### **PROGRAMME SPECIFICATION**

#### **KEY FACTS**

| Programme name           | Computer Science               |
|--------------------------|--------------------------------|
| Award                    | MSci (Hons)                    |
| School                   | School of Science & Technology |
| Department or equivalent | Department of Computer Science |
| UCAS Code                | G401                           |
| Programme code           | USCOSC                         |
| Type of study            | Full Time                      |
| Total UK credits         | 480                            |
| Total ECTS               | 240                            |
| Partner (partnership     | None                           |
| programmes only)         |                                |
| Type of partnership      |                                |

#### PROGRAMME SUMMARY

The MSci (Hons) in Computer Science will prepare you for a successful career in technical areas of computer science. It will develop your specialist programming, analysis and design expertise in areas that are particularly sought skills in modern IT businesses as well as universities and research institutions.

The programme covers computer science starting with core foundational skills such as programming, progressing to cover a range of computing topics with a focus on practical application, whilst maintaining a strong theoretical underpinning, then allowing specialism in advanced topics, such as advanced database technology, software systems design, data mining and data visualization. A 450 hour individual project will allow you to further explore a specialism whilst engaging with active researchers. The programme will also provide you with the professional skills essential to modern working.

The MSci (Hons) in Computer Science is a full-time four-year Integrated Masters Programme. The programme consists of four Programme Stages, each corresponding to an academic year. The programme shares Programme Stage 1 and Programme Stage 2 with the BSc (Hons) Computer Science and MSci (Hons) in Computer Science with Cyber Security and you can transfer to/from these programmes at the end of Programme Stage 2. The programme also shares Programme Stage 1 with the BSc (Hons) / MSci (Hons) Computer Science with Games Technology and you can transfer to/from these programmes at the end of Programme Stage 1. These transfers allow you to choose your final degree programme based on at least a year's experience of university study.

Each of the four Programme Stages of the programme consists of 120 credits:

- Programme Stage 1 consists of compulsory foundational material, including programming and databases.
- Programme Stage 2 consists of further compulsory core computer science

subject matter and includes a 15-credit team project,

- You may elect to take an industrial placement between Programme Stage 2 and Programme Stage 3 or between Programme Stage 3 and Programme Stage 4.
- Programme Stage 3 consists of three core module and five elective modules, allowing you to develop specialisms drawing on the expertise of academic staff
- Programme Stage 4 consists of three advanced core module, two electives and a large, 45-credit, individual project supervised by a member of academic staff.

## <u>Aims</u>

This programme aims to prepare you with the knowledge, skills and values needed for a technical career as computer scientist by

- equipping you with the computer scientist's core skills in programming, software engineering, databases and mathematics
- equipping you with a breadth of knowledge, skills and techniques needed as a professional in computer science
- developing your knowledge in specialised and advanced topics in computer science
- developing your practical problem solving capabilities in applying your technical skills
- enabling you to work with and learn from active researchers in computer science

enabling you to critically evaluate the technical, social and management dimensions of computing systems and technologies

The programme provides you with a number of exit routes.

**CERTIFICATE OF HIGHER EDUCATION IN COMPUTER SCIENCE** The first exit route is for the Certificate of Higher Education in Computer Science which you are entitled to if you successfully complete Programme Stage 1 of the programme, earning 120 level 4 credits.

All of you completing Programme Stage one *or* the Certificate in Computer Science will be able to discuss underlying concepts and principles associated with computer science and relate these to concepts to problems arising in computer science. You will be able to express solutions to problems using the formalism introduced in Programme Stage one.

**DIPLOMA OF HIGHER EDUCATION IN COMPUTER SCIENCE** The second exit route is for the Diploma of Higher Education in Computer Science, which you are entitled to if you have completed the Certificate in Higher Education and in addition you have successfully completed Programme Stage 2 of the programme, earning 120 level 5 credits.

