UNIVERSITY OF NOTTINGHAM (UNITED KINGDOM)
ACADEMIC PLAN SPECIFICATION

ACADEMIC YEAR 2019

Section A. Basic Information

1 Title: Master of Science Computer Science

2 Academic Plan Code: U7PCMPSC   **UCAS Code:** G405

3 School(s) Responsible For Management Of The Academic Plan:

Computer Science	100%

4 Type of Academic Plan: Single Subject

5 Mode of delivery: Full-time
In Person

6 Plan Accreditation N/A

7 Relevant QAA Subject Benchmark(s):

Computing

Section B. General Information

Educational Aims:

The aim of this degree is to properly reflect the full range of research of the School in its Masters degree programmes. The degree will train scientists and engineers in advanced computational techniques (specifically algorithmics and advanced programming) and the relevant scientific basis (correct-by-construction program design, foundations of artificial intelligence and program analysis). It will prepare students for highly skilled careers in industry and/or research. The degree will be open to all computer science graduates, including those from the University of Nottingham. It may provide teaching support for research students in the School. (These will be allowed to follow individual modules, in whole or in part, although not being formally registered for the degree.)

Outline Description of Plan:

The Masters course is studied full-time over one academic year. A total of 120 credits of taught modules are studied in the Autumn and Spring semesters. In addition, a research project worth 60 credits is undertaken in the Summer Period giving a total course content of 180 credits.

Distinguishing Features:

This degree reflects the research of the School in scheduling and optimisation, foundations of programming, artificial intelligence, modelling and simulation, and interactive systems, in which areas the School has world-leading expertise.

Further Information:

Section C. Supplementary Regulations

1 Admission Requirements:

Plan Requirements: Including: 2:1 (or international equivalent) with evidence of an interest or aptitude for programming. Graduates from a science or engineering background will be considered with a 55% average mark.

Excluding:

Other requirements:

IELTS Requirements: 6.5 w/ no less than 6.0 in ea.

General Information:

2 Plan Structure

U7PCMPSC - PG I

Compulsory - **Students must take all modules in this group. **

Code	Title	Credits	Compensatable	Taught
COMP4037	Research Methods	20.00	Y	Spring UK

	Credit Total:	20

U7PCMPSC - PG I - Restricted - Group 1

Students without a background in Computer Science must take the modules listed below.

Students with a background in Computer Science cannot select these modules.

- COMP4008 Programming
- COMP4035 Systems and Networks
- COMP4039 Databases, Interfaces and Software Design Principles

Students wishing to take AI modules, in order to obtain the MSc Computer Science with AI need to select a 40 credits from the below listed module, in addition to taking COMP4026 Research Project in Computer Science (Artificial Intelligence):

- COMP3009 Machine Learning
- COMP4034 Autonomous Robotic Systems
- COMP4041Linear and Discrete Optimization

- COMP3004 Designing Intelligent Agents
- COMP4002 Games
- COMP4030 Data Modelling and Analysis
- COMP4033 Fuzzy Logicand and Fuzzy Systems
- COMP4038 Simulation and Optimisation for Decision Support

Students must take a minimum of 50 and a maximum of 70 credits from this group.

Restricted

Code	Title	Credits	Compensatable	Taught
COMP3008	Knowledge Representation and Reasoning	20.00		Autumn UK
COMP4017	Design Ethnography	20.00		Autumn UK
COMP4008	Programming	20.00	Y	Autumn UK
COMP3009	Machine Learning	20.00		Autumn UK
COMP4019	Advanced Algorithms and Data Structures	10.00		Autumn UK
COMP4032	Advanced Computer Networks	20.00		Autumn UK
COMP4034	Autonomous Robotic Systems	20.00		Autumn UK
COMP4035	Systems and Networks	20.00	Y	Autumn UK
COMP4039	Databases, Interfaces and Software Design Principles	20.00	Y	Autumn UK
COMP4040	Project in Advanced Algorithms and Data Structures	10.00		Autumn UK
COMP4041	Linear and Discrete Optimization	20.00		Autumn UK
COMP4075	Real-world Functional Programming	10.00		Autumn UK
COMP4095	Real World Functional Programming Project	10.00		Autumn UK

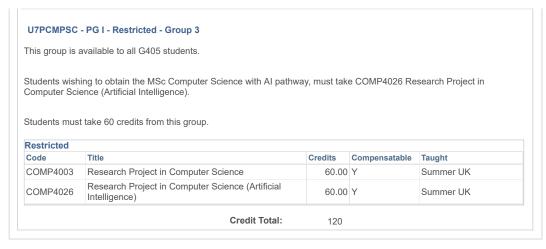|	Credit Total:	220

U7PCMPSC - PG I - Restricted - Group 2

Students wishing to take AI modules, in order to obtain the MSc Computer Science with AI need to select 40 credits from the below listed module, in addition to taking COMP4026 Research Project in Computer Science (Artificial Intelligence):

- COMP3009 Machine Learning
- COMP4034 Autonomous Robotic Systems
- COMP4041Linear and Discrete Optimization

- COMP3004 Designing Intelligent Agents
- COMP4002 Games
- COMP4030 Data Modelling and Analysis
- COMP4033 Fuzzy Logicand and Fuzzy Systems
- COMP4038 Simulation and Optimisation for Decision Support"

This group is available to all G405 students. Students should take a minimum of 30 and a maximum of 50 credits from this group.

