Describe the structure of a computing system, the design of its basic components and explain the interactions of hardware and software components to support the development and deployment of a game architecture.				✓	
PPP	Entrepreneurial	L4.7 Understand principles behind games networking architecture with respect to client design and security implications.			✓	✓	
KTS	Social, ethically and environmentally aware	L4.8 Recognise and explain behaviour constraints of a professional code of conduct towards third parties in a Computer Games working environment and Show awareness of the ethical issues involved in data life cycle		✓		✓	

	Entrepreneurial and Global in outlook and engaged in communities						
KTS	Literate and effective communicator	L4.9 Following guidance, review literature in Computer Games and present in written and oral form own work and learning, critically comparing, contrasting and evaluating the findings.	✓	✓	✓	✓	
PPP	Critical and creative thinkers	L4.10 Understand principles behind modelling and integrating game assets in a game application.		✓	✓		✓

	Graduate Attributes	Level 5 course LOs	Game Programming Patterns	Maths & Physics for Games	Game Engine Architecture	Game Studio
KU PPP	Critical and creative thinkers	L5.1 Demonstrate competency in object-oriented design and algorithmic and mathematical approaches to solve a computer game problem.	✓	✓	✓	✓
KU PPP	Critical and creative thinkers	L5.2 Employ appropriate mathematics and physics for a computer game.	✓	✓	✓	✓
KTS	Critical and creative thinkers	L5.3 Develop user requirements, specifications and models of a medium-scale computer game into an implemented solution with appropriate digital assets, following an object-oriented approach.	✓		✓	✓
KTS	Critical and creative thinkers	L5.4 Demonstrate how information is modelled, persistently stored, manipulated and retrieved, as data, to serve scalable solutions to medium-scale object-oriented computer games problems.	✓	✓		

KU PPP	Critical and creative thinkers	L5.5 Employ a standard process such as storyboarding to design, represent and formally communicate the specification of a computer game.			✓	✓
KU	Global in outlook and community engaged, Socially, environmentally and ethically aware Literate and Effective Communicator	L5.6 Analyse and evaluate game engines and explain their architecture and execution mechanisms.			✓	
PPP	Global in outlook and community engaged, Socially, environmentally and ethically aware	L5.7 Identify and explain security risks and their implications for computer games.				✓
KU PPP	Global in outlook and community engaged, Socially, environmentally and ethically aware	L5.8 Identify, evaluate, and improve on interface issues between human users and computer games using multiple platforms.			✓	
KTS	Socially, environmentally and ethically aware Literate and Effective Communicator	L5.9 Demonstrate professional responsibility in the development of quality computer games solutions in a global context and the presentation and defence of these in multiple communication forms, supported by methodical research.			✓	✓

	Graduate Attributes	Level 6 course LOs	Final Year Project	Game AI	Game Networking & Security	Computer Graphics Programming
KTS	Critical and creative thinkers	L6.1 Methodically and independently develop requirements to a solution for a large-scale computer games problem using appropriate languages and tools.	✓	✓		
KU PPP	Critical and creative thinkers	L6.2 Demonstrate understanding of a range computer game AI technique and apply them on given scenarios.	✓	✓		
KU PPP	Critical and creative thinkers	L6.3 Demonstrate technical skills in the production of 2D/3D game prototype with real time graphics algorithms using industry standard game development API.	✓			✓
PPP	Global in outlook and community engaged, Socially, environmentally and ethically aware	L6.4 Demonstrate and appraise the main threats to computer systems and networks security and integrity.	✓		✓	
KTS	Socially, environmentally and ethically aware, entrepreneurial	L6.5 Demonstrate complete handling of the full lifecycle of a computer games project underpinned by an entrepreneurial approach and a focus on the needs of real clients and the wider society.	✓		✓	
KTS	Literate and Effective Communicator	L6.6 Apply appropriate research methodologies in carrying out independent research in computer games and produce a report demonstrating evidence of critical thinking.	✓	✓		

The learning and the teaching of the course

How will you be assessed?

In your course, assessment and feedback are the key elements in measuring learning. The assessment strategy of the course supports to foster the highly skilled and professional game development practitioners of the future.

You will undertake **a wide variety of assessment** tasks as their progress through your degree course on both practical and theoretical elements via a mix of formative and summative with project based synoptic assessment. Their nature will vary according to your level and the nature of the task. The benefit is that this provides a range of activities to support and encourage the blended learning and allows you to demonstrate your skills and understanding in a variety of ways.