All of you completing Programme Stage Two *or* the Diploma in Computer Science will build on your previous knowledge and experience to develop skills of enquiry in

computer science and apply a variety of approaches to problem-solving as well as identify the limitations of your knowledge. You will be able to interpret open ended problems, apply your knowledge and skills to solve them and be able to write reports on your findings.

**BSc (Hons) IN COMPUTER SCIENCE** The third exit route is the BSc (Hons) in Computer Science, which you are entitled to if you have completed the Diploma in Higher Education and in addition you have successfully completed Programme Stage 3 of the programme, earning a further 120 credits, 90 of which at level 6, the rest at level 5 or level 6.

All of you completing the BSc (Hons) in Computer Science will through core and elective modules further develop a coherent systematic, detailed knowledge of computer science. You will be able to evaluate solutions to computer science problems, assess current techniques for designing and developing solutions to computer science problems and argue for your solutions using research and scholarship demonstrating your role as a reflective practitioner.

**MSci (Hons) IN COMPUTER SCIENCE** You are entitled to the MSci (Hons) in Computer Science if you have completed the BSc (Hons) and in addition you have successfully completed Programme Stage 4 of the programme, earning 120 level 7 credits.

All of you completing the MSci (Hons) in Computer Science will choose through core and elective modules to explore some areas of computer science further to broaden your expertise and skills. You will be able to deal with complex computing issues systematically and implement solutions that require synthesis of knowledge. In addition in your individual project you will propose a computer science problem and will act autonomously to apply your knowledge in an original way to plan and manage the design and development of a solution to this problem, writing a report to describe this process.

## WHAT WILL I BE EXPECTED TO ACHIEVE?

# On successful completion of this programme, you will be expected to be able to:

Knowledge and understanding:

- use and explain the theory of computer science
- use and, where appropriate, modify for specific use established systems development methods
- explain the concepts of computer programming
- demonstrate advanced, specialist theoretical and practical knowledge in a range of computer science sub-fields
- review and critically evaluate the literature and current developments and challenges in computer science, such as designing distributed applications or efficient algorithms for mobile devices

- select and apply leading-edge computing techniques to practical tasks in an independent manner
- understand professional, legal, social, cultural and ethical issues related to computing and be aware of societal and environmental impact
- identify and manage scientific and technical risks and uncertainty associated with computer science and its application
- explain legal issues relating to computing: intellectual property, data protection, computer misuse and health and safety

## <u>Skills:</u>

- develop and critically evaluate specifications for specialist computer systems
- analyse, develop and select algorithms for computational tasks
- analyse and solve problems based on theoretical considerations, and develop innovative solutions, taking into account user needs and constraints.
- design, develop, maintain and evaluate complex computer programs and systems
- analyse, evaluate and act upon descriptive documents
- use new hardware and software technologies to create computer systems that exceed current capabilities
- plan and manage a large-scale individual problemsolving computing project
- communicate requirements and proposals for computer systems to other computing professionals
- synthesise information from disparate sources to compose systems and documents
- collaborate in working teams
- present and communicate topics in computer science effectively to technical and non-technical audiences
- engage in critical peer review process of papers, software and proposals, and give positive advice for improvement and innovation

Values and attitudes:

- embrace technical challenges as an opportunity for personal development
- rationally exploit both traditional and novel technological approaches
- rigorously assess alternative approaches and novel designs and implementations
- define a technical goal and encourage and lead others in order to achieve it
- assess the nature of intellectual property and its ownership, and respect it accordingly
- understand professional, legal, social, cultural and ethical issues related to computing and be aware of societal and environmental impact

This programme has been developed in accordance with the QAA Subject benchmark statements for Computing at Bachelor's and Master's level (2007, 2011).

