

| Programme Information                     |                |                       |
|---|----------------|-----------------------|
| Programme Title                           | Programme Code | HECoS Code            |
| Computing (Visual Computing and Robotics) | GG47           | For Registry Use Only |

| Award                  | Length of Study | Mode of Study | Entry Point(s)          | Total Credits |      |
|------------------------|-----------------|---------------|-------------------------|---------------|------|
|                        |                 |               |                         | ECTS          | CATS |
| MEng                   | 4 years         | Full time     | October                 | 270           | 540  |
| BEng (Hons) - G400     | N/A             | N/A           | *none (exit award only) | 180           | 360  |
| BEng (Ordinary) - G403 | N/A             | N/A           | *none (exit award only) | 150           | 300  |
| DipHE - G400D          | N/A             | N/A           | *none (exit award only) | 120           | 240  |
| CertHE - G400C         | N/A             | N/A           | *none (exit award only) | 60            | 120  |

Please refer to the Progression and Classification section at the end of this document for information on transferring between Computing degree programmes.

\*The BEng, DipHE and CertHE are exit awards in Computing and will not include the specialism.

| Ownership  |  |                           |                         |
|--|--|---------------------------|-------------------------|
| Awarding Institution   | Imperial College London                    | Faculty                   | Faculty of Engineering  |
| Teaching Institution   | Imperial College London                    | Department                | Computing               |
| Associateship  | City and Guilds of London Institute (ACGI) | Main Location(s) of Study | South Kensington Campus |
| External Reference   |  |                           |                         |
| Relevant <a href="#">QAA Benchmark Statement(s)</a> and/or other external reference points |  | <a href="#">Computing</a> |                         |
| <a href="#">FHEQ Level</a>   |  | Level 7 - Master's        |                         |
| <a href="#">EHEA Level</a>   |  | 2nd Cycle                 |                         |
| External Accreditor(s) (if applicable)   |  |                           |                         |
| External Accreditor 1:   | N/A  |                           |                         |
| Accreditation received:  | N/A  | Accreditation renewal:    | N/A                     |
| Collaborative Provision  |  |                           |                         |

| Collaborative partner                    | Collaboration type | Agreement effective date | Agreement expiry date |
|--|--------------------|--------------------------|-----------------------|
| N/A                                      | N/A                | N/A                      | N/A                   |
| Specification Details                    |                    |                          |                       |
| Programme Lead                           |                    | Dr Matt Collison         |                       |
| Student cohorts covered by specification |                    | 2024-25 entry            |                       |
| Date of introduction of programme        |                    | September 19             |                       |
| Date of programme specification/revision |                    | August 23                |                       |

| Programme Overview   |
|--|
| <p>Our Computing degree programmes are designed to ensure that you will have detailed exposure to both the theoretical and practical aspects of Computing. At Imperial we see Computing as an engineering discipline where the emphasis is on building complex computer-based systems that work and are fit for purpose.</p> <p>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.</p> <p>The Visual Computing and Robotics specialism will give you a deep understanding of state-of-the-art methods in the design, implementation and evaluation of systems that depend on computer vision and/or computer-generated imagery. Specific application areas include robotic and autonomous systems, medical imaging and visual effects.</p> <p>By choosing this specialism you will take a number of compulsory modules<sup>1</sup> that will give you a deep understanding of state-of-the-art methods, including computer vision and machine learning, in the design, implementation and evaluation of robotic and autonomous systems.</p> <p>In the first two years, there is a carefully planned programme of practical laboratory work where you will solve problems of gradually increasing size and complexity. Each problem is designed to teach a specific aspect of Computing and, at the same time, provide exposure to a range of software and hardware platforms and tools appropriate to the problem. The emphasis throughout is on instilling transferable problem-solving skills and independent learning, rather than on the teaching of specific technologies.</p> <p>The mathematical foundations of computing, which includes various topics in discrete and continuous mathematics, is taught through a series of core and compulsory modules in the first two years. Follow-on modules in the third and fourth years allow you to apply the knowledge and skills gained to build and reason about complex systems, with key drivers being correctness, usability, security, reliability and performance.</p> <p>At the end of the second year, you will work as part of a team to develop a software application that meets the needs of a specific class of user. In the third year you will have the option to undertake a larger-scale team project, this time aimed at delivering a complex software artefact for a customer. In some of these team projects you will have the opportunity to work with external companies and collaborators.</p> <p>At the end of the Spring term of the third year you will embark on a full-time, paid industrial placement which finishes just prior to the start of the final year.</p> |

