

# PROGRAMME SPECIFICATION

## 1. Key Information

<b>Programme Title:</b>	BSc (Hons) Computer Games Development
<b>Awarding Institution:</b>	Buckinghamshire New University
<b>Teaching Institution(s):</b>	Buckinghamshire New University
<b>Subject Cluster:</b>	Animation, Games & Visual Effects
<b>Award Title (including separate Pathway Award Titles where offered):</b>	BSc (Hons) Computer Games Development BSc (Hons) Computer Games Development with Foundation Year
<b>Pathways (if applicable)</b>	N/A
<b>Other award titles available (exit qualifications):</b>	Certificate of Higher Education Diploma of Higher Education Ordinary Degree
<b>FHEQ level of final award:</b>	Bachelor's degree with honours Bachelor's degree PGCE Graduate diploma Graduate certification
<b>Accreditation details:</b>	N/A
<b>Length of programme:</b>	3 years for BSc (Hons) Computer Games Development 4 years for BSc (Hons) Computer Games Development with Foundation Year
<b>Mode(s) of Study:</b>	Full-time
<b>Mode of Delivery:</b>	In person (on-site) delivery
<b>Language of study:</b>	English
<b>QAA Subject Benchmark(s):</b>	Subject Benchmark Statement: Computing 30 Mar 2022
<b>Other external reference points (e.g. Apprenticeship Standard):</b>	British Computer Society International Games Development Association
<b>Course Code(s):</b>	BSCGDEFT / BSCGDEFY
<b>UCAS Code(s):</b>	
<b>Approval date:</b>	01 December 2022
<b>Date of last update:</b>	

## 2. Programme Summary

You will gain technical skills and theoretical knowledge to help you become a confident and competent Games Developer. From programming, software design and asset development, this course will provide opportunities to work with the latest software and hardware tools used within this dynamic industry.

*Why learners should choose this award:*

The course specialises in teaching learners the technical and soft skills necessary to become a Games Developer. While the course focuses on the teaching of software development within the context of games, the skills and knowledge learners acquired are equally applicable to the production of software for sectors such as banking, manufacturing and retail. The relevance of the degree is underpinned by the International Game Developers Association (IGDA) Curriculum Framework (2008). The framework has been developed in collaboration with leading games companies and provides an indicative content of the degree courses.

### 3. Programme Aims and Learning Outcomes

#### Programme Aims

This programme aims to:

1. Provide learners with a deep understanding of the methodologies, technologies and techniques used within games development.
2. Enable learners to be flexible enough in the evaluation of different approaches to solving problems using computer systems, within a constantly changing professional environment.
3. Develop an appreciation of professional, moral and ethical issues involved and a sensitivity to changes in computing and information technology.
4. Equip learners with the knowledge and skills, necessary to become a productive member of a software development team.
5. Give learners a range of technical competencies and transferable skills, including the attributes of a self-motivated lifelong learner, which can be applied to higher level awards, such as taught or research Masters.

#### Programme Learning Outcomes

##### Knowledge and Understanding (K)

On successful completion of the programme you will be able to:

ID	Learning Outcome
K1	Describe the software engineering practices employed within games development.
K2	Appreciate the techniques employed within computer game design and development.
K3	Explain the mathematical principles that underpin computer-based games.
K4	Demonstrate knowledge of the hardware on which games systems run
K5	Appreciate the marketing, legal and social factors that impact on games development.

##### Analysis and Criticality (C)

On successful completion of the programme you will be able to:

ID	Learning Outcome
C1	Select appropriate methodologies and tools for the construction of games.
C2	Solve software related problems in a logical and analytical manner.
C3	Make informed design decisions and produce innovative plans, approaches and solutions to software issues.
C4	Critically evaluate the technical and human features of game systems.
C5	Appraise new and emerging technologies in terms of their suitability for particular software development purposes.

### Application and Practice (P)

On successful completion of the programme you will be able to:

ID	Learning Outcome
P1	Create computer games using industry standard tools.
P2	Employ analytical techniques and design tools in the development of software artefacts.
P3	Apply sound programming principles to the construction and maintenance of software deployed on multiple platforms & processors, using appropriate programming paradigms and languages.
P4	Manipulate game content through the use of tools and/or code.
P5	Use commercial tools to create basic game art.