The formative assessment helps you see where you are in your learning and what you have learned so far, while summative assessment measures how much you have learned in a way that contributes to your overall grades. The formative assessment plays an important role to provide feedback to you as this serves to indicate your progress and helps identify strengths and weaknesses. The major feedback is given throughout modules in tutorials, and group discussions, and in the final demonstrations and vivas in practical modules. A wider range of feedback can be further achieved through student participations of national and international game competitions (e.g. Dare to be digital, Brains Eden, Games Jam) and your involvement of community events. This allows you to identify areas for improvement while demonstrating your skills and knowledge to game industry and society.

Other forms of assessment will include *practical exercises* ranging from small tasks that might be completed in a tutorial, to something more complex like designing and writing a larger computer program. For example, *part-written practical reports* and *Lab-controlled assessments/ work-based lab engagement* will be used to test your ability to analyse and interpret data, and/or build and reflect on real-world cases during computer lab sessions.

There will be some formal *examinations* (usually at the end of each term). Some of the work will be completed individually through *closed-book exams* or *in-class tests*, and sometimes you will work with other students as part of a team, emulating as close as possible the environment you will face in your later life in industry. *Group coursework* and *team projects*, which are essential for computer games related careers, will help you to develop practical skills alongside the more specific skills that are being assessed. For example, you will be working as part of a team on a typical industry case study and will be assessed on your ability to appreciate the importance of business logistic operations and their interaction. Each group member will be in charge of specific task(s) (role), and all together will have to collaborate and exchange relevant information to satisfy the organisation objectives. Such a group work will be a simulation of a real-life working environment with shared goals but individual accountability and codes of conduct. Clear Assessment Criteria are stated in module documents, and these are linked to the module Learning Outcomes. you will receive written feedback from all assessments, and this directly relates to the assessment criteria for each module

Other methods of assessments to evaluate various graduate skills will include *portfolios& interviews* where you will be designing and presenting an artefact.

All assessments that contribute to the final grades will be assessed against set criteria, following rigorous quality mechanisms that ensure our academic judgement remains fair and consistent with the wider educational sector. Typically, assessment will become longer, and more self-managed, as you get into the second year and the final year of the course and you will have more freedom to focus on specialist areas to innovate through your own decisions informed by your own research. **Assessment is designed to be a learning experience in itself** and will help students make that transition from small practical exercises to more complex piece of work towards the substantial, year-long, project of the final year.

To help you see how different areas connect with each other you will have in some cases tasks that assess the outcomes from different modules in one complex piece of work. These are called **synoptic assessments**. These assignments allow combining elements of learning from different modules and show the accumulated knowledge and understanding of computer game development approach and technology, especially supporting the linkage of principle and practice. It also helps to reduce formal assessment and so ensure that you have as much time and opportunity as possible to develop practical skills alongside the more specific skills that are being assessed. It is particularly important for game development, which requires design and implementation by a team or even multiple teams working together each responsible for specific production phases of game production. Much of game production responsibility is game documentation. Therefore, you will write essays and research reports, and learn how to write in a style suitable to a piece of academic work, and to make proper use of references and bibliographies. Project and ideas are driven from course partners which may be alumni and/or collaborators of the department of computer science research groups.

Overall guidance through the personal tutoring system will help you continuously reflect on where you are of your learning, so you can make informed decisions on the pace and focus of your own independent learning.

Throughout your learning you will get feedback. **Feedback** will help you reflect on what you have learned so you can identify the areas in which you are strong and the areas in which you need to learn more. Feedback will be given to you in response to assessment, in response to questions in lectures, seminars and tutorials, and in guidance you get during supervision. But feedback will also come from your interactions with other students and with industry. This is possible if you choose to undertake an industrial placement year and/or through participation in national and international competitions. All feedback will be useful to help you guide your learning so that you develop the right skills faster.

Employment and further study opportunities

The course offers a short-term work-based learning experience by providing you with an opportunity to work on a real-life problem which is normally set by an external organisation as a small-scale project.

This project forms a part of the assessment in a designated module called Game Studio. This module provides the structure for your learning and receiving support from the module team. You will work on the project on your own and/or as part of a small team within and outside the class. During this time, you may also get a chance to interact with the organisation that has set the project. The quality of the work that you produce for the project get assessed as part of the module's assessment.