<sup>1</sup> **Core** modules are those which serve a fundamental role within the curriculum, and for which achievement of the credits for that module is essential for the achievement of the target award. Core modules must therefore be taken and passed in order to achieve that named award. **Compulsory** modules are those which are designated as necessary to be taken as part of the programme syllabus. Compulsory modules can be compensated. **Elective** modules are those which are in the same subject area as the field of study and are offered to students in order to offer an element of choice in the curriculum and from which students are able to select. Elective modules can be compensated.

In the final year you will undertake a major individual project spanning around eight months. This presents an exciting opportunity for you to apply the technical skills you have learnt throughout the course, including research and presentation skills, under the supervision of an academic adviser. The topics covered by individual projects vary enormously, from the very theoretical to the very practical. Many projects are aligned directly with the Department's cutting-edge research activities.

Students graduate with exceptional practical skills and with the ability to apply their extensive knowledge of key Computing principles to the engineering of complex systems that are fit for purpose, and also to academic and industrial research.

### **BEng vs MEng**

The department offers both a three-year BEng programme and four-year integrated Master's MEng programme in Computing. Both degree programmes involve substantial group and individual project work. The MEng programme has the added benefit of an industrial placement, and in your final year of your programme you will be able to choose from a range of Master's level elective modules and gain further exposure to cutting-edge research problems in computing.

## **Learning Outcomes**

Upon successful completion of the programme a typical student will be able to:

### **On completion of year 1 (equivalent to a Cert HE) ...**

1. Explain the internal architecture of a simple computer.
2. Develop and test software solutions to well-specified problems using a variety of programming paradigms.
3. Describe the key characteristics of information systems and use such systems effectively for data storage and retrieval.
4. Use mathematical methods to specify and analyse the behaviour of simple programs.
5. Use continuous mathematics to solve simple problems in applied Computing.
6. Apply basic research methods and communicate findings orally and in writing.
7. Explain the social, ethical and professional principles associated with computer-based technology and act in a manner that respects those principles.

### **On completion of year 2 (equivalent to a Dip HE), the ILOs above and...**

8. Apply software engineering design principles to the development of robust software that is easy to understand, test and maintain.
9. Design, implement and deploy web-based applications that meet the needs of their target users.
10. Specify, design and implement programming languages.
11. Explain the key principles underpinning the design of modern computer and communication systems.
12. Describe formal computational models that underpin Computing and use these to explain the limitations of computers.
13. Explain the relevant laws that impact on the practice of computing.
14. Demonstrate effective teamwork in the management and delivery of complex projects.

### **On completion of the third year, all the ILOs above and...**

15. Design, engineer and extend complex computer-based systems that are fit for purpose using core Computing knowledge and appropriate state-of-the-art technology, methods and thinking.
16. Develop computer-based systems in a manner that respects relevant legal, social, ethical and other professional practices.
17. Select and apply appropriate methods, techniques and tools to ensure correctness, security, reliability, performance, and maintainability of computer-based systems.
18. Apply mathematical methods and scientific reasoning to novel computing-related problems.
19. Communicate effectively, both orally and in writing, as individuals.

### **On achieving the MEng, all the ILOs above and...**

20. Apply technical knowledge and expertise to cutting-edge problems in industry.
21. Reflect critically on professional practice in an industrial setting.
22. Individually demonstrate the use of cutting-edge research, methods and thinking to solve complex Computing problems in scientific, engineering and industrial domains.

23. Employ state of the art machine learning algorithms, libraries and tools to complex vision, control and planning problems.
24. Design, build and experiment with practical hardware, including self-moving devices, cameras, actuators and sensors.

