

Programme Specification

SOE-GD-2017: Software Engineering (Game Development)

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 the learning outcomes that you as a student might reasonably be expected to achieve and demonstrate 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 Student Handbook
- B&FC Admissions Policy
- Work based and placement learning handbook (for foundation degrees)
- Student guide to assessment and feedback

Key Programme Information

Programme Code	SOE-GD-2017
Programme Title	Software Engineering (Game Development)
Teaching Institution	Blackpool and The Fylde College
Professional, Statutory and Regulatory Body (PSRB) Accreditation	None
UCAS Code	TBC
Language of Study	English
Version	1
Approval Status	Approved
Approval Date	12 May 2017
JACS Code	Other: Other
Programme Leader	Dean Park

Programme Awards

Award	Award Type	Level	Awarding Body
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

If you love video games you and want to work in the industry then you will love this course. The FdSc. and BSc. Software Engineering (Game Development) programme is an exciting course providing many opportunities for you to develop with industry relevant tools, languages and techniques equipping you with the best opportunities to succeed in game development and other development roles. We are the first college in the UK to be accredited to Honours level by the British Computer Society and are continually updating our resources to remain at the cutting edge and industry focused, giving you the best opportunities to take advantage of continued growth in the games industry and increased demand for developer roles locally, nationally and internationally.

Key elements of the programme include:

- You will code in industry relevant languages including C++ and DirectX to build skills

- valuable to developers in learning by doing
- You will examine and apply skills to a range of different delivery platforms and technologies for example PC, PlayStation, and mobile channelling your love of games into viable playable products
- You will gain general software engineering skills including working with databases, networked applications, systems analysis, producing technical designs and working to established development methodologies and developing interfaces all of which increase the range of careers you can pursue both in and out of the games industry
- You will build a portfolio including 2D and 3D game demos, projects on licensed engines such as Unreal, database and network applications, Artificial Intelligence techniques and networked game demos, providing to employers evidence of your abilities and aptitude for key development roles
- You will work in team projects and individually, building collaborative and problem solving skills which will enhance value to future employers and develop yourself both personally and professionally
- You will analyse organisational structures in the games industry and development teams and build entrepreneurial skills so if you wish to set yourself up as an indie developer you will be well placed to do so and create your own opportunities

Admission Criteria

Entry requirements for the FdSc. Software Engineering (Game Development) are as follows:

A minimum of 64 UCAS points in an appropriate discipline (this is the equivalent of 160 UCAS point on tariffs prior to 2017 entry).

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

We strongly encourage and support any applicants who do not hold GCSE Maths / English at grade C, or equivalent qualification, to pursue a Maths / English qualification alongside the main programme.

Career Options and Progression Opportunities

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

- Software Engineer
- Interface / UX Programmer
- Programmer (C++ / C# / Java)
- Information Systems Developer (.NET / SQL)
- Junior Game Developer
- Tools / Utilities Programmer

There are also opportunities for becoming freelance or creating a start-up and these are explored throughout the programme, most prominently in 'Entrepreneurial Management and Project Control'.

Programme Aims

Aims FdSc:

- To provide students with a range of software engineering and game development cognitive abilities and skills including analysis of systems, software and code.
- To develop skills in software engineering and game development; including design,

implementation and testing; enabling students to formulate decisions and develop software and apps.

- To support collaborative teamwork and leadership skills through team-based development projects working to industry-standard practices.

- To support students in building a commitment to lifelong learning and career development through industry-focused scenarios, work placements, career focussed tutorials, and personal and professional development planning.

- To build students' communication, information and digital literacy skills using a range of assessment approaches in software engineering and game development.

Aims BSc (Hons):

- To further develop knowledge and skills to enable students to formulate managerial and strategic decisions in the development of software and games.

- To provide the opportunity to accurately deploy established techniques of critical analysis and enquiry in software engineering and game development.

- To develop conceptual understanding that enables students to devise, develop and sustain arguments, using ideas and techniques from research and the wider subject discipline.