## HOW WILL I LEARN?

The teaching and learning methods used are such that the levels of both specialisation of content and autonomy of learning increase as you progress through

the programme. This is reflected in the programme structure: fundamental concepts and skills are addressed first, followed by core knowledge that builds on these fundamentals, which in turn prepares you for advanced electives and a 45 credit individual project in Programme Stages 3 and 4. This progression will be guided by active researchers in Computer Science, with the culminating individual project conducted largely independently with appropriate academic supervision.

The programme is delivered and assessed via a coordinated combination of: lectures (including programmed student activity); supervised tutorials; supervised laboratory work; independent coursework; group project work; and individual project work.

The standard format is that taught modules are delivered through a series of 20 hours of lectures and 10 hours of tutorials/laboratory sessions. Lectures are normally used to:

(a) present and explain the theoretical concepts underpinning a particular subject;(b) highlight the most significant aspects of a module's syllabus; and

(c) indicate additional topics and resources for private study.

Tutorials are used to help you develop skills in applying the concepts covered in the lectures of the relevant module, normally in practical problem solving contexts. Laboratory sessions serve a similar purpose as the tutorials but their strategy is to demonstrate application of concepts and techniques through the use of state-of-the-art software development tools and environments.

You are expected to undertake independent study, including substantial coursework assignments for each module, amounting approximately to 120 hours per module.

Project work plays an important part in computing undergraduate programmes. The Team Project provides you with experience of the issues involved in software development projects as well as enhancing your team-working and related transferrable skills.

In the Individual Project you will carry out an independent investigation of a significant computing problem applying knowledge and skills that you have learnt through the programme. This activity is carried out under the supervision of academic staff, offered through a series of supervision sessions.

In addition to lecture, laboratory and tutorial support, the programme is supported by City's Moodle learning environment, which provides resources on each of the modules. This includes materials such as lecture notes and lab sheets, as well as interactive components, such as quizzes or discussion forums.

Elective placements and the workplace learning opportunities they provide are available to all students. A professional placement and career development module supported by visits from a Work-based Learning Advisor, ensures that you are able to identify learning opportunities that will enable you to attain and demonstrate competence in a work role; these opportunities arise naturally from workplace tasks, others are provided by negotiation focussed on your career and development plan.

## WHAT TYPES OF ASSESSMENT AND FEEDBACK CAN I EXPECT?

Typically, modules are mainly assessed through written examination, but coursework also contributes to module assessment. The written examinations will contain theoretical questions, including mathematical aspects, as well as writing and analysing small amounts of code and small essays on the applications of computational techniques.

Coursework takes many forms, including programs, modelling, theoretical work, and essays. Project work plays an important part in computing undergraduate programmes. In the 15 credit Team Project you will be working in a group to design and develop a software product. For the 45 credit Individual Project you are expected to carry out an independent investigation of a significant computing problem applying what you have learnt through the programme, under the supervision of academic staff.

#### Assessment and Assessment Criteria

Assessment Criteria are descriptions, based on the intended learning outcomes, of the skills, knowledge or attitudes that you need to demonstrate in order to complete an assessment successfully, providing a mechanism by which the quality of an assessment can be measured. Grade-Related Criteria are descriptions of the level of skills, knowledge or attributes that you need to demonstrate in order achieve a certain grade or mark in an assessment, providing a mechanism by which the quality of an assessment can be measured and placed within the overall set of marks. Assessment Criteria and Grade-Related Criteria will be made available to you to support you in completing assessments. These may be provided in programme handbooks, module specifications, on the virtual learning environment or attached to a specific assessment task.

The assessment criteria will reflect the learning outcomes of the modules and the programme as a whole,

## Feedback on assessment

Feedback will be provided in line with our Assessment and Feedback Policy. In particular, you will normally be provided with feedback within three weeks of the submission deadline or assessment date. This would normally include a provisional grade or mark. For end of module examinations or an equivalent significant task (e.g. an end of module project), feedback will normally be provided within four weeks. The timescale for feedback on final year projects or dissertations may be longer. The full policy can be found at:

https://www.city.ac.uk/ data/assets/pdf file/0008/68921/assessment and feedback policy.pdf

## Assessment Regulations

In order to pass your Programme, you should complete successfully or be exempted from the relevant modules and assessments and will therefore acquire the required number of credits. You also need to pass each Programme Stage of your Programme in order to progress to the following Programme Stage.

