

# Programme Specification

## SEN-GD-2022: Software Engineering (Game Development)

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LU Foundation Degree in Science awarded by Lancaster University (FHEQ Level 5)

LU Bachelor of Science with Honours (Top-up) awarded by Lancaster University (FHEQ Level 6)

Programme Status: Approved | Version: 1

## Introduction

This programme specification provides a summary of the main features of the Software Engineering (Game Development) programme and includes the learning outcomes that you as a student are expected to have achieved on successful completion of the programme.

Further detailed information related to this programme and the College can be found in the following resources:

- Programme Handbook
- B&FC Admissions Policy
- Work based and placement learning handbook (for foundation degrees)
- Student guide to assessment and feedback

## Key Programme Information

<b>Programme Code</b>	SEN-GD-2022
<b>Programme Title</b>	Software Engineering (Game Development)
<b>Teaching Institution</b>	Blackpool and The Fylde College
<b>Professional, Statutory and Regulatory Body (PSRB) Accreditation</b>	None
<b>UCAS Code</b>	TBC
<b>Language of Study</b>	English
<b>Version</b>	1
<b>Approval Status</b>	Approved
<b>Approval Date</b>	13 July 2022
<b>JACS Code</b>	I620: Computer Games Design (I620)
<b>Programme Leader</b>	Lee Holroyd

## Programme Awards

<b>Award</b>	<b>Award Type</b>	<b>Level</b>	<b>Awarding Body</b>
LU Foundation Degree in Science	Foundation Degree (240 credits)	Level 5	Lancaster University
LU Bachelor of Science with Honours (Top-up)	Honours Top-up Degree (120 credits)	Level 6	Lancaster University

## Programme Overview

### FdSc. & BSc. Software Engineering (Game Development)

Blackpool and the Fylde College remains committed to providing a highly responsive curriculum that is employment and future-focused and will enable you to develop the essential knowledge and skills that will prepare you for future success in work and life.

The UK Games industry forms a major part of a global industry that is gaining in importance and prominence. Sales of the most popular games are breaking records and the UK Governments' recognition of the game industry's contribution to GDP has resulted in tax relief and other initiatives to encourage growth.

The industry and its workforce have a specific skill set that needs to be developed as it faces future challenges. In addition to the technical skills needed for a specific role, games companies are looking for employees with the ability to be creative, fashion innovative ideas, and display

problem solving skills all of which are fundamental to the learning experience of our Foundation Degrees.

The FdSc. and BSc. Software Engineering (Game Development) programme intends to develop the technical and professional skills of our students to meet the current expectations of industry, these include:

- Ability to write programming code in various languages with a core focus on C++ and other widely used, modern languages.
- Understanding and utilisation of software engineering core concepts including programming, databases, maths, design, implementation, and testing.
- Knowledge of different delivery platforms and technologies
- Working to development methodologies, presenting demos to the public, building a portfolio, implementing industry practices
- Understanding gameplay varieties, including single player and multi-player, simulation, role play and online multiplayer.
- Possession of transferable skills including the ability to work independently and as part of a team, the ability to take instruction and work to deadlines, tenacity, and patience.
- Creativity and problem-solving skills

## Admission Criteria

### FdSc. Software Engineering (Game Development)

A minimum of 96 UCAS points (excluding Functional Skills) in an appropriate discipline:

- MMM from Extended Diploma or DD from Diploma in any level 3 Computing/IT course
- We will strongly encourage and support those who do not hold GCSE Maths/English at grade C/4, or equivalent qualification, to pursue a Maths/English qualification alongside the main programme.

Applicants for whom English is not their first language are expected to achieve a minimum 6.0 overall with at least 5.5 in each component.

Applicants who are able to demonstrate relevant work/life skills or knowledge will also be considered on an individual basis.

### BSc. Software Engineering (Game Development)

Only applicants that have successfully completed the Foundation Degree in Software Engineering (Game Development), validated by Lancaster University, with Blackpool and The Fylde College are eligible to apply to this course.

