

**MSc Computing**

This document provides a definitive record of the main features of the programme and the learning outcomes that a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is intended as a reference point for prospective students, current students, external examiners and academic and support staff involved in delivering the programme and enabling student development and achievement.

**Programme Information**

Programme Title	Computing		
Award(s)	MSc		
Programme Code	G5U6		
Awarding Institution	Imperial College London		
Teaching Institution	Imperial College London		
Faculty	Faculty of Engineering		
Department	Department of Computing		
Main Location of Study	South Kensington Campus		
Mode and Period of Study	1 academic year (12 months), full-time		
Cohort Entry Points	Annually in October		
Relevant <a href="#">QAA Benchmark Statement(s)</a> and/or other external reference points	<a href="#">Master's Degrees in Computing</a>		
Total Credits	ECTS:	90	CATS: 180
<a href="#">FHEQ Level</a>	Level 7		
<a href="#">EHEA Level</a>	2 <sup>nd</sup> cycle		
External Accrator(s)	<a href="#">Institute of Engineering and Technology (IET)</a>		

**Specification Details**

Student cohorts covered by specification	2022-23 entry
Person responsible for the specification	Dr Anandha Gopalan, Director of PG Studies
Date of introduction of programme	
Date of programme specification/revision	August 2022

## Programme Overview

This course provides intensive training in computer science, and is suitable for graduates of disciplines other than computing who are keen to acquire core computing skills or deepen their existing knowledge of computing.

This course provides a year of intensive training in computer science, and is suitable for graduates of disciplines other than computing who are preparing for a career in the computer industry.

Applicants who want to add computing qualifications or to retrain as computing or IT professionals are the natural target for this programme, and the course is also a suitable preparation for PhD studies.

This MSc provides opportunities for postgraduate students to develop and demonstrate knowledge, understanding, and practical skills in basic and specialised topics in computing, as well as the qualities and skills needed for group co-operation and for literature search, technical presentation and report writing. You also have the chance to join in development of a large software project.

We use digital technology to bring further benefits to our education programmes, drawing from investments made and skills gained during the pandemic. We deliver our education as a useful blend of face-to-face and digital learning. This will also prepare our students well for a more hybrid work culture of the future.

## Learning Outcomes

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial College degree programme. The Graduate Attributes are available at: [www.imperial.ac.uk/students/academic-support/graduate-attributes](http://www.imperial.ac.uk/students/academic-support/graduate-attributes)

### Knowledge and Understanding of:

- Major paradigms of programming - declarative, imperative and object oriented;
- Basic Computer Science, including Object Oriented Design, Databases, Communication and Networks, Architecture, Operating Systems and Logic;
- Practical programming skills;
- The detail and essential topics relevant to the students' chosen option and project areas;
- Communication skills, including project design, teamwork, written and oral reports and presentations and literature search, both web-based and hard copy;
- A broad awareness of the subject of computer science;

### Intellectual Skills:

- Analyse and formally specify computing and programming problems of varying types;
- Match problems to tools and techniques most suitable for solving them;
- Have an understanding of the style of a number of major programming languages and paradigms;
- Develop an understanding of a basic computer model and the basic theory required for computer science;
- Develop an understanding and practice of more advanced computing topics, including databases, concurrent programming, artificial intelligence and distributed systems;
- Plan, conduct and write-up a programme of software development conducted in a team;
- Plan, conduct and write-up a programme of original research and software development;

**Practical Skills:**

- Design and develop programs of varying levels of complexity using a number of different programming languages and paradigms, including logic and functional programming, imperative and object oriented programming;
- Use computing tools and techniques, such as database, web-based and graphic tools and techniques;
- Analyse computing and computing related problems and devise solutions to them;
- Give technical presentations;
- Prepare technical reports;
- Conduct detailed literature searches;
- Conduct in-depth research on tools and languages available on line;