The four Programme Stages of the programme are weighted as follows: Programme Stage 1 carries no weight (in recognition that the first year of study students with differing background are experiencing university education for the first time);

Programme Stage 2 contributes 20% of the final degree mark; Programme Stage 3 contributes 40% of the final degree mark; Programme Stage 4 contributes 40% of the final degree mark.

For the purpose of calculating your overall degree result, the mark for IN3027: Professional Placement and Career Development, will be substituted, where higher, for the mark of two Programme Stage 3 taught modules which you have passed.

If you fail an assessment component or a module, the following will apply:

- 1. Compensation: where you fail up to 30 credits or one sixth of the total credits within a Programme Stage, whichever is greater, you may be allowed compensation if:
- Compensation is permitted for the module involved (see the What will I Study section of the programme specification), and
- It can be demonstrated that you have satisfied all the Learning Outcomes of the modules in the Programme Stage, and
- A minimum overall mark of no more than 10% below the module pass mark has been achieved in the module to be compensated, and
- An aggregate mark of 40% has been achieved for the Programme Stage, and
- The total volume of credits compensated over the entire degree does not exceed 45 credits.

Where you are eligible for compensation at the first attempt, this will be applied in the first instance rather than offering a resit opportunity.

If you receive a compensated pass in a module you will be awarded the credit for that module. The original component marks will be retained in the record of marks and your original module mark will be used for the purpose of your Award calculation.

2. Resit: where you are not eligible for compensation at the first attempt, you will normally be offered one resit attempt.

If you are successful in the resit, you will be awarded the full credit for that module. The mark for each assessment component that is subject to a resit will be capped at the pass mark for the module. This capped mark will be used in the calculation of the final module mark together with the original marks for the components that you passed at first attempt.

If you do not meet the pass requirements for a module and do not complete your resit by the date specified, you will not progress to the next Programme Stage and the Assessment Board will require you to be withdrawn from the Programme.

If you fail to meet the requirements for a particular Programme Stage or the Programme, the Assessment Board will consider whether you are eligible for an Exit Award as per the table below.

The Programme has minimum attendance requirements for designated teaching and learning events for each Stage. Students failing to meet these requirements may be subject to withdrawal from the programme.

## WHAT AWARD CAN I GET?

Master of Science with Honours:

| Programme<br>Stage | HE<br>Level | Credits | Weighting<br>(%) |
|--------------------|-------------|---------|------------------|
| 1                  | 4           | 120     |                  |
| 2                  | 5           | 120     | 20               |
| 3                  | 6           | 120     | 40               |
| 4                  | 7           | 120     | 40               |

| Class             | % required |
|-------------------|------------|
| Ι                 | 70         |
| II upper division | 60         |
| II lower division | 50         |

% required

70

60 40

Classification

Bachelor's of Science with Honours:

| Programme<br>Stage | HE<br>Level | Credits | Weighting<br>(%) | Class             | % required |
|--------------------|-------------|---------|------------------|-------------------|------------|
| 1                  | 4           | 120     |                  | I                 | 70         |
| 2                  | 5           | 120     | 40               | II upper division | 60         |
| 3                  | 6           | 120     | 60               | II lower division | 50         |

#### Diploma of Higher Education:

|   | Programme<br>Stage | HE<br>Level | Credits | Weighting<br>(%) | Class            |
|---|--------------------|-------------|---------|------------------|------------------|
| 1 | 1                  | 4           | 120     | 50               | With Distinction |
|   | 2                  | 5           | 120     | 50               | With Merit       |
|   |                    |             |         |                  | Without          |

