

# FACULTY OF SCIENCE

## DEPARTMENT OF COMPUTER AND INFORMATION SCIENCES

### ADVANCED COMPUTER SCIENCE

Master of Science in Advanced Computer Science  
Master of Science in Advanced Computer Science with Software Engineering  
Master of Science in Advanced Computer Science with Artificial Intelligence  
Master of Science in Advanced Computer Science with Data Science  
Postgraduate Diploma in Advanced Computer Science  
Postgraduate Diploma in Advanced Computer Science with Software Engineering  
Postgraduate Diploma in Advanced Computer Science with Data Science  
Postgraduate Diploma in Advanced Computer Science with Artificial Intelligence  
Postgraduate Certificate in Advanced Computer Science  
Postgraduate Certificate in Advanced Computer Science with Software Engineering  
Postgraduate Certificate in Computer Science with Data Science  
Postgraduate Certificate in Advanced Computer Science with Artificial Intelligence

*These regulations are to be read in conjunction with [General Academic Regulations - Postgraduate Taught Degree Programme Level](#).*

#### Admission

1. The [General Academic Regulations - Postgraduate Taught Degree Programme Level](#) shall apply subject to the following requirements. Applicants shall possess:
  - i. a first or second class Honours degree from a United Kingdom university (in Computer Science or a closely related subject); or
  - ii. a qualification deemed by the Head of Department acting on behalf of Senate to be equivalent to (i) above.
2. In all cases, applicants whose first language is not English, shall be required to demonstrate an appropriate level of competence in the English language.

#### Duration of Study

3. See [General Academic Regulations - Postgraduate Taught Degree Programme Level](#).

#### Mode of Study

4. The programme is available by full-time study only.

#### Curriculum

5. All students shall undertake an approved curriculum as follows:
  - i. for the Postgraduate Certificate no fewer than 60 credits
  - ii. for the Postgraduate Diploma no fewer than 120 credits
  - iii. for the degree of MSc no fewer than 180 credits including a project.

#### Compulsory Modules

| Module Code | Module Title   | Level | Credits |
|-------------|--|-------|---------|
| CS957       | Research Methods   | 5     | 10      |
| CS978       | Legal, Ethical and Professional Issues for the Information Society | 5     | 10      |
| CS958       | Project  | 5     | 60      |

## **Advanced Computer Science**

### **Optional Modules**

No fewer than 100 credits of which no more than 20 may be at level 4 chosen from the available modules listed in this Regulation, or any other module as approved by the programme director.

### **Advanced Computer Science with Software Engineering**

A total of 100 credits from the following list:

| <b>Module Code</b> | <b>Module Title</b>                     | <b>Level</b> | <b>Credits</b> |
|--------------------|---|--------------|----------------|
| CS547              | Advanced Topics in Software Engineering | 5            | 20             |
| CS548              | Designing Usable Systems                | 5            | 20             |
| CS549              | Distributed Information Systems         | 5            | 20             |
| CS551              | Mobile Software Applications            | 5            | 20             |
| CS982              | Big Data Technologies                   | 5            | 20             |
| MS418              | Project Management*                     | 4            | 20             |
| CS409              | Software Architecture and Design*       | 4            | 20             |

\*Either MS418 Project Management or CS409 Software Architecture and Design

Or any other module as approved by the programme director.

### **Advanced Computer Science with Data Science**

A total of 100 credits from the following list:

| <b>Module Code</b>                                  | <b>Module Title</b>                     | <b>Level</b> | <b>Credits</b> |
|---|---|--------------|----------------|
| CS549   | Distributed Information Systems         | 5            | 20             |
| CS826   | Deep Learning Theory and Practice       | 5            | 20             |
| CS985   | Machine Learning for Data Analytics     | 5            | 20             |
| Together with 40 credits chosen from the following: |   |              |                |
| CS547   | Advanced Topics in Software Engineering | 5            | 20             |
| CS551   | Mobile Software Applications            | 5            | 20             |
| CS971   | Evolutionary Computation for Finance    | 5            | 20             |
| CS976   | Information Retrieval                   | 5            | 10             |

|       |                               |   |    |
|-------|-------------------------------|---|----|
| CS975 | Business Analysis             | 5 | 10 |
| CS988 | Big Data Tools and Techniques | 5 | 10 |

Or any other module as approved by the programme director.

### **Advanced Computer Science with Artificial Intelligence**

A total of 100 credits from the following list:

| Module Code   | Module Title  | Level | Credits |
|---|---|-------|---------|
| CS823   | Reasoning for Intelligent Agents                        | 5     | 20      |
| CS824   | Quantitative Methods for Artificial Intelligence        | 5     | 10      |
| CS825   | Game Theory and Multi-agent Systems                     | 5     | 10      |
| CS826   | Deep Learning Theory and Practices                      | 5     | 20      |
| CS827   | Deep Learning in Visual Computing Applications          | 5     | 10      |
| Together with 30 credits chosen from the following: |   |       |         |
| CS549   | Distributed Information Systems                         | 5     | 20      |
| CS551   | Mobile Software Applications                            | 5     | 20      |
| CS815   | AI Finance  | 5     | 20      |
| CS986   | Fundamentals of Machine Learning for Data Analytics     | 5     | 10      |
| CS976   | Information Retrieval                                   | 5     | 10      |
| CS975   | Business Analysis                                       | 5     | 10      |
| CS983   | Evolutionary Computation for Finance 1 (not with CS815) | 5     | 10      |
| CS988   | Big Data Tools and Techniques                           | 5     | 10      |

Or any other module as approved by the programme director.

### **Examination, Progress and Final Assessment**

6. See [General Academic Regulations - Postgraduate Taught Degree Programme Level](#).
7. The final award will be based on performance in the examinations, coursework and the project, where undertaken.

### **Award**

8. **Degree of MSc:** In order to qualify for the award of MSc in the chosen programme, a candidate must have accumulated no fewer than 180 credits of which 60 must have been awarded in respect of the Project CS958.

9. **Postgraduate Diploma:** In order to qualify for the award of the Postgraduate Diploma in the chosen programme, a candidate must have accumulated no fewer than 120 credits from the taught modules of the programme.
10. **Postgraduate Certificate:** In order to qualify for the award of the Postgraduate Certificate in the chosen programme, a candidate must have accumulated no fewer than 60 credits from the taught modules of the programme.