### Transferable skills and other attributes (T)

On successful completion of the programme you will be able to:

ID	Learning Outcome
T1	Employ information-retrieval skills.
T2	Demonstrate numeracy and literacy in both understanding and presenting cases involving a quantitative and qualitative dimension.
T3	Work as a member of a development team, recognising the different roles within a team and different ways of organising teams.
T4	Manage one's own learning and development including time management and organisational skills.
T5	Appreciate the need for continuing professional development in recognition of the need for lifelong learning.

### Graduate Attributes

The BNU Graduate Attributes of: Knowledge and its application; Creativity; Social and ethical awareness and responsibility; and Leadership and self-development focus on the development of innovative leaders in professional and creative capacities, who are equipped to operate in the 21st Century labour market and make a positive impact as global citizens.

Whilst on the course you will not only acquire the knowledge and practical expertise to create software for computer games but also develop your soft skills of communication, teamwork and problem solving (K1, K3, K4, P1, P2, P3, P4, P5, C2, T2, T3). The course

mirrors industrial practices from the initial pitch of your conceptual idea for a game, to the selection and management of a development team (K2, K5, C4). You will be exposed to a variety of methodologies, techniques and tools used within the sector and through critical appraisal be able to select the most appropriate for a given brief (C1). Your research and self-learning skills will be nurtured, to ensure you are prepared for a role within this dynamic, cutting edge industry (C3, C5, T1, T4, T5).

#### 4. Entry Requirements

The University's [general entry requirements](#) will apply for admission to a BSc (Hons) Degree programme. For this course, you must also hold both GCSE English Language and GCSE Maths at Grade C/4 or above, or equivalent qualifications.

A typical offer for entry to the programme would be a UCAS tariff score of 104 – 128, with UCAS points being obtained through qualifications such as A Levels, BTECs and Access to Higher Education courses in appropriate subjects.

Where a candidate does not fully meet the defined entry requirements, they will be further assessed according to their previous study, professional and/or vocational experiences. An interview may be necessary in such cases.

The [accreditation of prior learning](#) (APL) process may be utilised to determine if any exemptions from studying modules, or direct entry to a higher level of the programme, are appropriate.

Applicants who do not satisfy the conditions to join the 3-year version of the Degree programme will be considered for the extended 4-year Degree including a Foundation Year.

## 5. Programme Structure

Programmes are structured in stages. The modules will be delivered using a 30-week calendar comprised of three 10-week teaching blocks ('term') per.

Modules are set at a specific academic level and listed as either core (compulsory) or optional, being normally 20-credits. The level indicates the relative academic difficulty which will increase through the programme. Passing modules will reward you with academic credit. The amount of credits will depend on the complexity of the module and the level of effort required, which is measured in 'notional learning hours'. Also, of note is that 40-credits (20 at each of level 4 and 5) are delivered as Opportunity modules.

Our [Academic Advice webpages](#) provide more information on the structure of taught awards offered by the University.

*Please note: Not all option modules will necessarily be offered in any one year. Other option modules may also be introduced at a later stage enabling the programme to respond to sector developments.*

Pathway 1 or stand-alone course **[add further tables for each additional pathway]**

Level	Modules (Code, Title and Credits)	Exit Awards
Foundation Year <sup>1</sup>	<p><b>Core modules:</b>  <b>FY026 Preparing for Success Knowledge and Creativity</b>  <b>FY027 Preparing for Success Self-development and Responsibility</b>  <b>FY028 Inquiry and Research Skills</b>  <b>FY006 Digital Media</b>  <b>FY007 Computing Essentials</b></p> <p><b>Option modules:</b>                      No option modules are available at this level.</p>	<b>N/A.</b> No credit is awarded at this Level.
Level 4	<p><b>Core modules:</b>  <b>COM4008 Programming Concepts (20)</b>  <b>COM4009 Computer Architecture (20)</b>  <b>COM4005 Level Design (20)</b>  <b>Maths for Games (20)</b>  <b>COM4006 Game Design (20)</b></p>	<b>Certificate of Higher Education,</b> awarded on achievement of 120 credits at Level 4

<sup>1</sup> Modules on the Foundation Year only apply to learners who are enrolled on the "with Foundation Year" programme.