This experience will allow you to put theory into practice by applying your knowledge and skills gained from various modules to address a real-life situation, usually within the context of a business-related problem. Furthermore, this experience will help you develop subject-specific technical skills as well as certain employability skills such as leadership, organisation and commercial awareness.

In addition, this course gives you with the opportunity to take a year in industry (work placement) after completing the second year of your study and gain work experience, increasing your chances of employability after graduation. You will be offered help and support to find and secure placement opportunities through various workshops and events organised by the Career Development Centre and the course team. Typically, you will be assigned into roles involving tasks related to various aspects of computer games development.

As a graduate of University of Westminster, you shall be expected to demonstrate the following five Graduate Attributes:

- Critical and creative thinkers
- Literate and effective communicator
- Entrepreneurial
- Global in outlook and engaged in communities
- Social, ethically and environmentally aware

University of Westminster courses capitalise on the benefits that London as a global city and as a major creative, intellectual and technology hub has to offer for the learning environment and experience of our students.

The *BSc Computer Games Development* course aims to create high quality graduates who have a strong focus on solving real-world problems, will have adaptability and maturity, and have a strong foundation of knowledge and the technical capability to be able to immediately contribute to their workplace environment. Graduates of the BSc Computer Games Development course will have been taught and utilised industrial tools and techniques and will be versed in all aspects of game production. As well as having a solid background in software development with an emphasis on computer games development, graduates from the course shall also have multiple specialism in gaming technology during their early years as a computing professional. Graduates shall be independent thinkers, lifelong learners and be able to analyse, critically reflect, and be able to confidently and effectively communicate. Graduating from this accredited course where professional skills and practice are embedded, graduates shall be able to meet the required professional and ethical standards expected in game industry. Graduates shall also be capable and prepared for the broadening their knowledge by undertaking Masters level study or higher.

Attributes are developed throughout all levels of the course to help graduates compete effectively in a global changing environment.

In brief, our graduates will be distinctive in being:

1. Critical and creative thinkers: investigating a problem case study to identify research questions and formulate hypotheses, using appropriately techniques to support problem solving, designing and implementation.

2. Literate and effective communicator: communicating analysis ideas and results in written and verbal forms and presentation tools.
3. Entrepreneurial: Having fundamental knowledge of the organization operations and issues, tackling problems resiliently and confidently both independently and in groups, reflecting and learning from own performance.
4. Global in outlook and engaged in communities: Understand current game market trends and implications, growth of technology used within the games industry, engaging in networking events, participating in competitions.
5. Socially, ethically and environmentally aware: adhering to ethical code, making responsible use of data driven technologies, avoiding biased data collection and presentation.
6. Prepare students for continued study at an advanced level, either in formal postgraduate study or as continued professional development.

Upon completion of the course you will be expected to gain a software developer role in the game industry and wider creative industry. However, since the game industry relies on the teamwork of multidisciplinary groups, a range of design, implementation and management modules is embedded across the course. The course offers diverse career opportunities for the actual role within the team may be, for example, designer, programmer, or producer. Our graduates have been successful in securing jobs roles in both well-known companies and SMEs including Microsoft, Sony, We R Interactive, Marmalade, Portable Pixels, Immersion, 3D Interactive, Slitherine Software UK Ltd., etc. Additionally, the skill set gained fully prepares you for other software development career within general computing sectors and even other types of roles possible are in computer science research in a commercial company or academic institution.

Course structure

The list below shows the core and option modules that are available as part of the course and their credit value. A *core* module is one that must be attempted to gain the award of BSc Computer Games Development. In addition to the core modules, a student can take up to 2 free choice modules, either 2 options or 1 option + 1 elective, at level 5 and 1 at level 6.

The School organises module information sessions where advice is given to students regarding their module choices and cognate areas. Student can also seek advice from their personal tutor and other academics concerning their choice.

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. Course structures can be subject to change each academic year following feedback from a variety of sources.