**Transferable Skills:**

- Communicate effectively through oral presentations, computer presentations and written reports;
- Program in the major computer programming paradigms;
- Use the World Wide Web effectively;
- Integrate and evaluate information from multiple and diverse sources;
- Work within and contribute to a team, apply management skills such as coordination, project design and evaluation and decision processes as applied in software engineering;
- Manage resources and time;
- Transfer techniques and solutions from one area to another;
- Learn independently with open mindedness and critical enquiry;
- Learn effectively for the purpose of continuing professional development;

**Entry Requirements**

Academic Requirement	Minimum requirement is a first-class degree in any subject.
English Language Requirement	<a href="#">Higher requirement</a> Please check for other <a href="#">Accepted English Qualifications</a>

**Learning & Teaching Strategy**

Scheduled Learning & Teaching Methods	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> <li>• Practical work</li> <li>• Group project work</li> <li>• Independent reading</li> <li>• Laboratory work</li> </ul>
Project and Placement Learning Methods	<ul style="list-style-type: none"> <li>• Individual research project</li> </ul>

**Assessment Strategy**

Assessment Methods	<ul style="list-style-type: none"> <li>• Written examinations</li> <li>• Coursework</li> <li>• Reports</li> <li>• Product demonstrations</li> </ul>
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	<ul style="list-style-type: none"> <li>• Presentations</li> <li>• Written assignments</li> <li>• Laboratory work</li> <li>• Dissertation</li> </ul>
<b>Academic Feedback Policy</b>	
<p>Feedback will be provided on coursework within two weeks of submission. This will be in the form of, for example:</p> <ul style="list-style-type: none"> <li>• Personal discussion</li> <li>• Discussions in small-group tutorials</li> <li>• Marked-up coursework, laboratory exercises or tests</li> <li>• Verbal presentation, e.g. during or after lectures</li> <li>• Written class-wide summaries</li> <li>• Interactive problem solving sessions</li> <li>• Model answers to coursework</li> </ul> <p>In lieu of feedback on examinations, selected examination questions are routinely set as unassessed problems in the following year, with model answers provided.</p>	
<b>Re-sit Policy</b>	
<p>In line with College policy, students who are unsuccessful in any of their examinations may usually be allowed an opportunity to re-sit at the discretion of the Board of Examiners.</p> <p>Specific information regarding re-sits for Taught Master's degrees can be found in the relevant Academic Regulations available at: <a href="https://www.imperial.ac.uk/about/governance/academic-governance/regulations/">https://www.imperial.ac.uk/about/governance/academic-governance/regulations/</a></p>	
<b>Mitigating Circumstances Policy</b>	
<p>Students may be eligible to apply for mitigation if they have suffered from serious and unforeseen circumstances during the course of their studies that have adversely affected their ability to complete an assessment task and/or their performance in a piece of assessment.</p> <p>The College's Policy on Mitigating Circumstances is available at: <a href="https://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/">https://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/</a></p>	
<b>Assessment Structure</b>	
<b>Marking Scheme</b>	
<p>In order to PASS the MSc, students have to satisfy all of the following requirements:</p> <ol style="list-style-type: none"> <li>1. An aggregated mark of at least 50% on all taught modules, chosen according to the degree structure, including the compulsory modules (not the Individual Project) and the required number of electives.</li> <li>2. Normally, a mark of at least 50% on each taught module in (1). Some marks in the range 40-49 may be condoned, at the discretion of the Board of Examiners, but no mark below 40% is acceptable.</li> </ol>	

3. A mark of at least 50% on the individual project.

In order to be considered for the MSc with **DISTINCTION**, students have to satisfy all of the following requirements:

1. Pass the MSc.
2. A mark of at least 70% on the Individual Project.
3. An aggregated mark of at least 70% on all taught modules, chosen according to the degree structure, including the compulsory modules (not the Individual Project) and the required number of electives.

In order to be considered for the MSc with **MERIT**, students have to satisfy all of the following requirements:

1. Pass the MSc, but without **DISTINCTION**.
2. A mark of at least 60% on the Individual Project.
3. An aggregated mark of at least 60% on all taught modules, chosen according to the degree structure, including the compulsory modules (not the Individual Project) and the required number of electives.