Certificate of Higher Education:

| Programme<br>Stage | HE<br>Level | Credits | Weighting<br>(%) | Class            | % required |
|--------------------|-------------|---------|------------------|------------------|------------|
| 1                  | 4           | 120     | 100              | With Distinction | 70         |
|                    |             |         |                  | With Merit       | 60         |
|                    |             |         |                  | Without          | 40         |
|                    |             |         |                  | Classification   |            |

## WHAT WILL I STUDY?

Programme Stage 1

To pass Programme Stage 1, an Honours degree student must have acquired 120

credits as specified in Programme Stage 1 of the Programme Scheme. In addition a student must complete, achieving a mark of 100%, an online assessment covering risk/safety for safe operation of computing equipment. This online assessment is an exception to the assessment regulations; it has unlimited attempts but must be passed with a mark of 100% in order to progress to stage 2. This Programme Stage consists of 4 compulsory core modules, worth 15 credits each, and 2 compulsory core modules, worth 30 credits

| Module Title               | SITS<br>Code | Module<br>Credits | Core/<br>Elective | Can be<br>compen-<br>sated? | Level |
|----------------------------|--------------|-------------------|-------------------|-----------------------------|-------|
| Introduction to Algorithms | IN1002       | 15                | С                 | Υ                           | 4     |
| Mathematics for Computing  | IN1004       | 15                | С                 | Υ                           | 4     |
| Systems Architecture       | IN1006       | 15                | С                 | Y                           | 4     |
| Programming in Java        | IN1007       | 30                | С                 | N                           | 4     |
| Operating Systems          | IN1011       | 15                | С                 | Υ                           | 4     |
| Computer Science, Ethics & | IN1012       | 15                | С                 | Y                           | 4     |
| Society                    |              |                   |                   |                             |       |
| Databases                  | IN1013       | 15                | С                 | Υ                           | 4     |

#### Programme Stage 2

To pass Programme Stage 2, you must have acquired 120 credits as specified in Programme Stage 2 of the Programme Scheme. To progress from Programme Stage 2 to Programme Stage 3, Programme Stage 2 requirements must have been satisfied.

This Programme Stage consists of 7 compulsory core modules, each worth 15 credits, and compulsory core project module, which is worth 15 credits.

You may transfer into this programme route at the start of Programme Stage 2 if:

- you have passed the modules in Programme Stage 1;
- resources allow the transfer;

- the programme director approves the transfer.

A student registered on the MSci programme who obtains the required credits for Programme Stage 2 but does not achieve an aggregate mark of at least 55% at Programme Stage 2 will be transferred to the related BSc programme.

| Module Title                           | SITS<br>Code | Module<br>Credits | Core/<br>Elective | Can be<br>compen-<br>sated? | Level |
|--|--------------|-------------------|-------------------|-----------------------------|-------|
| Data Structures and Algorithms         | IN2002       | 15                | С                 | Y                           | 5     |
| Language Processors                    | IN2009       | 15                | С                 | Y                           | 5     |
| Computer Networks                      | IN2011       | 15                | С                 | Y                           | 5     |
| Object-Oriented Analysis and<br>Design | IN2013       | 15                | С                 | Y                           | 5     |
| Professional Development in IT         | IN2015       | 15                | С                 | N                           | 5     |
| Team Project                           | IN2033       | 15                | С                 | N                           | 5     |

| Programming in C++            | IN2029 | 15 | С | Υ | 5 |
|-------------------------------|--------|----|---|---|---|
| Cloud Technology for Business | IN2023 | 15 | С | Υ | 5 |
| Transformation                |        |    |   |   |   |

#### Programme Stage 3

To progress from Programme Stage 2 to Programme Stage 3 on the MSci (Hons) programme, Programme Stage 2 requirements must have been satisfied, and in addition an overall aggregate of 55% achieved at Programme Stage 2. If the Programme Stage 2 requirements are met, but the 55% aggregate grade is not achieved, then you would be transferred to Programme Stage 3 on the BSc (Hons) programme.