- To enable students to manage their own learning and to make use of scholarly reviews and primary sources.

- To build students' ethical, social and professional understanding in software engineering and game development within a global context.

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. (1.3.1fdc) (6.3.i)
2. Analyse the social, legal and ethical aspects of design, development, testing and evaluation of software and games. (6.3.vi)
3. Apply mathematical principles required to design, development and testing of software and games. (6.3.ii)
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. (1.3.2fdc) (6.3.ii, 6.3.iii)
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. (1.3.5fdc) (6.3.v)
6. Work effectively as an individual and as a member of a team undertaking critical self-appraisal to support continued professional development, employability, lifelong learning and transferable skills. (1.3.3fdc, 1.3.4fdc) (6.3.v)
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. (1.3.1fdc, 1.3.2fdc) (6.3.ii, 6.3.iv)

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. (6.5.i, 6.5.v)
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. (6.5.ii)
10. Critically analyse and evaluate the professional, economic, social, environmental, moral and ethical issues involved in the analysis, design and development of software and games, and apply appropriate professional, ethical and legal practices. (6.5.vi)
11. Undertake critical self-appraisal and manage own learning and development identifying the need for continuing professional development and lifelong learning. (6.5.vi)
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. (6.5.iii, 6.5.iv)

Programme Structure

Module	Level	Credits	%	Category	Description	Length/Word Count	Grading Method
Stage 1							
B4SCSOE-GD: Introduction to Academic Study (Mandatory)	4	20	60%	Coursework: Other	Written piece and reflection	2000	Letter Grade
			40%	Practical: Other	Case study, analysis, interpretation (1500 words) and poster presentation (15 minutes)	15	Letter Grade
SOE401: Introduction to Programming (Mandatory)	4	20	50%	Coursework: Other	Prototype development using a high-level language	2000	Letter Grade
			50%	Coursework: Other	Operating systems, computer architectures and use of low-level language	2000	Letter Grade
SOE402: Networking Concepts and Programming (Mandatory)	4	20	40%	Coursework: Other	Specifying suitable network deployments	2000	Letter Grade
			60%	Coursework: Other	Prototyping client / server software and utilising sockets	2500	Letter Grade
SOE403: Database Concepts and Programming (Mandatory)	4	20	30%	Coursework: Other	Relational Database design	1000	Letter Grade
			40%	Coursework: Other	Relational Database implementation and reflective report	2000	Letter Grade
			30%	Coursework: Other	XML implementation and reflective report	1000	Letter Grade
SOE411: Maths and Physics for Gameplay (Mandatory)	4	20	40%	Coursework: Other	Use of physics in game mechanics; vectors, trigonometry and matrices	1500	Percentage Grade
			30%	Coursework: Other	Use of probability, randomness and levelling systems	1000	Percentage Grade
			30%	Written Exam: Formal Written Examination	Statistical Analysis	90	Percentage Grade
SOE412: 2D Games Programming (Mandatory)	4	20	35%	Coursework: Other	Investigation of rendering / audio APIs	1500	Letter Grade
			65%	Coursework: Other	Development of 2D Game Demo	2500	Letter Grade