	<p><b><u>Opportunity modules:</u></b>  <b>Opportunity4 One (10 credits)</b>  <b>Opportunity4 Two (10 credits)</b>                  You must choose 2 x 10 credit Level 4 Opportunity modules from the Opportunity module catalogue <a href="http://www.bnu.ac.uk/opmodules">www.bnu.ac.uk/opmodules</a></p>	
Level 5	<p><b><u>Core modules:</u></b>  <b>Graphical Programming (20)</b>  <b>Object Oriented Analysis and Design (20)</b>  <b>Object Oriented Programming (20)</b>  <b>Project (20)</b>  <b><u>Option modules (choose 20 credits):</u></b>  <b>COM5019 Agile Project Management (20)</b>  <b>3D Asset Design (20)</b>  <b>Virtual Environments (20)</b></p> <p><b><u>Opportunity modules:</u></b>  <b>Opportunity (10 credits)</b>  <b>Opportunity (10 credits)</b></p> <p>In addition, you must choose 2 x 10 credit Level 5 Opportunity modules from the Opportunity module catalogue <a href="http://www.bnu.ac.uk/opmodules">www.bnu.ac.uk/opmodules</a></p>	<p><b>Diploma of Higher Education</b>, awarded on achievement of 240 credits, including a minimum of 120 credits at Level 5</p>
Level 6	<p><b><u>Core modules:</u></b>  <b>Advanced Programming (20)</b>  <b>AI for Games (20)</b></p> <p><b><u>(Core) Projects</u></b>  <b>Project (40)</b>  <b>Advanced Team Project (20)</b></p> <p><b><u>Option modules:</u></b>  <b>Game Engine Development (20)</b>  <b>Design Patterns (20)</b>  <b>Critical Systems (20)</b>  <b>Software Testing and QA (20)</b></p>	<p><b>Ordinary Degree</b>, awarded on achievement of 300 credits, including 60 credits at Level 6 and 120 credits at each of Levels 4 and 5</p> <p><b>Honours Degree</b>, awarded on achievement of 360 credits, including 120 credits at each of Levels, 4, 5 and 6</p>

	<b>Physics Engine Programmer (20)</b>	
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Please note: Not all option modules will necessarily be offered in any one year. Other option modules may also be introduced at a later stage enabling the programme to respond to changes in the subject area.

## 6. Learning, Teaching and Assessment

### Learning and teaching

Teaching and learning styles in computing increasingly emphasise capability, competency and performance. They can reflect traditional workplace environments – placements and live projects with clients - as well as newer approaches like online evaluations, role-playing scenarios and gig-economy/commissioned work. Practical coursework, both individual and in group, features heavily.

Therefore, more focus has now been given to help learners better control their own learner journeys, giving them the tools and techniques to enable them to self-regulate and to optimise their personal performance: self-reflection, performance monitoring, evaluation and feedback within learning to support a more personalised journey. Our teaching and learning approaches also aim to imbue the ability to work independently.

Hence, our programme provides opportunities for applied learning in authentic or simulated work contexts. Working in teams on bigger projects simulates real-world environments and exposes learners to complexity. Ideally, projects can collaborate with industrial partners or research groups, enhancing learning and self-regulation and can expose learners to legal or ethical issues.

Modules on this programme will be taught in line with best practice across the university and in the sector. A variety of approaches, and good use of the latest technology, will be blended together to engage learners in learning in class and beyond, and to encourage full learner participation. Meanwhile, the Course Team will strive to ensure that all modules embrace current industrial practice wherever possible. The teaching and learning strategies employed throughout the course are those judged to be the most appropriate for each module at each stage and level of the course. The strategies have been designed to ensure that there is progression from formal teaching through to learner centred independent learning as the learner progresses through the levels of the course(s).

A range of teaching methods will be used including:

#### Lectures

This is the most formal teaching strategy employed in teaching the modules. It is generally used to deliver a body of theoretical information to a large group of learners and is most effective when followed up by a seminar or tutorial session to consolidate learning.

The lecture format may be supported by online material, web or library references which serve to reinforce and expand the audio-visual information presented. In addition, staff will make appropriate use of the Virtual Learning Environment (Blackboard) facilities. This should enable lecturers to enhance the traditional communication and learning mediums, as well as making material available to learners at home and university.

#### Tutorials / Practical Sessions

Often in smaller groups, tutorials are guided learning sessions, which can either support a formal lecture by learners working through tutorial sheets with the help of a lecturer or by learners working through practical exercises in a computing room.

#### Seminars



These can vary from large group seminars, which provide an opportunity for the learner-led formal debate of topic areas, to 'impromptu' discussion sessions with smaller groups, which may, for example, follow the viewing of a video.

Other techniques such as industrial visits, guest lectures and computer aided learning tools will be used where appropriate. This variety of techniques is aimed at stimulating learner learning. The teaching and learning strategies for individual modules are detailed in the relevant module proforma.