To pass Programme Stage 3, you must have acquired 120 credits as specified in Programme Stage 3 of the Programme Scheme.

This Programme Stage consists of 3 compulsory core modules, each worth 15 credits, and 5 elective modules each worth 15 credits. Elective choice may be further constrained by timetabling requirements. The full range of electives may not be available in all years.

#### Notes on *super-modules*:

For *super-modules*, i.e. modules with identical titles (but differing module codes) offered at both Level 6 and Level 7, only one of these modules may be chosen.
In these module pairs, the differences are primarily within the learning outcomes (Knowledge and Understanding and Skills) and how they are assessed. The learning activities and assessment evaluation will be aligned accordingly to reflect these differences.

You may transfer into this programme route at the start of Programme Stage 3 if:

- you have passed the modules in Programme Stage 2;
- resources allow the transfer;
- the programme director approves the transfer.

If you leave the programme at the end of Programme Stage 3 you must additionally take IN3007 (the Level 6 project) in order to gain professional recognition.

A student registered on the MSci programme who obtains the required credits for Programme Stage 3 but does not achieve an aggregate mark of at least 50% at Programme Stage 3 will not be able to proceed to Programme Stage 4. The Assessment Board will consider whether the student has met the requirements for a BSc Award.

*Elective choice may be constrained by timetabling requirements. The full range of electives may not be available in all years.* 

| Module Title          | SITS<br>Code | Module<br>Credits | Core/<br>Elective | Compensation<br>Yes/No | Level |
|-----------------------|--------------|-------------------|-------------------|------------------------|-------|
| Theory of Computation | IN3017       | 15                | С                 | Y                      | 6     |
| Advanced              | IN3042       | 15                | С                 | Υ                      | 6     |

| Programming:                         |                  |     |   |    |   |
|--------------------------------------|------------------|-----|---|----|---|
| Concurrency                          |                  |     |   |    |   |
| Functional                           | IN3043           | 15  | С | Y  | 6 |
| Programming                          | 1113043          | 15  |   | Ĭ  | U |
| Games Technology                     | IN2026           | 15  | E | Y  | 5 |
| Advanced Databases                   | IN2020           | 15  | E | Y  | 6 |
|                                      | IN3001           | 15  | E | Y  | 6 |
| Computer Graphics                    | IN3005<br>IN3026 | 15  | E | Y  | 6 |
| Advanced Games                       | 1113020          | 15  |   | Ŷ  | 0 |
| Technology<br>Professional Placement | IN3027           | 30  | E | N  | 6 |
| and Career                           | IN3027           | 30  | E | IN | 0 |
|                                      |                  |     |   |    |   |
| Development                          | 1012020          | 15  | E | Y  |   |
| Data Visualization                   | IN3030           |     | E | Y  | 6 |
| Digital Signal                       | IN3031           | 15  | E | Y  | 0 |
| Processing and Audio                 |                  |     |   |    |   |
| Processing                           | 1110000          | 45  |   |    |   |
| Network Security                     | IN3032           | 15  | E | Y  | 6 |
| Project Management                   | IN3040           | 15  | E | Y  | 6 |
| Natural Language                     | IN3045           | 15  | E | Y  | 6 |
| Processing                           |                  |     |   |    |   |
| Cloud Computing                      | IN3046           | 15  | E | Y  | 6 |
| Information Security                 | IN3049           | 15  | E | Y  | 6 |
| Fundamentals                         |                  | · - |   |    |   |
| Computer Vision                      | IN3060           | 15  | E | Y  | 6 |
| Introduction to Artificial           | IN3062           | 15  | E | Y  | 6 |
| Intelligence                         |                  |     |   |    |   |
| Programming and                      | IN3063           | 15  | E | Y  | 6 |
| Mathematics for Al                   |                  |     |   |    |   |
| Agents and Multi                     | IN3064           | 15  | E | Y  | 6 |
| Agents Systems                       |                  |     |   |    |   |
| User Centred Systems                 | IN3065           | 15  | E | Y  | 6 |
| Design                               |                  |     |   |    |   |
| Semantic Web                         | IN3067           | 15  | E | Y  | 6 |
| Technologies and                     |                  |     |   |    |   |
| Knowledge Graphs                     |                  |     |   |    |   |