Stage 2							
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
SOE501: Software Engineering and Technical Design Documentation (Mandatory)	5	20	30%	Coursework: Other	Investigation of systems analysis and development methodologies	1500	Letter Grade
			40%	Coursework: Other	Construction of full technical design documentation to a given specification	2000	Letter Grade
			30%	Written Exam: Formal Written Examination	Critical analysis of development case studies	90	Percentage Grade
SOE511: 3D Games Programming (Mandatory)	5	40	20%	Coursework: Other	3D Game Demo Technical Design and use of 3D Calculations	2000	Letter Grade
			60%	Coursework: Other	3D Game Demo construction based on custom engine development	4000	Letter Grade
			20%	Coursework: Other	Testing, evaluation and reflection of 3D game development	2000	Letter Grade
SOE512: Games Engines and Modification (Mandatory)	5	20	40%	Coursework: Other	Comparison, contrast and evaluation of contemporary licensed game engines	1500	Letter Grade
			60%	Coursework: Other	Collaborative development using industry methodologies and licensed game engines	2500	Letter Grade
			-	Practical: Software Program	Demonstrating completed game demo	60	Pass/Fail
SOE513: 3D Rigging and Animation (Mandatory)	5	20	70%	Coursework: Other	3D modelling, rigging and animation – character and environment, evaluations and reflections	3000	Letter Grade
			30%	Coursework: Other	Comparison, contrast and evaluation of contemporary 3D modelling tools and techniques.	1500	Letter Grade

Stage 3							
CMP601: Dissertation (Mandatory)	6	40	100%	Coursework: Dissertation	n/a	8000	Letter Grade
CMP602: Human Computer Interaction (Mandatory)	6	20	60%	Coursework: Other	Iterative interface designs applying core HCI concepts to given scenarios	3500	Letter Grade
			40%	Written Exam: Formal Written Examination	Evaluation and application of HCI concepts to given scenarios	120	Letter Grade
CMP604: Entrepreneurial Management and Project Control (Mandatory)	6	20	20%	Coursework: Other	Investigation into entrepreneurial traits and managerial theories	1000	Letter Grade
			40%	Coursework: Other	Development of business plan	3000	Letter Grade
			40%	Written Exam: Formal Written Examination	Case study analysis and critical evaluation	90	Percentage Grade
SOE611: Advanced Games Programming (Mandatory)	6	20	30%	Coursework: Other	Game development prototype on non-PC hardware	1500	Letter Grade
			70%	Coursework: Other	Advanced 3D features portfolio; Reflection, evaluation and discussion of advanced game concepts	3000	Letter Grade
SOE612: Online Multiplayer Gaming (Mandatory)	6	20	40%	Coursework: Other	Investigation into distributed systems concepts and online game markets	1500	Letter Grade
			60%	Coursework: Other	Online Game Demo development, testing and reflection	3000	Letter Grade

Study Workload

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. 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 Sunday night to enable weekends to be spent on finishing work. The 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 over time and improving skills, students find the workload manageable and succeed from a diverse range of backgrounds.

Programme Delivery: Learning and Teaching

Key features of teaching and learning:

- Built on good practice and studies which have been done to establish the most effective means for you to succeed
- A wealth of multimedia resources so you can work at your own pace
- Supported workshops to aid you in coding, debugging, problem solving, and enhancing work by for example adding more features such as more engaging artificial intelligence or visually arresting shader effects
- Lectures, class discussions and analysis of case studies to introduce you to new concepts, theories and techniques, and to help in building understanding of theoretical content
- Team projects worked to established development methodologies (Agile / Scrum) to build your collaborative working skills and increase your value to employers hiring for development teams
- Clear building of academic skills, employability and graduate skills, with a focus on reflective practice to enhance your personal and professional development
- Approachable and friendly staff with an open door policy and individualised support so that you can feel welcome and comfortable in asking questions, gaining feedback and making progress

Programme Delivery: Assessment

Key features of assessment:

- Regular formative assessment opportunities giving you the chance to submit drafts and practice tasks to gain feedback to improve
- Graded assessment submissions are balanced throughout the academic year so that you can manage your workload effectively
- Digital submission and feedback so that you can refer back to previous assessments to reflect upon progress and build confidence for future assessments
- A mix of written reports, design documentation, created assets, source code / program demos, reflective writing and other method will be employed in coursework so you have a wide range of skills both academic and practical
- The assessments will include development of work which you can use to build your portfolio; this will include a 2D Games Demo in DirectX / C++ in a genre of your choice; a 3D Games Demo in DirectX / C++ to a specified genre; a team-based development on a licensed engine (e.g. Unreal); a portfolio of advanced optimisation, artificial intelligence and rendering techniques; and an online game demo. Your Dissertation will include a development of your choice related to the programme
- Written exams will include maths based problems, application of theories to given scenarios and analysis of case studies; targeted revision and mock exams will aid you in preparing for these

