UNIVERSITY OF LONDON

Name of course: Bachelor of Science Honours in Computer Science (Games development)
Module Description

YEAR 1

CORE MODULE
[CM1005] INTRODUCTION TO PROGRAMMING I
This module is focused on basic programming techniques. By taking this module, you will learn how to use the basic elements of computer programming such as variables, conditionals, functions, and loops.

COMPULSORY

[CM1010] INTRODUCTION TO PROGRAMMING II
This module is focused on adding to the basic programming skill set you have developed, in Introduction to Programming I and giving you experience working with existing code and third-party libraries.

[CM1015] NUMERICAL MATHEMATICS
This module helps you hone your skills in thinking abstractly. It also introduces you, to many of the standard continuous models used to help understand and design computational systems.

[CM1020] DICRETE MATHEMATICS
This module helps you to hone your skills in thinking abstractly. It also introduces you to many of the standard discrete models used to help understand and design computational systems.

[CM1025] FUNDAMENTALS OF COMPUTER SCIENCE
By taking this module, you will gain a broad understanding of many of the key topic areas in computer science and the fundamental concepts that underpin them.

[CM1030] HOW COMPUTERS WORK
This module aims to help you understand, and to interact with, computer systems. You will learn how to use knowledge about computational processes to analyse and explain the behaviour of computer systems.

[CM1035] ALGORITHMS AND DATA STRUCTURES
This module aims to help you to develop your analytical and problem-solving skills, particularly concerning thinking algorithmically.

[CM1040] WEB DEVELOPMENT
This module aims to provide you with a foundational web development skill set. You will learn the critical languages of the web: HTML, CSS and JavaScript. Using HTML and CSS, you will learn how to markup, layout, and style web content.

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YEAR 2

COMPULSORY

[CM2005] OBJECT ORIENTED
This module aims to provide you with an object-oriented programming skill set. You will learn what objects and classes are and how to write in your classes.

[CM2010] SOFTWARE DESIGNAND DEVELOPMENT
This module aims to advance your software development skills so that you can write more robust and complicated programs. You will learn how to use a range of programming techniques that will allow you to deal with unwanted or unexpected events that might happen when your application is running.

[CM2015] PROGRAMMING WITH DATA
This module will show you how to work with data: getting data from a variety of sources, visualizing data in compelling, informative ways, processing data to make it useful and shareable, and reasoning with data to test hypotheses and make parameterised predictions.

[CM2020] AGILE SOFTWARE
This module aims to provide insights and practice in software development using contemporary methods to produce software that meets the needs of users and supports an organisation's business function.

[CM2025] COMPUTER SECURITY
This module aims to provide you with an understanding of the need for computer security and the technologies that support it.

[CM2030] GRAPHIC PROGRAMMING
This module aims to show you how to work with images in a variety of ways. You will learn how to synthesise graphics and how to process visual signals.

[CM2035] ALOGORITHMS AND DATA STRUCTURES II
This module aims to provide you with detailed knowledge of several common algorithms and data structures. You will improve your understanding of searching and sorting and learn new algorithms to solve new problems. You will learn about a range of data structures such as trees, heaps, sets, maps, stacks, queues, and graphs.

[CM2040] DATABASES, NETWORKS AND THE WEB
In this module, you will learn theory and practical skills focused on the modern web, internet, and client-server applications. You will learn about relational database systems, mainly from a development perspective, emphasising issues related to data modelling and database implementation in SQL.

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YEAR 3

OPTIONAL

[CM3005] DATA SCIENCE
By taking this module, you will gain a data science skillset. With these skills, you will be able to write computer programs that can read, process, and analyse textual and numerical data.

[CM3010] DATABASES AND ADVANCED DATA TECHNIQUES
This module aims to show you how to work with data in your computer programs. You will learn how to use SQL and NoSQL databases to store tabular data and documents.

[CM3015] MACHINE LEARNING AND NEURAL NETWORKS
This module provides a broad view of machine learning and neural networks. You will learn how to solve common machine learning problems such as regression, classification, clustering, matrix completion and pattern recognition.

[CM3020] ARTIFICIAL INTELLIGENCE
This module is focused on Artificial Intelligence techniques. You will understand the historical development of Artificial Intelligence including search, vision, and planning.

[CM3035] ADVANCED WEB DEVELOPMENT
Through this module, you will learn how to build dynamic, data-driven websites using databases, front-end frameworks, and server-side programming. This module provides the skill set required to do full stack web development work.

[CM3040] PHYSICAL COMPUTING AND INTERNET OF THINGS
This course introduces the development and programming of hardware devices that can sense and act in the environment. The course will explain and demonstrate how the environment, which is inherently continuous, can be monitored by analogue electrical and mechanical sensors, then captured and analysed using a computer, which is a discrete system.

[CM3050] MOBILE DEVELOPMENT
This module aims to give you the fundamental understanding and skills needed to develop mobile applications. By studying this module, you will learn the principles of effective mobile user interface design and how to design and build user interfaces. You will learn about data-driven mobile applications, and how you can integrate a mobile application to a data source.

[CM3060] NATURAL LANGUAGE PROCESSING
This module will provide you with a grounding in both rule-based and statistical approaches to NLP, and it combines theoretical study with hands-on work employing widely used software packages.

[CM3065] INTELLIGENCE SIGNAL PROCESSING
This module aims to provide you with a broad experience of digital signal processing techniques and applications. You will study how audio and video signals can be captured and processed by a computer program.

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CORE

[CM3045] 3D GRAPHICS AND ANIMATION
This module will cover advanced methods used in current state-of-the-art graphics and animation systems. It will include the mathematical foundations, computational techniques and their use in creative practice.

[CM3020] ARTIFICIAL INTELLIGENCE
This module is focused on Artificial Intelligence techniques. You will understand the historical development of Artificial Intelligence including search, vision, and planning.

[CM3025] VIRTUAL REALITY
The module will combine the theory and psychology of VR with practical development skills. You will learn the skills needed to design compelling VR environments and the skills that apply to creative practice, science, and industry.

[CM3035] GAMES DEVELOPMENT
This module will introduce you to i) industry standard tools for game development, such as game engines, and ii) the process of game development, including prototyping and playtesting.

[CM3055] INTERACTION DESIGN
When taking this module, you will examine the notion of 'interaction with technology'. You will focus on the concepts behind modern user experience design and production. You will gain a solid grasp and practical experience of the process which allows the creation of interactive systems.

COMPULSORY

[CM3070] FINAL PROJECT
In this module, you will undertake a substantial independent project that will allow you to demonstrate a wide range of skills such as project planning, management, research, software implementation, and written presentation.

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