## Career Options and Progression Opportunities

Career opportunities that graduate of this programme could successfully pursue include:

### Common Career Options.

- Software Engineer
- Game/System Developer
- Interface / UX Programmer
- Programmer (C++ / C# / Other Common Languages)
- Information Systems Developer (.NET / SQL)
- AGILE Software Development
- Database Developer
- Cross-Platform Developer
- Data Analyst

## Game Development Specific Career Options

- Design and Modelling Artist
- Level Designer
- Mechanics Designer/Developer
- Tools Developer
- Engine Programmer

There are also opportunities for becoming freelance or creating a start-up and these are explored throughout the programme.

## Programme Aims

Foundation degree:

- o To provide students with a range of software engineering and game development cognitive abilities and skills.
- o To develop skills in software engineering and game development; with regard to design, implementation and testing; thus, enabling students to formulate decisions and develop software and games.
- o To develop a range of transferable skills, techniques and personal qualities that are essential for successful performance in Higher Education and in working life.
- o To provide a platform for further undergraduate study.

Honours top-up degree:

- o To further develop knowledge and skills to enable students to formulate managerial and strategic decisions in the development of software and games.
- o To provide the opportunity to accurately deploy established techniques of critical analysis and enquiry in software engineering and game development.
- o To develop conceptual understanding that enables students to devise, develop and sustain arguments, using ideas and techniques from research and the wider subject discipline.
- o To enable students to manage their own learning and to make use of scholarly reviews and primary sources.

## Programme Learning Outcomes

### Level 5

Upon successful completion of this level, students will be able to:

1. Identify, explain and discuss the technical and theoretical disciplines and applications involved in the design, development and testing of software and games
2. Analyse the social, legal, ethical and sustainability aspects of software and game workflows, considering design, development, maintenance and testing
3. Apply mathematical principles required to design, development and testing of software and games.
4. Analyse, design, develop, and test, software and games, producing appropriate documentation, drawing on supporting evidence, and critically analyse, select and apply suitable tools and techniques with consideration of important relationships between development stages.
5. Communicate information in a variety of formats to a range of audiences using a range of media that evidences both academic and digital literacy skills.

6. Work effectively as an individual and as a member of a team undertaking critical self-appraisal to support continued professional standards and development, employability, lifelong learning, and transferrable skills
7. Integrate and apply essential concepts, principles and practice in the design and development of software and games, producing well-constructed programs to solve well-specified problems.

#### **Level 6**

Upon successful completion of this level, students will be able to:

8. Generate ideas, concepts, proposals, solutions or arguments independently and/or collaboratively exercising critical judgement to software and game development practices, techniques, applications and transferrable skills.
9. Employ both convergent and divergent thinking in the processes of observation, investigation, speculative enquiry and visualisation to formulate effective solutions to problems including selection of tools and techniques.
10. Critically analyse and evaluate the professional, economic, social, sustainable, moral, and ethical issues involved in the analysis, design, development and maintenance of software and games, and apply appropriate professional, ethical and legal practices
11. Undertake critical self-appraisal and manage own learning and development identifying the need for continuing professional development and lifelong learning.
12. Produce work involving critical problem identification, analysis, design and development of high quality software and games based on evidence that explains the relationship between these features, the need for quality and applying problem-solving and evaluation skills.

## Programme Structure

Module	Level	Credits	%	Category	Description	Length/Word Count	Grading Method
<b>Stage 1</b>							
B4SCSEN: Introduction to Academic Study (Mandatory)	4	20	60%	Coursework: Other	Written piece and reflection	2000	Letter Grade
			40%	Practical: Other	Case study / poster presentation	1500	Letter Grade
SEN402: Introduction to Programming (Mandatory)	4	20	50%	Coursework: Report	Report with small application development.	2000	Letter Grade
			50%	Practical: Exercise	Programming application project and report.	2000	Letter Grade
SEN403: Mathematical Concepts in Programming (Mandatory)	4	20	60%	Coursework: Report	n/a	2500	Letter Grade
			40%	Practical: Other	Application of statistical tools / reflection.	1500	Letter Grade
SEN404: Software Engineering Practices (Mandatory)	4	20	50%	Coursework: Report	n/a	2000	Letter Grade
			50%	Coursework: Report	Report with some diagrammatical elements.	2000	Letter Grade
SEN405: Database Concepts and Programming (Mandatory)	4	20	40%	Coursework: Report	n/a	1500	Letter Grade
			60%	Practical: Other	Practical database development plus short report.	2500	Letter Grade
SEN406: Algorithms and Data Structures (Mandatory)	4	20	50%	Coursework: Report	n/a	2000	Letter Grade
			50%	Coursework: Report	n/a	2000	Letter Grade
<b>Stage 2</b>							
B5SOE-32: Work Based Learning (Mandatory)	5	20	70%	Coursework: Report	Project	3000	Letter Grade
			30%	Practical: Presentation	Poster - Critical Reflection & Target Setting	2000	Letter Grade
SEN506: Cross Platform Programming (Mandatory)	5	20	50%	Coursework: Report	n/a	2000	Letter Grade
			50%	Coursework: Report	n/a	2000	Letter Grade
SEN512: Game Engine Development (Mandatory)	5	20	40%	Coursework: Report	Report with two small developments.	1500	Letter Grade
			60%	Practical: Other	Small Report / Development / Presentation	2500	Letter Grade
SEN513: Graphics Programming (Mandatory)	5	20	50%	Coursework: Report	n/a	2000	Letter Grade