#### Programme Stage 4

For an MSci (Honours) degree student to progress from Programme Stage 3 to Programme Stage 4, Programme Stage 3 requirements must have been satisfied, and in addition an overall aggregate of 50% achieved at Programme Stage 3.

To pass Programme Stage 4, you must have acquired 120 credits as specified in Programme Stage 4 of the Programme Scheme.

This Programme Stage consists of 1 compulsory core module worth 15 credits, 3 elective modules each worth 15 credits and a compulsory core project worth 45 credits.

*Elective choice may be further constrained by timetabling requirements. The full range of electives may not be available in all years.* 

| Module Title  | SITS<br>Code | Module<br>Credits | Core/<br>Elective | Compensa-<br>tion Yes/No | Level |
|---|--------------|-------------------|-------------------|--------------------------|-------|
| Advanced Algorithms<br>and Data Structures                    | INM422       | 15                | С                 | Y                        | 7     |
| Individual Project  | INM450       | 45                | С                 | N                        | 7     |
| Software Systems<br>Design                                    | INM330       | 15                | E                 | Y                        | 7     |
| User-centred Systems<br>Design                                | INM355       | 15                | E                 | Y                        | 7     |
| Advanced Databases  | INM370       | 15                | E                 | Y                        | 7     |
| Project Management  | INM372       | 15                | E                 | Y                        | 7     |
| Computer Graphics   | INM376       | 15                | E                 | Y                        | 7     |
| Digital Signal<br>Processing & Audio<br>Processing            | INM378       | 15                | E                 | Y                        | 7     |
| Data Visualization  | INM402       | 15                | E                 | Υ                        | 7     |
| Neural Computing  | INM427       | 15                | E                 | Υ                        | 7     |
| Cloud Computing   | INM429       | 15                | E                 | Υ                        | 7     |
| Machine Learning  | INM431       | 15                | E                 | Υ                        | 7     |
| Big Data  | INM432       | 15                | E                 | Υ                        | 7     |
| Natural Language<br>Processing                                | INM434       | 15                | E                 | Y                        | 7     |
| Information Security<br>Fundamentals                          | INM440       | 15                | E                 | Y                        | 7     |
| Network Security  | INM441       | 15                | E                 | Υ                        | 7     |
| Cryptography  | INM443       | 15                | E                 | Υ                        | 7     |
| Computer Vision   | INM460       | 15                | E                 | Υ                        | 7     |
| Introduction to Artificial<br>Intelligence                    | INM701       | 15                | E                 | Y                        | 7     |
| Programming and<br>Mathematics for<br>Artificial Intelligence | INM702       | 15                | E                 | Y                        | 7     |
| Computational<br>Cognitive Systems                            | INM703       | 15                | E                 | Y                        | 7     |
| Agents and Multi-Agent<br>Systems                             | INM704       | 15                | E                 | Y                        | 7     |
| Advanced Games<br>Technology                                  | INM710       | 15                | E                 | Y                        | 7     |

## TO WHAT KIND OF CAREER MIGHT I GO ON?

When you graduate with the MSci (Hons) in Computer Science you would be expected to progress directly into either advanced technical roles or research in the domain of computing. These roles can be in a broad range of areas, including all forms of software or hardware development, design and analysis of algorithms data structures and systems, data analysis and research into computational methods in diverse areas, such as industrial applications, media, vision, sound, security, or health. Graduates starting a new business can benefit from City's London City Incubator and City's links to Tech City, providing support for start-up businesses

If you would like more information on the Careers support available at City, please go to: <u>http://www.city.ac.uk/careers/for-students-and-recent-graduates</u>.