Credit Level 4				
Module code	Module title	Status	UK credit	ECTS
4CCGD001W	Games Development Group Project	Core	20	10
4ELEN010W	Applied Mathematics	Core	20	10
4NTCM004W	Programming Methodology I	Core	20	10
4NTCM005W	Programming Methodology II	Core	20	10

4CCGD005W	Game Design and Asset Creation	Core	20	10
4CCGD006W	Game Enterprise	Core	20	10
Award of Certificate of Higher Education available				
Credit Level 5 (4 core modules + 2 optional)				
Module code	Module title	Status	UK credit	ECTS
5CCGD012W	Game Programming Patterns	Core	20	10
5CCGD010W	Maths & Physics for Games	Core	20	10
5CCGD011W	Games Engine Architecture	Core	20	10
5CCGD009W	Game Studio (Work-Based Learning)	Core	20	10
5COSC023W	Mobile Application Development	Option	20	10
5CCGD013W	XR Multimodal Interaction	Option	20	10
5MMCS007W	3D Interactive Media Development	Option	20	10
5SENG003W	Algorithms: Theory design and implementation	Option	20	10
5DATA002W	Machine Learning and Data mining	Option	20	10
Various	[Westminster Elective]	Elective	20	10
Award of Diploma of Higher Education available				
*6COSC018W	*Computer Science Placement	Core		
Credit Level 6 (4 core modules + 1 optional)				
Module code	Module title	Status	UK credit	ECTS
6CCGD003W	Games Networking and Security	Core	20	10
6CCGD002W	Game AI	Core	20	10
6COSC006W	Final year project	Core	40	20
New	Computer Graphics Programming	Core	20	10
6MMCS004W	Advanced Interactive Media Development	Option	20	10
6COSC004W	Mobile Native Application Development	Option	20	10
New	Interactive 3D Visualisation	Option	20	10
Various	[Westminster Elective]	Elective	20	10
Award of BSc available				
Award of BSc Honours available				
*When 6COSC013W is taken award of BSc /BSc Honours with Industrial Experience available				

One Westminster Elective module may also be chosen as an alternative to an option at level 5 and level 6.

Please note: Not all option modules will necessarily be offered in any one academic year. In addition, timetabling and limited spaces may mean you cannot do your first choice of modules.

Professional Body Accreditation or other external references

The course is intended to fulfil the educational requirements of the British Computer Society (BCS) to fulfil the educational requirements registration as a Chartered IT Professional (CITP) and partial Chartered Engineer (CEng). Re-accreditation from Professional Bodies is pending.

. Reference points for the course

- **Internally**
University Teaching and Learning policy statements,
University Quality Assurance Handbook and Modular Frameworks, staff research.
- **Externally**
QAA Subject Benchmark statements,
Professional, Statutory, Regulatory Body requirements/guidance,
University and SEEC (credit consortium) level descriptors.
UKIE – United Kingdom Interactive Entertainment
- **Professional body accreditation**
British Computer Society (BCS) Criteria.

Academic regulations

The current Handbook of Academic Regulations is available at:

westminster.ac.uk/academicregulations

However, this course may have specific regulations to comply with professional body accreditation which should be read in conjunction with [Section 17 Framework for Undergraduate Courses](#) of the Handbook of Academic Regulations. Any course specific regulations will be outlined in the course handbook provided to students on enrolment.

How will you be supported in your studies?

Course Management

The BSc (Honours) Computer Games Development course is under the School of Computer Science and Engineering (CS&E) and the management structure supporting the course is as follows:

- Markos Mentzelopoulos, Course Leader is responsible for day to day running and overall management of the course and development of the curriculum.
- Dr Philip Trwoga, Head of School, holds academic responsibility for the course and other courses within the School Professor.
- Jonathan Stockdale, Pro Vice-Chancellor and Head of the College of Design, Creative and Digital Industries, holds overall responsibility for the course, and for the other courses run by the College.

Academic Support

Upon arrival, an induction programme will introduce you to the staff responsible for the course, the campus on which you will be studying, the Library and IT facilities, additional support available and to your Campus Registry. You will be provided with the Course Handbook, which provides detailed information about the course.

Each course has a course leader or Director of Studies. All students enrolled on a full-time course and part time students registered for more than 60 credits a year have a personal tutor,

who provides advice and guidance on academic matters. The University uses a Virtual Learning Environment called Blackboard where students access their course materials, and can communicate and collaborate with staff and other students. Further information on Blackboard can be found at westminster.ac.uk/blackboard.

You will be allocated a personal tutor at the beginning of your studies who will support you throughout your student journey easing the transition into Higher Education through to higher levels of study.