SEN513: Graphics Programming (Mandatory)	5	20	50%	Practical: Other	Small Development / Reflection	2000	Letter Grade
SEN514: Applied Game Mechanics (Mandatory)	5	20	50%	Coursework: Report	Report with small paper-based development.	2000	Letter Grade
			50%	Coursework: Report	n/a	2000	Letter Grade
SEN515: 3D Modelling and Environments (Mandatory)	5	20	70%	Coursework: Report	Report with 3D model development and small video.	3000	Letter Grade
			30%	Coursework: Report	n/a	1000	Letter Grade
<b>Stage 3</b>							
SEN601: Dissertation (Mandatory)	6	40	100%	Coursework: Dissertation	n/a	8000	Letter Grade
SEN604: AI and Machine Learning (Mandatory)	6	20	60%	Coursework: Report	n/a	2000	Letter Grade
			40%	Coursework: Report	Report with development.	2000	Letter Grade
SEN605: Innovation and Entrepreneurial Practice (Mandatory)	6	20	40%	Coursework: Report	Investigation into entrepreneurial traits and managerial theories	1000	Letter Grade
			60%	Coursework: Report	Development of business plan	3000	Letter Grade
SEN613: Advanced Game Programming (Mandatory)	6	20	50%	Coursework: Report	n/a	2000	Letter Grade
			50%	Coursework: Report	n/a	2000	Letter Grade
SEN622: Human Computer Interaction (Mandatory)	6	20	100%	Coursework: Report	n/a	4000	Letter Grade

## Study Workload

### FdSc. & BSc. Software Engineering (Game Development) / FdSc. & BSc. Software Engineering (Systems Development)

Timetabling for our programmes in computing is done to ensure that other commitments can be met, with most of our full-time HE programmes requiring one day and one evening of attendance alongside independent study. Where there are multiple groups, priority choice will be given to those with outside commitments, for example employment and childcare. There are many opportunities to work on assessments provided within our timetabled sessions however there will be formative and summative assessments set where you will be expected to complete work by a set deadline. Spending regular time on these activities will make this more manageable hence 'little and often' is an approach we take. Most summative deadlines are set for Tuesday at Noon (12pm). Expected volume of independent study is on average 152 hours per module, which equates to 9.5 hours per week. Often students find that this is a high expectation, however through engagement with our formative assessments and direction, building up work overtime and improving skills, students find the workload manageable and succeed from a diverse range of backgrounds.

## Programme Delivery: Learning and Teaching

### Scheduled Learning

Scheduled time relates to the time you spend in directed study with the guidance and support of our academic tutors. Scheduled learning can take a variety of forms and will vary from one course to the next, but may include lectures, seminars, tutorials, project supervision, demonstrations, studio or workshop time, and external visits.

### Independent Study

Higher education courses rely on students undertaking work outside of formal, scheduled sessions and this is generally categorised as independent study. Independent study might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks and revision.

### Placement

Many of the degree programmes at B&FC incorporate opportunities for work placements to provide you with the opportunity to link your studies to relevant professional practice in a real work environment. Our programme teams are able to offer support in securing an appropriate work placement where it forms part of your programme and will work closely with you during the placement to ensure that the opportunity allows you to develop personally, professionally and academically.