## Assessment

The assessment of our Games/Computing courses includes varied methods that are accessible by design for our learners. Assessments are, where possible, authentic and tied to real-world contexts and constraints, allowing learners to practically demonstrate the skills they have developed.

We have aimed to incorporate, where appropriate, the use of capstone activities, when concluding the session. This brings together knowledge and practical and analytical skills that learners have developed throughout the course. This may take the form of a traditional project or end-point assessment, but other formats can be appropriate.

Where individual learners are formally registered as requiring special adjustments for assessment, any arrangements and adaptations will be appropriately implemented in accordance with University guidance and policy. The procedures used for assessment cover the subject knowledge, abilities and skills developed through the degree course.

Therefore, a variety of assessment vehicles will be used as appropriate to the module, including assignments carried out in the learner's own time, in-class assignment, workshops, presentations and formal examination. The form of assessment has been chosen to motivate learners to achieve their best and create learning activities for the learners. The assessment vehicles for individual modules are detailed in the module descriptor.

Assessments will be appropriate to the task, achievable, motivating and vocationally focussed and will form a constructive part of the learning process.

Assessments will develop general transferable skills as well as academic skills.

Assessments will provide enough opportunity for the best learners to exhibit a level of innovation and creativity associated with excellence.

During the Foundation Year, learners will be exposed to a variety of summative and formative assessments whilst developing the academic skills to be a successful learner at university; course content and Learning Outcomes strongly relate to learners developing their knowledge and understanding of the subjects being studied and assessed.

Level 4 assessments will be primarily formative and will encourage the development of appropriate academic practice and concepts. The emphasis will be on frequent small-scale assessments wherever possible with a balance between formative and summative assessment.

Level 5 assessments will be more demanding, with the emphasis still on development of knowledge, skills, and concepts but now encouraging learning at greater depth, emphasising the fundamental principles. There will be a shift towards summative assessment.

Level 6 assessments are designed to allow learners to demonstrate their knowledge and skills so that they have become effective, independent learners. The emphasis is on summative assessment.

#### Advice, Feedback and Collaborative Learning

Assessment is an integral part of the education process, promoting learner learning by providing a focus for consolidating, applying and demonstrating understanding of the subject matter. The listed summative assessment regime essentially measures and grades learner development and achievement in relation to the intended Learning Outcomes. It also generates feedback information for learners about the strengths and weaknesses in their work, with tutors affirming what learners have done well whilst giving constructive and encouraging advice about areas requiring reflection and further improvement.

In fact, tutor feedback on formal assessment elements is just part of the ongoing dialogue with learners about their learning and personal development. Tutors will offer learners frequent opportunities to discuss their progress, where their work can be examined and reviewed, including the evaluation of plans and drafts for assignments prior to submission. This supportive engagement helps to clarify what “good performance” is, with reference to published criteria and expected standards; it also encourages, motivates and directs learners towards achieving their full potential.

Different strategies for timely advice and effective feedback will be adopted, according to what is fit-for-purpose for learners and modules. For instance: good or bad examples of previous learner work not only give learners clues about appropriate content, structure and presentation of assignments but also highlight common mistakes and omissions; mock exam papers and formative tests; work portfolios represent a collection of structured activities completed over a period of time with regular interactions with the tutor; individual and group tutorials; practising presentations with other learners can invite peer review; model answers can supplement and extend the feedback given on assessments; group discussions can promote reflection and collaborative learning; audio and video recordings can be used at various points to explain topics and to give guidance; other technology (such as the VLE) can facilitate information sharing, and support learning and collaboration.

#### Contact Hours

One unit of credit is broadly equivalent to ten notional learning hours. Full time undergraduate learners will normally study 120 credits per year on their programme (1200 notional learning hours), noting that a Foundation Year is not formally described in terms of credits. The combination of scheduled teaching (contact) activities, guided independent study and any opportunities for placement or work-based learning, will be defined at Module level.

## 7. Programme Regulations

This programme will be subject to the following assessment regulations:

- Academic Assessment Regulations

## 8. Support for learners

The following systems are in place to support you to be successful with your studies:

- The appointment of a personal tutor to support you through your programme
- A programme handbook and induction at the beginning of your studies
- Library resources, include access to books, journals and databases - many of which are available in electronic format – and support from trained library staff
- Access to Blackboard, our Virtual Learning Environment (VLE), which is accessible via PC, laptop, tablet or mobile device
- Access to the MyBNU portal where you can access all University systems, information and news, record your attendance at sessions, and access your personalised timetable
- Academic Registry staff providing general guidance on University regulations, exams, and other aspects of learner and course administration
- Central learner services, including teams supporting academic skills development, career success, learner finance, accommodation, chaplaincy, disability and counselling
- Support from the Bucks Learners' Union, including the Learners' Union Advice Centre which offers free and confidential advice on University processes.