If a candidate who has been examined in all the components fails to satisfy the Board of Examiners, the Board will determine which modules they will have to retake. These modules are normally selected from those in which the candidate has a mark less than 50%. All failed components, including the practical components (e.g. Integrated Programming Laboratory or the Software Engineering Group Project), will normally have to be retaken the following year, and the Software Engineering Group Project may, at the discretion of the Board of Examiners, be substituted by practical tests. Only one retake is possible for each component. A candidate re-entering any part of the examination will normally only be credited with a bare pass mark for that module if successful.

There is no Postgraduate Certificate or Diploma available for partial completion of this MSc programme.

**Indicative Module List**

Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	FHEQ Level	ECTS
COMP97069	Computer Architecture	CORE	See module leader			125	7	5
COMP97095	Operating Systems	CORE	See module leader			125	7	5
COMP97073	Introduction to C++ Programming	CORE	See module leader			N/A	7	0
COMP97074	Object Oriented Design & Programming	CORE	See module leader			125	7	5
COMP97082	Software Engineering Group Project	ELECTIVE (A)	See module leader			125	7	5
COMP97087	MSc Computing Individual Project	CORE	See module leader			1000	7	40
COMP97090	Integrated Programming Laboratory	CORE	See module leader			125	7	5
COMP96005	Logic-Based Learning	ELECTIVE (A)	See module leader			125	6	5
COMP96046	Computer Vision	ELECTIVE (A)	See module leader			125	6	5
COMP96009	Graphics	ELECTIVE (A)	See module leader			125	6	5
COMP96015	Network and Web Security	ELECTIVE (A)	See module leader			125	6	5
TBC	Introduction to Machine Learning	ELECTIVE (A)	See module leader			125	7	5
COMP97022	Advanced Computer Graphics	ELECTIVE (A)	See module leader			125	7	5
COMP97061	Probabilistic Inference	ELECTIVE (A)	See module leader			125	7	5

**Indicative Module List**

Code	Title	Core/ Elective	L&T Hours	Ind. Study Hours	Place- ment Hours	Total Hours	FHEQ Level	ECTS
COMP97080	Computer Networks and Distributed Systems	ELECTIVE (A)	See module leader			125	7	5
COMP97161	Symbolic Reasoning (MSc variant)	ELECTIVE (A)	See module leader			125	7	5
COMP97092	Algorithms	ELECTIVE (A)	See module leader			125	7	5
COMP97121	Software Engineering Design	ELECTIVE (A)	See module leader			125	7	5
COMP97014	Cryptography Engineering	ELECTIVE (A)	See module leader			125	7	5
BUSI97785	AI Ventures	ELECTIVE (A)	See module leader			125	7	5
COMP97096	Logic	ELECTIVE (B)	See module leader			125	7	5
COMP97078	Databases (MSc variant)	ELECTIVE (B)	See module leader			125	7	5

## Supporting Information

The Programme Handbook is available at: <http://www.imperial.ac.uk/computing/current-students/>

The Module Handbook is available at: <http://www.imperial.ac.uk/computing/current-students/>

The College's entry requirements for postgraduate programmes can be found at: [www.imperial.ac.uk/study/pg/apply/requirements](http://www.imperial.ac.uk/study/pg/apply/requirements)

The College's Quality & Enhancement Framework is available at: [www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance](http://www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance)

The College's Academic and Examination Regulations can be found at: <http://www.imperial.ac.uk/about/governance/academic-governance/regulations/>

Imperial College is an independent corporation whose legal status derives from a Royal Charter granted under Letters Patent in 1907. In 2007 a Supplemental Charter and Statutes was granted by HM Queen Elizabeth II. This Supplemental Charter, which came into force on the date of the College's Centenary, 8th July 2007, established the College as a University with the name and style of "The Imperial College of Science, Technology and Medicine".  
<http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/charter-and-statutes/>

Imperial College London is regulated by the Office for Students (OfS)  
<https://www.officeforstudents.org.uk/>