## Programme Delivery: Assessment

### FdSc. & BSc. Software Engineering (Game Development)

#### Coursework

Most modules are assessed via a combination of coursework and exams – the percentage weighting of each of these is outlined below. Coursework might range from written tasks and assignments to the collation of a portfolio of evidence based around a work placement, to producing group-based developments. Coursework differs from exams in that it is usually non-timed and carried out independently.

#### Exam

Exams are formal, timed written assessments, carried out in a controlled environment and overseen by one or more invigilators. They assess your grasp of the theory and underpinning knowledge related to your chosen career area. The opposite of practicals, they require you to set out your practical understanding within an academic context. Some modules have no exams – the exam/coursework ratio is outlined below.

#### Practical

Practical assessments identify your technical ability to apply theory to hands-on tasks in your chosen career area. They can be timed or non-timed and involve observation of your practical skills and competencies, either in a work-based environment or a dedicated College setting that closely resembles the workplace. Practical work-based assessments are supported and carried out by a trained assessor.



## **Programme Delivery: Work Based and Placement Learning**

### **FdSc. & BSc. Software Engineering (Game Development)**

During the latter stages of the foundation degree, you will need to complete 30 hours of related work-based activity. This will involve finding a suitable work placement, which we will encourage you to do yourself. If, for some reason, you are unable to find a placement, our Workplace Co-ordinator will arrange interviews with employers.

Your work-based activity also includes timetabled sessions, which will involve creating CVs, learning about professional guidelines and legislation, and exploring how to apply your new-found skills to the workplace. Alternatively, you could complete a work related project which will require you to follow a similar process however instead of going out onto a placement a live brief will allow you to gain a similar experience.

## **Programme Delivery: Graduate Skill Development**

Upon entering Higher Education and studying an undergraduate programme, there are particular skills, which you will be building that will aid your personal, professional, and academic growth. These attributes, which we term Graduate Skills, are outlined below with how they relate to this programme.

### **A commitment to lifelong learning and career development**

Developing your own personal and professional goals through a strong reflective PDP thread throughout the programme is of importance to each student. Within the curriculum, three clear modules chart this journey. In 'Introduction to Academic Studies', students build up reflective skills and consider the application of these in other modules. Secondly, in 'Work Based Learning' reflective logs are constructed related to how skills are applied in workplace settings or in meeting specific client needs. Finally, in the third year 'Dissertation' module, learners undertake a research and development project of their choosing related to the course of study. This reflective practice continues, and the project undertaken is encouraged to be related to the career paths students wish to pursue. Throughout the programme, tutorials (aligned with our Partners for Success framework) include one-to-one meetings with target setting and discussion of PDP as well as taught sessions on building CVs, professional networks, and transferrable workplace skills.

### **Collaborative teamwork and leadership skills**

Collaborative skills are emphasised when relating technical practice to industry contexts, for example, in many of the modules a scenario-based assessment approach allows relation to leadership and teamwork practices. The common level 4 module 'Software Engineering Practices' is a module in which students are assessed on assigning suitable roles and responsibilities to a programming team for a particular development project. This is within the context of software development and project management and ensures an analytical approach to the requirements for balancing team dynamics, strengths, and weaknesses as well as effective communication and working practices. Level 5 includes a module in each specialism which also uses assessed group work to develop a Game/System throughout the academic year.

### **Personal and intellectual autonomy**

There is a level of creative freedom given to you in assessment briefs so that you can approach problems from different perspectives and often encounter different hurdles, which you will learn from the experience of. An example of this is within the level 4 'Introduction to Programming' module learners will be given the opportunity to develop a project which is initially created as a group and developed individually through a creative assessment brief which rewards creativity

and exploration. This provides a structured degree of autonomy to promote the development of creative skills, self-management and problem-solving approaches. The showcase for intellectual autonomy is the 'Dissertation', where students choose a topic and with limited supervision undertake a significantly challenging research and development project. Part of the assessment includes self-management, reflection, and project management.

### **Ethical, social and professional understanding**

At level 4 the 'Introduction to Academic Studies' module begins the journey of ethical, social, and professional understanding, through a range of discussions on trending topics within the Software Engineering industries. This is backed up in the 'Software Practices' module looking at lifecycles, management and ethical consideration within the industry and working practices. Within Level 5 there is a focus on a work placement through 'Work Based Learning'. There is consideration of Disclosure & Barring Service (DBS) checks when going to work in certain employment areas. There is an additional large focus on ensuring all dissertation work carried out is ethical in the sense of a technical implementation which may also include user testing or other human participants or the primary researcher. With an outcome on the 'Dissertation' project being focused on the ethicality of the research to take place, which cannot proceed unless approved by the College's Ethical Approval Process.