## 9. Programme monitoring and review

BNU has several ways for monitoring and reviewing the quality of learning and teaching on your programme. You will be able to comment on the content of their programme via the following feedback mechanisms:

- Formal feedback questionnaires and anonymous module 'check-ins'
- Participation in the National Learner Survey (NSS)
- Programme Committees, via appointed learner representatives
- Informal feedback to your programme leader

Quality and standards on each programme are assured via the following mechanisms:

- An initial event to approve the programme for delivery
- An annual report submitted by the External Examiner following a process of external moderation of work submitted for assessment
- The Annual Monitoring process, which is overseen by the University's Education Committee
- Periodic Subject Review events held every five years
- Other sector compliance and review mechanisms

## 10. Internal and external reference points

Design and development of this programme has been informed by the following internal and external reference points:

- The Framework for Higher Education Qualifications (FHEQ)
- The QAA Subject Benchmark Statement for **Computing – Mar 2022** – see detailed mapping below
- The BNU Qualifications and Credit Framework
- The BNU Grading Descriptors
- The University Strategy
- International Game Developers Association (IGDA) Curriculum Framework (2008).

Mapping of Subject Benchmark Statement and any relevant Apprenticeship Standard to Programme Learning Outcomes

Subject Benchmark Statement / Apprenticeship Standard:	Knowledge and understanding (K)					Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)				
	K1	K2	K3	K4	K5	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5
<b>Subject knowledge understanding and skills/</b> Demonstrate an exceptional understanding of the main body of knowledge for their subject and be able to exercise insightful and critical judgement in the use of that knowledge. Be creative and innovative in the application of the principles covered in the curriculum, and be able to go beyond what has been taught in classes	X	X	X	X	X															
<b>Intellectual skills/</b> Critically analyse and apply a wide range of concepts, principles and practices of the subject in the context of						X	X	X	X	X										

open scenarios, showing refined judgement and adaptability in the selection and use of tools and techniques																				
<b>Computational problem-solving/</b> Be able to demonstrate sophisticated judgement, critical thinking, research design, and well-developed problem-solving skills with a high degree of autonomy, and to create highly effective computational artefacts across complex and unpredictable circumstances						X	X	X	X	X										
<b>Practical skills across the computing lifecycle/</b> Demonstrate the ability to undertake problem identification and analysis to appropriately design, develop, test, integrate or deploy a highly complex computing system and any associated artefacts; deeply understand the relationship between											X	X	X	X	X					

stages and be able to demonstrate related sophisticated problem-solving and evidence-informed evaluative skills																				
<b>Interpersonal and team working Skills/</b> Demonstrate the ability to work in a highly proactive and accomplished manner, including as a leading member of a team, making excellent use of tools and techniques to proficiently communicate, manage tasks and plan projects with minimum guidance															X	X	X	X	X	
<b>Professional practice covering Equality, diversity and inclusion, Sustainability and Entrepreneurship and enterprise education/</b> Identify best-of-kind practices and effect highly principled solutions within a professional, legal and ethical framework to consistently address a wide breadth of relevant considerations – including data management and				X															X	

use, security, equality, diversity and inclusion (EDI) and sustainability – in the work that they undertake																				
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### Mapping of Programme Learning Outcomes to Modules

Programme Learning Outcome	Knowledge and understanding (K)					Analysis and Criticality (C)					Application and Practice (P)					Transferable skills and other attributes (T)						
	Module Code (Core)	K1	K2	K3	K4	K5	C1	C2	C3	C4	C5	P1	P2	P3	P4	P5	T1	T2	T3	T4	T5	
<b>Level 4</b>																						
Programming	X	X					X							X								
Computer Architecture				X																		
Game Design		X			X	X			X								X	X				
Level Design		X				X					X			X	X				X			
Maths for Games			X															X				
<b>Level 5</b>																						
Graphical Programming	X	X	X				X	X						X	X							
Object Oriented Analysis and Design	X	X					X	X				X										
Object Oriented Programming	X	X					X	X						X								
Project		X			X	X	X	X	X	X	X	X	X	X	X				X	X		
<b>Level 6</b>																						
Advanced Programming	X	X					X	X						X								
Project	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			X	X
AI for Games	X	X	X				X	X						X	X							
Advanced Team Project	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X			



