## Module Catalogue Computer Science and Engineering Postgraduate Study Abroad with Internship 2024/5 Semester 1

As part of the Internship programme all students must take three modules per semester, including the following module in either Semester 1 or 2:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 5BUSS005X | [Professional and Personal Skills Development](#5BUSS005X) | Level 5 | Semester 1 or 2 | 20 | US Credits 4 / ECTS credits 10\* |

If you choose to take the Internship option this semester, then you are able to take two free-choice modules in addition to the above module. Please note that the above module carries Undergraduate credit.

| **Module Code** | **Module Name** | **Level** | **Semester** | **UK Credit Value** | **Credit Equivalency** |
| --- | --- | --- | --- | --- | --- |
| **Computer Science and Engineering** | | | | | |
| 7BDIN006W | [Big Data Theory and Practice](#7BDIN006W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7BDIN007W | [Data Repositories Principles and Tools](#7BDIN007W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7BUIS008W | [Data Mining and Machine Learning](#7BUIS008W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7BUIS009W | [Data Visualisation and Dashboarding](#7BUIS009W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7BUIS024W | [Business Analytics](#7BUIS024W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7BUIS030W | [Data System Concepts and Fundamentals](#7BUIS030W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7SENG011W | [Object Oriented Programming](#7SENG011W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |
| 7SENG012W | [Software Development Environments](#7SENG012W) | 7 | Semester 1 | 20 | US Credits 4 / ECTS credits 10\* |

\* 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.

## Internship Module

#### Professional and Personal Skills Development

**Module Code: 5BUSS005X**

**Level 5**

**Semester 1 or 2**

**Location: Marylebone**

**UK Credit Value: 20**

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

Internship Programme Information: You can apply for a study abroad internship as part of a single semester or year-long study abroad programme at the University of Westminster, but the maximum duration of the internship is one semester. Alongside your academic studies, you will be expected to work 14 hours over two to three days per week in your internship. Internships are part-time and run for 12 weeks, until the end of the teaching period.   
  
Module Description: The module is designed to allow you to draw upon your experience in the workplace in order to reflect on (and to challenge) your behaviours, attitudes and assumptions at work. This greater self-awareness will help you to appreciate differences in cultural and ethical working practices. The module uses coaching tools to help you to discover your own solutions to issues, thus developing you as an ‘independent’ self-reliant learner and increasing your resilience. The module also fosters the development of your analytical thinking skills by applying relevant theory and concept to your work experiences. Your learning and practical experience is designed to enable you to reflect on both your work and learning so that you can articulate your global skills set to future employers.   
  
A reminder that that this module carries Undergraduate credit.   
**Assessment:** Individual Oral Presentation (25%), Individual Reflective Learning Log (25%), Essay (50%)   
\*All transcripts are issued in UK credits.

## Computer Science and Engineering

### Big Data Theory and Practice

[**Module Code: 7BDIN006W**](#7BDIN006W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
The module discusses how to manage the volume, velocity and variety of Big Data, SQL and noSQL databases, and it touches on issues related to data governance and data quality, including regulatory challenges.  
**Assessment:** In-Class Test/Assignment exam conditions (40%), Coursework Group (60%)  
\*All transcripts are issued in UK credits.

### Data Repositories Principles and Tools

[**Module Code: 7BDIN007W**](#7BDIN007W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
An introductory module that covers theoretical & practical issues related to data modelling and the technologies employed to store persistent data. It reviews and evaluates the predominant & emerging data models and underlying technologies & approaches used in capturing, maintaining & modelling persistent data; addresses in detail practical issues related to data modelling.  
**Assessment:** Coursework Group (100%)  
\*All transcripts are issued in UK credits.

### Data Mining and Machine Learning

[**Module Code: 7BUIS008W**](#7BUIS008W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
This module will provide an overview of modern techniques in Machine Learning and Data Mining that are particularly customised for Data Science applications. Students will be introduced to a range of toolkits, such as R and Python and they will explore the features and strengths of different machine learning and data mining methodologies using selected data sets related to specific public sector or businesses application domains.  
**Assessment:** In-Class Test/Assignment exam conditions (50%), Coursework (50%)  
\*All transcripts are issued in UK credits.

### Data Visualisation and Dashboarding

[**Module Code: 7BUIS009W**](#7BUIS009W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
This module covers the theoretical and practical aspects of data visualisation including graphical perception, dynamic dashboard visualisations, and static data ‘infographics’. Tools used include R and Tableau. The module prepares students for becoming data visualisation specialists.  
**Assessment:** In-Class Test/Assignment exam conditions (30%), Coursework (70%)  
\*All transcripts are issued in UK credits.

### Business Analytics

[**Module Code: 7BUIS024W**](#7BUIS024W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
This is a self–contained module in applied statistics and operational research (OR) for decision making that lays the foundations for more advanced modules in data mining, optimisation and simulation modelling. It covers the essential of descriptive, predictive, and prescriptive analytics in an application driven manner and makes use of appropriate software tools to derive meaningful solutions.  
**Assessment:** Coursework (70%), In-Class Test/Assignment exam conditions (30%)  
\*All transcripts are issued in UK credits.

### Data System Concepts and Fundamentals

[**Module Code: 7BUIS030W**](#7BUIS030W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
This module introduces the student to computer systems fundamentals and data systems fundamentals. The aim of the module is to ensure that the student has a deep understanding of the high-level systems and software that support data storage and retrieval to be able to work with such systems and to be able to critically and confidently operate with system stakeholders and technical partners such as data providers, storage, and data processing actors. Concepts of computer systems and data creation, storage, and retrieval systems shall be introduced as well as compliance and security. This knowledge shall be reinforced by practical sessions where the student shall create, store and retrieve complex data using standard tools, as well as have the opportunity to analyse and critically evaluate typical real-world data lifecycle scenarios.  
**Assessment:** Coursework Practical (50%), Examination - closed book (50%)  
\*All transcripts are issued in UK credits.

### Object Oriented Programming

[**Module Code: 7SENG011W**](#7SENG011W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
The module teaches the fundamental concepts behind the object oriented programming (OOP) approach using a contemporary software framework such as C#.NET. The student is introduced to object oriented design techniques and taught how to translate the design into maintainable programs.It will cover the design and implementation of object oriented software through the entire software development lifecycle.  
**Assessment:** Coursework (50%), Examination - closed book (50%)  
\*All transcripts are issued in UK credits.

### Software Development Environments

[**Module Code: 7SENG012W**](#7SENG012W_return)

**Level 7**

**Semester 1**

**Location: Cavendish**

**UK Credit Value: 20**

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

***Pre-requisite: Computer science or related first degree/industry background.***  
***IELTS 6.5 with at least 6.5 in writing and no element below 6.0***  
The module provides the general experience, knowledge and practical skills that a student needs to function as a professional practicing software engineer within a range of software development environments.The module introduces a number of software development tools, and the underlying theory and structure of operating systems, computer networks and computer hardware.  
**Assessment:** Lab-Based Practical (50%), Examination - closed book (50%)  
\*All transcripts are issued in UK credits.