

Module Catalogue

Computer Science and Engineering

Undergraduate Exchange 2019/0

Semester 2

| Module Code | Module Name | Level | Semester | UK Credit Value | Credit Equivalency |
|---|--|-------|------------|-----------------|---------------------------------|
| Computer Science and Engineering | | | | | |
| 4COSC005W | Programming Principles II | 4 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5BUIS002W | Business Analytics | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5COSC003W | Software Development Group Project | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5COSC004W | Client Server Architecture | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5COSC005W | Mobile Application Development | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5COSC006W | Server-side Web Development | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5MMCS002W | Usability Testing | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 5SENG001W | Algorithms: Theory Design and Implementation | 5 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 6CCGD002W | Advanced Maths and Game AI | 6 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 6CCGD003W | Networked Games and Security | 6 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
| 6COSC002W | Security and Forensics | 6 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
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| 6COSC003W | Web Intelligence | 6 | Semester 2 | 20 | US Credits 4 / ECTS credits 10* |
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* All transcripts are issued in UK credits. Please note the recommendation of a 4 US credit value equivalency is provided as guidance. Final credit values for all modules for US students are decided by your home institution and will be dependent on its credit transfer policies.

Computer Science and Engineering

Programming Principles II

Module Code: 4COSC005W

Location: Cavendish

Level 4

UK Credit Value: 20

Semester 2

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

Pre-requisite: 4COSC001W Programming Principles I or equivalent

The module aims to develop skills in the selection and implementation of problem-solving algorithms. It will consider analysis of algorithms in terms of soundness and completeness, and introduce more advanced programming methods including the implementation of classes and methods and more sophisticated data structures such as lists, queues and trees.

Assessment: In-Class Test/Assignment exam conditions (50%), In-Class Test/Assignment exam conditions (50%)

*All transcripts are issued in UK credits.

Business Analytics

Module Code: 5BUIS002W

Location: Cavendish

Level 5

UK Credit Value: 20

Semester 2

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

Pre-requisite: 4BUIS002W Business Mathematics or equivalent

This module introduces students to the Operational Research (OR) techniques, commonly used for business analytics, such as Linear programming, forecasting and simulation. It helps students to develop and analyse analytical models that support making effective business decisions.

Assessment: Coursework (50%), Examination - closed book (50%)

*All transcripts are issued in UK credits.

Software Development Group Project

Module Code: 5COSC003W

Location: Cavendish

Level 5

UK Credit Value: 20

Semester 2

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

Pre-requisite: Programming Principles II

Exchange applicants - note that this module is for students from the Universidad de Alicante only.

This module features state-of-the-art methods in software engineering practices from a managerial, technical, and process perspective. Students gain their experience of model-based software development through the software cycle. They participate in a team work based on an incremental and iterative software development methodology, gain practical experience of various professional issues such as project documentation, professional Code of Conduct, or Professional ethics.

Assessment: Group Coursework (40%), Group Coursework (60%)

*All transcripts are issued in UK credits.

Client Server Architecture

Module Code: 5COSC004W

Level 5

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

This module introduces the student to the various layers of software architectures, from the network to the application layer, to enable them to maintain, build and deploy a typical client server system.

Assessment: Coursework (60%), In-Class Test/Assignment exam conditions (40%)

*All transcripts are issued in UK credits.

Mobile Application Development

Module Code: 5COSC005W

Level 5

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

The Android mobile programming architecture. Restrictions of using small devices such as mobile phones tablets and wearables. Programming user interfaces, networking, persistent storage and multi-threading. Device profiling, application deployment and installation.

Assessment: Coursework (50%), Coursework (50%)

*All transcripts are issued in UK credits.

Server-side Web Development

Module Code: 5COSC006W

Level 5

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

This module will cover the analysis, design and implementation of commercial web applications from a programming and database perspective and will be suitable for students with a background in SQL, programming, HTML, and browser scripting. A server-side language will be covered to the depth required for implementing high-quality functional applications that appropriately fulfil user requirements.

Assessment: In-Class Test/Assignment exam conditions (50%), In-Class Test/Assignment exam conditions (50%)

*All transcripts are issued in UK credits.

Usability Testing

Module Code: 5MMCS002W

Level 5

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

The module provides students with essential skills and practice in a range of usability techniques, how to conduct usability studies and focuses on the role of the user within the design process. The importance of experimental design and statistical analysis is illustrated through real world examples. The ability to interpret and critically discuss results is stressed throughout.

Assessment: Group Coursework (60%), Examination - closed book (40%)

*All transcripts are issued in UK credits.

Algorithms: Theory Design and Implementation

Module Code: 5SENG001W

Level 5

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

The module equips the student with the theoretical and practical background of computing and computer science towards the problem solving strategies, design, implementation and evaluation of computationally efficient algorithms. Given the vast range of applicable problems, e.g., technology, economics, biosciences, society, environment, mathematics, game theory, the module particularly draws upon current real world problems.

Assessment: Coursework (50%), Examination - closed book (50%)

*All transcripts are issued in UK credits.

Advanced Maths and Game AI

Module Code: 6CCGD002W

Level 6

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

Pre-requisite: Programming experience required

Creating robust artificial intelligence is one of the greatest challenges for game developers, yet the commercial success of a game is often dependent upon the quality of its AI. This module introduces an engagingly realistic and immersive experience in modern videogames for creating game terrains to simulate complex behaviour of game objects. The main focus of the module is to learn how to create an automatic random game world with metrics to generate human like intelligent behaviours primarily in non-player characters (NPCs). The algorithms and logic covered in this module are also widely used in a variety of computing sectors which will make the module a great choice for CS and SE students.

Assessment: Coursework (60%), Examination - closed book (40%)

*All transcripts are issued in UK credits.

Networked Games and Security

Module Code: 6CCGD003W

Level 6

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

Pre-requisite: Programming experience required

This module aims to provide a detailed understanding of the network infrastructures that are available and suitable for online games, including referencing to the controls that are included within systems and applications software and the steps used in their development such as Systems Development Life Cycle (SDLC), Application Environment and Security Control and Effectiveness of Application Security. It also covers a selection of topics that are related to distributed multimedia such as online chat and standards that are widely used for games interaction. The module will assess the limitations and problems of the technologies and the user interaction that have to be resolved.

Assessment: Practical Coursework (40%), Practical Coursework (60%)

*All transcripts are issued in UK credits.

Security and Forensics

Module Code: 6COSC002W

Level 6

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

This module examines various aspects of computer security and forensics giving a sound introduction to theoretical

and practical areas such as network security, cryptography, security architecture and operations security. A substantial amount of work will be laboratory based involving the deployment of security tools, the hardening of operating systems and the analysis of compromised systems.

Assessment: Coursework (50%), Examination - closed book (50%)

*All transcripts are issued in UK credits.

Web Intelligence

Module Code: 6COSC003W

Level 6

Semester 2

Location: Cavendish

UK Credit Value: 20

**Equivalent Credit Value: US Credits 4 /
ECTS credits 10***

The module equip the students with the theoretical and practical knowledge to apply intelligent information technology on the Web in order to create the next generation of products, services and frameworks based on the internet for the sake of using the Web as a huge and trustworthy knowledge source for a variety of contemporary problems in society, environment, economy. The module draws upon many fields such as Web text mining and engineering, information retrieval and search engines, Semantic and Social web and the Web of data, which underpin the contemporary Web as a source of knowledge.

Assessment: Coursework (50%), Examination - closed book (50%)

*All transcripts are issued in UK credits.