Restricted

Code	Title	Credits	Compensatable	Taught
COMP3001	Computability	10.00	Y	Spring UK
COMP3004	Designing Intelligent Agents	20.00	Y	Spring UK
COMP4002	Games	20.00	Y	Spring UK
COMP3011	Computer Graphics	20.00	Y	Spring UK
COMP4024	Software Engineering Management	20.00	Y	Spring UK
COMP4030	Data Modelling and Analysis	20.00	Y	Spring UK
COMP4033	Fuzzy Logic and Fuzzy Systems	20.00	Y	Spring UK
COMP4036	Mixed Reality Technologies	20.00	Y	Spring UK
COMP4038	Simulation and Optimisation for Decision Support	20.00	Y	Spring UK
COMP3021	Fundamentals of Information Visualisation	10.00	Y	Spring UK
COMP3022	Information Visualisation Project	10.00	Y	Spring UK
COMP4074	Programs, Proofs and Types	20.00	Y	Spring UK

	Credit Total:	210

U7PCMPSC - PG I - Restricted - Group 3

This group is available to all G405 students.

Students wishing to obtain the MSc Computer Science with AI pathway, must take COMP4026 Research Project in Computer Science (Artificial Intelligence).

Students must take 60 credits from this group.

Restricted

Code	Title	Credits	Compensatable	Taught
COMP4003	Research Project in Computer Science	60.00	Y	Summer UK
COMP4026	Research Project in Computer Science (Artificial Intelligence)	60.00	Y	Summer UK
	Credit Total:	120		

3 Assessment

The plan specification content should be read in the context of the relevant University Study Regulations. Please refer to this information on:

http://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/index-page-pgt-regulations.aspx

Assessment Marking Criteria:

The plan specification content should be read in the context of the relevant University Study Regulations. Please refer to this information on:

http://www.nottingham.ac.uk/regulations/

Progression Information:

This programme will comply with the University Postgraduate taught assessment regulations which can be found athttps://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/taughtmastersdegreespgdipsandpgcertcourseswef2017.aspxAccredited Prior Learning (APL)In exceptional cases, candidates may be considered for up to 60 credits of APL when transferring from another approved institution, subject to the approval by the course director.

Borderline Criteria:

Degree Information:

The award of credit, completion of a stage, reassessment and award of Masters degree, postgraduate diploma or postgraduate certificate and its classification are set out in the University Postgraduate taught assessment regulations which can be found at:https://www.nottingham.ac.uk/academicservices/qualitymanual/assessmentandawards/taughtmastersdegreespgdipsandpgcertcourseswef2017.aspxThe optional variations from these regulations are as follows:• The dissertation marks may count towards the award of a Postgraduate Diploma.Candidates who fail to achieve the required standard in their Individual project module will be required to resubmit their work in April of the following academic year. Candidates who wish to submit at an earlier opportunity should contact the School for advice. Candidates who cannot or do not wish to resubmit a failed dissertation for reassessment may be awarded a Postgraduate Diploma, provided that they achieve the standards set by the Supplementary Regulations governing the Postgraduate Diploma.Note that for the award of MSc, Postgraduate Diploma and Postgraduate Certificate with Merit or Distinction the overall marks given must be achieved using first-sit marks only, i.e. resit marks are not taken into account.

Course Weightings %

PG I	100.00

Degree Calculation Model:

Arithmetic Mean

4 Other regulations

Notwithstanding Regulations:

Section D. Learning Outcomes

Overview:

All these intellectual skills are assessed throughout the programme in exams, coursework, oral presentations and other assignments.As befits a programme at MSc level, a large proportion of the outcomes is achieved through guided self-directed learning. Transferable skills are an essential component of the programme and they are included in all of the modules to a greater or lesser extent. Transferable skills are particularly emphasised in the individual project, which concludes the study. The importance of the individual project is reflected in the criteria for considering borderline candidates.

Teaching & Learning:

Acquisition of the learning outcomes takes place through a combination of lectures, interaction between students and teachers at seminars, tutorials and individual consultations, consultation of library and other resources. All modules, whatever the format of the teaching, involve discussion of key issues and problems, and analysis of material. The individual project will provide a major learning opportunity; it is expected that it will be directly related to one of the optional modules chosen in the second semester.

Knowledge and Understanding

Learning Outcomes

A1. Mathematical principles of algorithm and program design
A2. State-of-the-art computational methods
A3. Tools supporting software development and decision making
A4. Programming of advanced applications on modern computers

Teaching and Learning and Assessment:

Intellectual Skills

Learning Outcomes

B1. The application of complex ideas to familiar and to novel situations
B2. Ability to work with abstract concepts and in a context of generality
B3. Logical and analytical reasoning
B4. Ability to relate theoretical models to their applications
B5. Working to high levels of accuracy
B6. The transfer of expertise between different topics

Teaching and Learning and Assessment:

Professional/Practical Skills

Learning Outcomes

C1. Develop software with appropriate guarantees of reliability and efficiency
C2. Select and apply appropriate methods, models and tools
C3. Justify design decisions rigorously
C4. Communicate results using appropriate styles, conventions and terminology
C5. Use appropriate software libraries effectively

Teaching and Learning and Assessment:

Transferable/Key Skills

Learning Outcomes

D1. Effective oral and written communication skills in a range of traditional and electronic media
D2. Effective self-management in terms of time, planning and behaviour, motivation, self-starting, individual initiative and enterprise
D3. Distillation of key ideas and concepts from critical reading of published literature
D4. Development and communication of novel methods and results

Teaching and Learning and Assessment:

Plan Search