The Imperial Graduate Attributes are a set of core competencies which we expect students to achieve through completion of any Imperial degree programme. The Graduate Attributes are available at: <https://www.imperial.ac.uk/about/education/our-graduates/>

## Entry Requirements

|                              |  |
|------------------------------|--|
| Academic Requirement         | <p><b>A-levels</b></p> <p>Our typical A-level offer is A*AA - A*AAA with an A* in Maths. Typical offers also require STEP I/II.</p> <p>For further recommendations on A-levels, see the tab on Qualification Advice for Computing. We strongly encourage applicants to take Further Maths at A2 level.</p> <p>We also accept the Edexcel International A levels.</p> <p><b>International Baccalaureate</b></p> <p>Our typical IB offer is 42–44 points overall with a 7 in Maths at higher level and a 7 in at least one further relevant subject at higher level. Typical offers also require STEP I/II.</p> <p>For further information on entry requirements, please go to <a href="http://www.imperial.ac.uk/study/apply/undergraduate/entry-requirements/">www.imperial.ac.uk/study/apply/undergraduate/entry-requirements/</a> and the Department’s admission pages at <a href="http://www.imperial.ac.uk/computing/prospective-students/courses/ug/beng-meng-computing/">www.imperial.ac.uk/computing/prospective-students/courses/ug/beng-meng-computing/</a></p> |
| Non-academic Requirements    | N/A  |
| English Language Requirement | <p><a href="#">Standard requirement</a></p> <p>Please check for other <a href="#">Accepted English Qualifications</a></p>  |
| Admissions Test/Interview    | All students are required to take an on-line admissions test that can be sat at various times throughout the admissions cycle. Applicants who are shortlisted will be invited for interview. This will normally be held at Imperial, although there is provision for interviews to be conducted on-line.   |

The programme’s competency standards documents can be found at: [www.imperial.ac.uk/computing/prospective-students/courses/competence/](http://www.imperial.ac.uk/computing/prospective-students/courses/competence/)

## Learning & Teaching Approach

### Teaching

You will be taught through a combination of lectures, small-group and class-based tutorials, practical laboratory sessions and personal supervision of project work.

The first year of the programme is made up of core modules. The second year comprises a blend of core, compulsory and elective modules. In year 1 the programming and various mathematics modules are backed up with small group tutorials in groups of approximately eight students. A senior undergraduate student will act as an Undergraduate Teaching Assistant for many of these tutorials.

The ability to work effectively in teams is an essential skill for any aspiring engineer and Computing is no exception. You will have the opportunity to develop non-trivial software applications as part of a team in both the second and third years.

In the fourth year you will undertake a substantial individual project under the supervision of a member of staff. These require you to use the skills you have learnt to develop a novel piece of software, hardware or theory, often related to a topical research problem in Computing.

There is a spine of professional and transferable skills throughout the four years which includes training in oral and written communication skills and group working, and exposure to important ethical and legal frameworks that will help to govern your activities as a practicing engineer. Your ability to communicate orally and in writing will be assessed as part of various group and individual project activities throughout the degree. When developing software systems in years 2 and beyond you will be expected to conform to relevant computer law, for example relating to software licencing and the use of personal data, and this will also form part of the assessment.

The teaching methods will vary from standard classroom teaching to more active learning, where much of what you learn will be by small-group discussions and in-class problem-solving.

### **Independent learning**

You will be expected to spend significant time on independent study outside of face to face contact time. This will typically include reading journal articles and books, undertaking research on-line and in the library, reviewing lecture notes and watching lecture recordings, working on individual and group projects, working on coursework assignments and revising for exams. There is also a programme of extra-curricular lectures delivered by guest speakers from industry designed to introduce you to some of the key technical challenges in Computing that are being faced by industry.

### **Industrial placement**

In the third year you will undertake a major industrial placement that lasts for between five and six months, beginning at the end of the Spring term and ending prior to the start of the Autumn term of your fourth year. As such, part of this placement will fall outside of regular term time.

There will be a small number of support lectures which will explain the placement and administration systems and give you an opportunity to ask questions. You will have a manager/mentor in the company to report to and will be treated as a full-time member of staff. An important part of the industrial placement assessment will be a reflection on legal, social and professional issues that you encountered. To ensure that the placement is running smoothly, your personal tutor will make a visit to the company and talk to both you and your manager/mentor.