## WHAT STUDY ABROAD OPTIONS ARE AVAILABLE?

There are no study abroad options for the programme.

## WHAT PLACEMENT OPPORTUNITIES ARE AVAILABLE?

You will have the opportunity to undertake a placement in a diverse range of companies and roles working at blue-chip multinational corporations or dynamic start up ventures both in the UK and internationally. The broad spectrum of roles available will represent the developing nature of the Computer Science and Information Technology industry allowing you to focus on your interests whilst being exposed to new experiences and challenges.

You have the opportunity take a one year placement whilst at City University London.

The one year placement can be undertaken following successful completion of either Programme Stage 2 or Programme Stage 3 and will be required to last for a minimum of 9 months.

The following criteria apply to placements:

In order to join a placement route, you must successfully complete the preceding academic year.

You will need to source and apply for any placement opportunities independently however support and guidance will be provided throughout the application process by the Professional Liaison Unit.

In order to receive credit and successfully complete the placement, you will be required to submit deliverables for and pass a Professional Placement & Career Development module. Further information on this module and the associated deliverables can be found in the module guidance notes.

When undertaking a placement you must adhere to specific rules and regulations regarding placement conduct and other obligations as set out by the Professional Liaison Unit.

For further information on placement opportunities please go to the Professional Liaison webpage at https://www.city.ac.uk/mathematics-computer-science-engineering/placements-and-internships/about-professional-liaison-unit

## WILL I GET ANY PROFESSIONAL RECOGNITION?

### Accrediting Body: British Computer Society

#### Nature of Accreditation

In order to gain accreditation you must successfully complete the 480 credits of the MSci programme, including passing at the first attempt a practical problem solving project. In particular, leaving the programme after 3 year whilst earning and honours degree will not gain accreditation.

Partial CEng accreditation

Certificate Diploma Professional Graduate Diploma PGD Project

### HOW DO I ENTER THE PROGRAMME?

We operate a policy of common entrance requirements for all computing undergraduate courses. Applications must be made through the UCAS system.

We rarely interview applicants, usually only students offering substantive relevant work experience when we need to investigate further whether they have the appropriate skills to enable them to succeed on our courses.

Students who have not yet finished their pre-university education and meet the requirement set out below will be made a conditional offer, typically based on the UCAS tariff point system.

Consideration will be given to the whole UCAS form, including reference and personal statement. Students who have already finished their pre-university education will also be judged on the requirements below.

If we are satisfied that they meet our requirements, they will be offered an unconditional place.

#### **Standard Requirements**

These requirements are set out in terms of our standard A-level requirements. Other qualifications are benchmarked against this, using the notional learning hours, breadth and depth of the qualification taken. We have standard policies for most common qualifications such as the BTEC National and International Baccalaureate.

We require that applicants be studying for the equivalent of (at least) 3 A-levels. Foreign language qualifications where the student is a native speaker are excluded. GCE General Studies is also excluded from consideration. Students are required to have a GCSE Grade C in English Language and Mathematics (or equivalent). The conditional offers that we make to students are made using the UCAS tariff, excluding key skills (i.e. 360 Tariff Points excluding Key Skills).

The Advanced Diploma is welcomed on par with A-levels according to the Tariff as are the BTEC and OCR Nationals.

Exceptions to these requirements may be made in the event that a candidate appears suitable due to other evidence, whilst not meeting the usual requirements.

**Overseas Applicants** 

Overseas applicants are considered on an individual basis, with their qualifications being benchmarked against the standard entry route as far as possible (using information sources such as UK NARIC). Overseas students are required to have passed an Approved English Test, at the equivalent of IELTS 6.0 or over.

Version: 7.4 Version date: May 2023 For use from: 2023-24