Programme Delivery: Work Based and Placement Learning

At Level 5, students are required to undertake 100 hours of work based activity related to the programme. Work Placements are managed by an appointed Workplace Co-ordinator within the School who maintains liaisons with employers, performs visits and logs required documents such as insurance. Students are encouraged to seek out their own placements and preparation for this begins in the second semester of Level 4. Some placements require DBS checks and the forms are produced and collated by the Workplace Co-ordinator to ensure they are processed in good time. Should a student not be able to locate a placement themselves, the Workplace Co-ordinator will arrange interviews with employers. If there is difficulty in getting students placed then we can place internally with our IT Services and Technicians. In timetabled sessions, delivery includes generation of CVs, examination of professional guidelines and legislation plus also discussions and reflections of the application of course skills to a workplace context; these are then logged by the students electronically in a reflective format.

We are in liaison with multiple industry figures and this provides opportunities for live briefs, supported projects, checking of real-world scenarios for assessments and improving our curriculum.

Programme Delivery: Graduate Skill Development

These are the skills that you will develop as a graduate to prepare you for your career and how this programme helps you develop these:

A commitment to lifelong learning and career development

Personal and professional development planning throughout the programme so that you can plan for career and skills development including post-graduate study or career opportunities.

Collaborative teamwork and leadership skills

Team based projects working to established methodologies (Agile / Scrum) will aid you in communicating with team members, assuming leadership roles where appropriate, managing group dynamics and working collaboratively towards common goals.

Personal and intellectual autonomy

We support your development of independence in academic and practical skills through the levels of the programme, culminating in the self-managed dissertation project where you will be responsible for managing your own extended project.

Ethical, social and professional understanding

Mapping of course content to British Computer Society criteria for Chartered IT Professionals ensures you have industry recognition from the UK's computing professional body.

Communication, information and digital literacies

You will develop your use of digital resources such as searching, blogging, messaging, use of wikis and collaborative environments and cloud storage which are valuable in all industries.

Global citizenship

Localisation concerns for interfaces will be covered so you can build an awareness of how to operate effectively in a global industry.

Research, scholarship and enquiry skills

The Dissertation will be led and managed by you in an area of your own choosing including significant research and development with limited supervision; this will enable you to independently research unfamiliar concepts effectively.

Enterprise and entrepreneurial awareness and capabilities

The Entrepreneurialism and Project Control module will analyse in detail entrepreneurial traits and case studies and you will be applying business planning skills so that if you wanted to become an indie developer or freelance then you will be well placed to do so and create your own opportunities.

Study Costs: Equipment Requirements

There is no requirement for students to purchase equipment, as there are several resources on campus however it would be advantageous for you to purchase a computer as some of the software is demanding and you will be able to spend more time on work outside of campus hours.

Students looking to purchase hardware should consider that as a minimum it should be able to support the recommended specifications of the latest Unreal Engine version. Most mid-high range desktops / laptops are in the region of £400 - £1,000. However, it pays to shop around and speaking to some of our staff could help you in getting best value. Many students prefer to bring their own laptops into college and accessing the network through Wi-Fi to save them from transferring files and we encourage this, however this is a personal choice. Software is available to students from the College and there are many discounted subscriptions available, including student pricing for Adobe Creative Cloud.

When planning Dissertation projects, consideration must be given to what is available in Computing to assess feasibility. It might be the case that you wish to pursue emerging technologies that we do not have and so you may wish to undertake personal investment.

Study Costs: Additional Costs

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.

Related Courses

Other programmes offered by computing include the Software engineering (App Development) which shares many core modules with this programme but focuses instead on Apps rather than Games. 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 Interactive Media Development programme.

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.