### **Overall Workload**

Your overall workload consists of face-to-face sessions and independent learning. In the first two years you will spend approximately 20% of your time in lectures and tutorials and approximately 5% in supervised laboratory sessions. The rest of the time is dedicated to independent study. The nominal total workload amounts to 60 ECTS per year and at Imperial, each ECTS credit taken equates to an expected total study time of 25 hours, i.e. approximately 1500 hours per year.

## **Assessment Strategy**

### Assessment Methods

You can expect a variety of different types of assessment methods:

- Programming exercises
- Computer-based programming tests
- Written coursework
- Computer-based coursework
- Written examinations
- Computer-based examinations
- Software demonstrations
- Group working
- Written reports
- Research summaries
- Oral presentations

Each examinable module comprises coursework that is designed to help you master key elements of the subject and, in part, to help prepare you for the final assessment, which is typically a written or computer-based examination.

In each of the first two years there is a substantial programme of continuous assessment, which is mostly centred around practical laboratory exercises of growing size and complexity. In the first year there are also computer-based programming tests for each of the major programming languages you will study.

You will receive written feedback on all coursework and laboratory exercises, including computer programming tests. You will also receive verbal feedback on many other aspects of your study, such as presentation and problem solving skills and your progress in group and individual projects.

Written examinations are held at the beginning of the summer term for first and second year modules and at the end of the Autumn and Spring terms for third and fourth year modules.

The weighting of coursework varies among modules, with the normal weighting being 20% of each taught module in years 3 and 4. The various assessments allow you to demonstrate that you have met the intended learning outcomes for each module and these collectively contribute towards your achievement of the programme learning outcomes, detailed above.

The industrial placement is designed to give you vital experience of working as part of a team in an industrial setting.

Collectively, the assessments are designed to ensure that you have acquired the core knowledge and skills expected of any Computing graduate and also that you are able to use these a. to solve the type of real-world problems encountered by industry, and b. to exploit effectively, and contribute to, cutting-edge research in Computing in an academic and/or industrial context.

### **Balance of assessment**

The following are approximate percentages based on a typical pathway through the course. Note that laboratory work comprises mostly independent study, although supervised laboratory sessions are also timetabled throughout the year.

|                    | <b>Year 1</b> | <b>Year 2</b> | <b>Year 3</b> | <b>Year 4</b> |
|--------------------|---------------|---------------|---------------|---------------|
| <b>Coursework</b>  | 10            | 10            | 7.5           | 9             |
| <b>Examination</b> | 84            | 57            | 42.5          | 50            |
| <b>Practical</b>   | 6             | 33            | 50            | 41            |

### Academic Feedback Policy

Feedback will be provided in one of a number of formats, including:

- Written, e.g. in the form of specimen solutions, written and/or verbal comments on individual assignments, class-wide feedback.
- Verbal, e.g. during or after face-to-face discussions with an assessor or in a classroom feedback session.
- Peer-to-peer, e.g. from a senior undergraduate teaching assistant, or peer student
- Personal, e.g. from your personal tutor regarding your overall progress.

You will receive feedback on formative, developmental assessments and on summative coursework assessments. Feedback is normally returned within two weeks of submissions, although the turnaround time for final, i.e. summative, assessments may be longer; in those cases you will be informed in advanced of the planned return date.

Imperial's Policy on Academic Feedback and guidance on issuing provisional marks to students is available at: [www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

### Re-sit Policy

Imperial's Policy on Re-sits is available at: [www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

#### Mitigating Circumstances Policy

Imperial's Policy on Mitigating Circumstances is available at: [www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/](http://www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/)

#### Additional Programme Costs

This section should outline any additional costs relevant to this programme which are not included in students' tuition fees.

| Description | Mandatory/Optional | Approximate cost |
|-------------|--------------------|------------------|
| N/A         | N/A                | N/A              |

**Important notice:** The Programme Specifications are the result of a large curriculum and pedagogy reform implemented by the Department and supported by the Learning and Teaching Strategy of Imperial College London. The modules, structure and assessments presented in this Programme Specification are correct at time of publication but might change as a result of student and staff feedback and the introduction of new or innovative approaches to teaching and learning. You will be consulted and notified in a timely manner of any changes to this document.