### **Communication, information, and digital literacies**

The nature of the programme requires students to have strong digital literacy skills and the ability to effectively use several tools and techniques. Reflections are completed in several modules throughout the three years, with a focus on the processes undertaken and the personal aspects of development; these are recorded through digital means using a written report, a video, or a soundbite. The utilisation of a range of software is key here to consider the processes in different mediums. The use of management software such as Trello along with the utilisation of GitHub and Teams means an industry method of working is also promoted throughout the programmes.

### **Global citizenship**

Software Engineering as an industry is global and follows national and international standards from the way in which code is written to the use of collaboration in projects and development teams. More generally, programming lends itself to global collaboration and cross-cultural collaboration. Outsourcing of IT and development skills across the globe is enormous and has implications for competitiveness and western job prospects. However, key coordination of software projects and those closer to client liaison are often based in the West, so understanding the global picture can aid in students being more knowledgeable in their career development. The nature of software projects and their organisation has a heavy focus in the level 4 common module 'Software Practices'.

### **Research, scholarship, and enquiry skills**

Research, scholarship, and enquiry are at the heart of everything we do within education, this ranges from the promotion of articles and research to the utilisation of resources developed. The 'transferrable skills' thread which runs throughout the programme (Introduction to Academic studies, Work Based Learning modules and Dissertation) include both formative and summative assessment on the use of reliable and valid sources. Development of a critical approach to sources to assess reliability and validity (a vendors site could be biased about their products; a methodology could be flawed in a journal article; key terms could be misinterpreted or applied in a different context) features more heavily in delivery related to these modules but is reinforced throughout the programme. Alongside this, staff development is key to encourage and promote this scholarship with the majority of tutors on the programme completing Master's level qualifications and also working towards other qualifications such as PhD and technical qualifications.

## **Enterprise and entrepreneurial awareness and capabilities**

Software Engineers and developers can gain careers as contractors and consultants. In recognition of this, the development of entrepreneurial skills is emphasised throughout the programme, however, there is a module that focuses on entrepreneurship in-depth. This revalidation has updated this module to Innovation and Entrepreneurial Practice, rebranded which a focus on employment in a larger company and also the awareness of being an entrepreneur and the methods to set the career path in motion with links to the current growth of independent development companies in the UK. This module builds on links formed with other aspects discussed in 'Work Based Learning' and collaboration throughout the programmes.

### **Study Costs: Equipment Requirements**

#### **FdSc. & BSc. Software Engineering (Game Development)**

The equipment needed for this programme is accessible through the college and the Citrix platform (remote connection). It is advised that any study who undertakes this course has a PC/Laptop in which to complete modules however this is not a necessity if you can access the on-site resources regularly. There may be opportunities for field trips to conferences, exhibitions or for other interests. This is done so through negotiation as new venues / locations / trips must be Risk Assessed and approved. There is often room in the budget to subsidise costs so discounted contributions can be made yet this will depend on many factors, including entry fees / travel.

### **Study Costs: Additional Costs**

#### **FdSc. & BSc. Software Engineering (Game Development)**

Resources required to achieve the learning outcomes of the programme are available while working in college, with many resources available through remote services. However, we do recommend that you have access to a computer with internet connectivity for completing work outside college times and accessing these resources. You should also be aware that there may be additional costs to consider such as optional educational visits and photocopying/printing.

### **Related Courses**

#### **FdSc. & BSc. Software Engineering (Game Development)**

Other programmes offered by computing include the Software engineering (Game Development) which shares many core modules with this programme but focuses instead on Games rather than Systems. The Network Engineering programme includes specialist streams in Systems Administration and Cyber Security which embeds Cisco CCNA content, for Web and Multimedia, we offer the Web Technologies programme. The final programme we offer is the Computer Science and Digital technologies degree which covers a wider range of modules than a single specialism.

This programme provides opportunities for postgraduate study at other institutions; areas include Computer Science, Software Engineering, Game Development, Mobile Application Development. Our partners Lancaster University are very well respected in Computing and innovative technologies particular in the area of distributed systems and cyber security.