Academic and Personal tutoring involves fostering academic partnerships, with mutual expectations, between tutors and students. Tutors will provide proactive, personalised academic and pastoral support to help your academic, personal and professional development. We see students as co-creators in this academic partnership taking responsibility for their own development by fully engaging with tutoring arrangements to optimize their learning experience.

As such, you will have scheduled mandatory, individual meetings with your tutor who will provide you with regular feedback on your academic progress. Tutors can also advise you on the educational coherence of your module choice, assessment procedures, regulations and University structures, and educational support needs advising on appropriate provision available.

You will also have continuous pastoral support throughout your time at University and can see your tutor either by appointment or in designated office hours. Your tutor can provide a link to specialist support available through University Services and refer you for more specialised pastoral guidance as appropriate to the School Senior Tutor, Disability Services, Counselling Services, Registry and/or other Services for Students. It is important that you seek and ask for advice earlier rather than later.

More information is available from the Student Hub on Personal Tutoring which can be found at: <https://www.westminster.ac.uk/current-students/support-and-services/personal-tutors>

Learning Support

The Academic Learning Development Centre supports students in developing the skills required for higher education. As well as online resources in Blackboard, students have the opportunity to attend Study Skills workshops and one to one appointment. Further information on the Academic Learning Development Centre can be found at westminster.ac.uk/academic-learning-development.

Learning support includes four libraries, each holding a collection of resources related to the subjects taught at that site. Students¹ can search the entire library collection online through the Library Search service to find and reserve printed books, and access electronic resources (databases, e-journals, e-books). Students can choose to study in the libraries, which have areas for silent and group study, desktop computers, laptops for loan, photocopying and printing services. They can also choose from several computer rooms at each campus where desktop computers are available with the general and specialist software that supports the

¹ Students enrolled at Collaborative partners may have differing access due to licence agreements.

courses taught at their College. Students can also securely connect their own laptops and mobile devices to the University wireless network.

Support Services

The University of Westminster Student and Academic Services department provide advice and guidance on accommodation, financial and legal matters, personal counselling, health and disability issues, careers, specialist advice for international students and the chaplaincy providing multi-faith guidance. Further information on the advice available to students can be found at westminster.ac.uk/student-advice. The University of Westminster Students' Union also provides a range of facilities to support students during their time at the University. Further information on UWSU can be found at westminster.ac.uk/students-union.

Careers Support

From the very start of your studies, the Careers and Employability Services department is committed to supporting your career progression by offering a wide range of developmental opportunities, combined with up to date, tailored careers information, advice and guidance.

Our experienced careers staff are able to work with you to reflect on your career goals and plan how to get the most from your time at the University of Westminster, to access a range of work based learning opportunities including work experience, part-time jobs, volunteering and mentoring, before supporting your transition into employment with personalised job hunting, CV, application and interview advice.

The University uses an online management system called Engage, which offers access to a variety of events and activities led by employers and careers and employability staff, extensive part-time, work experience and graduate vacancy lists, comprehensive careers information and advice and one to one career appointment. These services are also available to you for up to 3 years after you graduate.

How do we ensure the quality of our courses and continuous improvement?

The course was initially approved by a University Validation Panel in **2019**. The panel included internal peers from the University, academic(s) from another university and a representative from industry. This helps to ensure the comparability of the course to those offered in other universities and the relevance to employers.

The course is also monitored each year by the College 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 evidence of student achievement, reports from external examiners in order to evaluate the effectiveness of the course.

A Course revalidation takes place periodically to ensure that the curriculum is up-to-date and that the skills gained on the course continue to be relevant to employers. Students meet with Revalidation panels to provide feedback on their experiences. Student feedback from previous years is also part of the evidence used to assess how the course has been running.

How do we act on student feedback?

Student feedback is gathered in a variety of ways.

- Through student engagement activities at Course/Module level, students have the opportunity to express their voice in the running of their course. Student representatives are elected to expressly represent the views of their peers. The University and the Students' Union work together to provide a full induction to the role of the student representatives.
- There are also School Staff Student Exchange meetings that enable wider discussions across the School. Student representatives are also represented on key College and University committees.
- All students are invited to complete a questionnaire before 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.
- Final year Undergraduate students will be asked to complete the National Student Survey which helps to inform the national university league tables.

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.

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