| <b>Programme Structure</b>   |   |                                  |        |                   |         |
|--|---|----------------------------------|--------|-------------------|---------|
| <b>Year 1 – FHEQ Level 4</b>   |   |                                  |        |                   |         |
| Code   | Module Title                              | Core/<br>Compulsory/<br>Elective | Group* | Term              | Credits |
| COMP40001  | Introduction to Computer Systems          | Core                             | N/A    | Autumn            | 5       |
| COMP40016  | Calculus                                  | Core                             | N/A    | Autumn            | 5       |
| COMP40018  | Discrete Mathematics, Logic and Reasoning | Core                             | N/A    | Autumn-<br>Spring | 10      |
| COMP40017  | Linear Algebra                            | Core                             | N/A    | Spring            | 5       |
| COMP40005  | Introduction to Computer Architecture     | Core                             | N/A    | Spring            | 5       |
| COMP40007  | Introduction to Databases                 | Core                             | N/A    | Autumn            | 5       |
| COMP40008  | Graphs and Algorithms                     | Core                             | N/A    | Spring            | 5       |
| COMP40009  | Computing Practical 1                     | Core                             | N/A    | Autumn-<br>Summer | 20      |
| Credit Total   |   |                                  |        |                   | 60      |
| <b>Year 2 – FHEQ Level 5</b>   |   |                                  |        |                   |         |
| <b>In addition to the core modules, you must select one module from the two electives.</b> |   |                                  |        |                   |         |
| Code   | Module Title                              | Core/<br>Compulsory/<br>Elective | Group  | Term              | Credits |
| COMP50001  | Algorithm Design and Analysis             | Compulsory                       | N/A    | Autumn            | 5       |
| COMP50002  | Software Engineering Design               | Compulsory                       | N/A    | Autumn            | 5       |
| COMP50003  | Models of Computation                     | Compulsory                       | N/A    | Autumn            | 5       |
| COMP50004  | Operating Systems                         | Compulsory                       | N/A    | Autumn            | 5       |
| COMP50005  | Networks and Communications               | Compulsory                       | N/A    | Spring            | 5       |
| COMP50006  | Compilers                                 | Compulsory                       | N/A    | Spring            | 5       |
| COMP50008  | Probability and Statistics                | Compulsory                       | N/A    | Spring            | 5       |
| COMP50007  | Computing Practical 2                     | Core                             | N/A    | Autumn-<br>Spring | 15      |
| COMP50010  | Year 2 Computing Group Project            | Core                             | N/A    | Spring-<br>Summer | 5       |
| COMP50009  | Symbolic Reasoning                        | Elective                         | N/A    | Spring            | 5       |
| COMP50011  | Computational Techniques                  | Elective                         | N/A    | Spring            | 5       |
| Credit Total   |   |                                  |        |                   | 60      |



**Year 3 - FHEQ Level 6**

**In addition to the core and compulsory modules you must select a total of 40 or 42.5 ECTS from the list of electives below, with at least 10 ECTS from group A. The placement constitutes the equivalent of 15 ECTS of load in the third year, but this does not contribute to the final degree classification.**

| Code      | Module Title                                      | Core/<br>Compulsory/<br>Elective | Group | Term                     | Credits |
|-----------|---|----------------------------------|-------|--------------------------|---------|
| COMP60021 | Software Engineering Group Project                | Elective                         |       | Spring                   | 10      |
| COMP60031 | Industrial Placement (Part 1)                     | Core                             |       | Summer                   | 15      |
|           | I-Explore   | Compulsory                       |       | Autumn<br>&/or<br>Spring | 5-7.5   |
| COMP60006 | Computer Vision                                   | Elective                         | A     | Spring                   | 5       |
| COMP60019 | Robotics  | Elective                         | A     | Spring                   | 5       |
| COMP60005 | Graphics  | Elective                         | A     | Spring                   | 5       |
| COMP60015 | Network and Web Security                          | Elective                         |       | Spring                   | 5       |
| COMP60012 | Introduction to Machine Learning                  | Elective                         | A     | Autumn                   | 5       |
| COMP60013 | Logic-Based Learning (not running in 2024-25)     | Elective                         |       | Spring                   | 5       |
| COMP60007 | The Theory and Practice of Concurrent Programming | Elective                         |       | Autumn                   | 5       |
| COMP60008 | Custom Computing                                  | Elective                         |       | Spring                   | 5       |
| COMP60029 | Data Processing Systems                           | Elective                         |       | Autumn                   | 5       |
| COMP60003 | Communicating Computer Science in Schools         | Elective                         |       | Spring                   | 5       |
| COMP60001 | Advanced Computer Architecture                    | Elective                         |       | Autumn                   | 5       |
| COMP60020 | Simulation and Modelling (not running in 2024-25) | Elective                         |       | Autumn                   | 5       |
| COMP60017 | System Performance Engineering                    | Elective                         |       | Spring                   | 5       |
| COMP60016 | Operations Research                               | Elective                         |       | Autumn                   | 5       |
| COMP60009 | Distributed Algorithms (not running in 24-25)     | Elective                         |       | Spring                   | 5       |
| COMP60023 | Type Systems for Programming Languages            | Elective                         |       | Autumn                   | 5       |
| COMP60032 | Networked Systems                                 | Elective                         |       | Autumn                   | 5       |
| COMP70015 | Mathematics for Machine Learning                  | Elective                         |       | Autumn                   | 5       |
| COMP60033 | Computer Research Collective                      | Elective                         |       | Autumn                   | 5       |

|              |  |          |  |        |           |
|--------------|--|----------|--|--------|-----------|
|              | Technical Option (outside Department of Computing) | Elective |  | Autumn | 5 – 7.5   |
| Credit Total |  |          |  |        | 60 – 62.5 |

#### Year 4 - FHEQ Level 7

**In addition to the core and compulsory modules you must select a total of 35 or 37.5 ECTS modules from the list of electives below, including at least 10 ECTS from Group A, zero to 12.5 ECTS from Group C and the rest from Group B.**

| Code      | Module Title                                     | Core/<br>Compulsory/<br>Elective | Group | Term          | Credits |
|-----------|--|----------------------------------|-------|---------------|---------|
| COMP70011 | Individual Project                               | Core                             |       | Autumn-Summer | 25      |
| COMP70012 | Industrial Placement (Part 2)                    | Core                             |       | Autumn        | 30      |
| COMP70015 | Mathematics for Machine Learning                 | Elective                         | A     | Autumn        | 5       |
| COMP70001 | Advanced Computer Graphics                       | Elective                         | A     | Spring        | 5       |
| COMP70010 | Deep Learning                                    | Elective                         | A     | Spring        | 5       |
| COMP70014 | Machine Learning for Imaging                     | Elective                         | A     | Spring        | 5       |
| COMP70028 | Reinforcement Learning                           | Elective                         | A     | Autumn        | 5       |
| COMP70067 | Robot Learning                                   | Elective                         | A     | Spring        | 5       |
| COMP70100 | Computational Neurodynamics                      | Elective                         | A     | Autumn        | 5       |
| COMP70101 | Human-Robot Interaction (not running in 2024-25) | Elective                         | A     | Autumn        | 5       |
| COMP70004 | Advanced Computer Security                       | Elective                         | B     | Spring        | 5       |
| COMP70023 | Scalable Software Verification                   | Elective                         | B     | Autumn        | 5       |
| COMP70022 | Scalable Systems and Data                        | Elective                         | B     | Autumn        | 5       |
| COMP70018 | Privacy Engineering                              | Elective                         | B     | Autumn        | 5       |
| COMP70009 | Cryptography Engineering (not running in 24-25)  | Elective                         | B     | Spring        | 5       |
| COMP70006 | Computational Finance (not running in 2024-25)   | Elective                         | B     | Autumn        | 5       |
| COMP70005 | Complexity                                       | Elective                         | B     | Autumn        | 5       |
| COMP70024 | Software Reliability (not running in 2024-25)    | Elective                         | B     | Autumn        | 5       |
| COMP70017 | Principles of Distributed Ledgers                | Elective                         | B     | Autumn        | 5       |
| COMP70020 | Program Analysis                                 | Elective                         | B     | Autumn        | 5       |

|              |   |           |   |                  |           |
|--------------|---|-----------|---|------------------|-----------|
| COMP70025    | Software Engineering for Industry                 | Elective  | B | Autumn           | 5         |
| COMP70007    | Computational Optimisation                        | Elective  | B | Spring           | 5         |
| COMP70021    | Quantum Computing                                 | Elective  | B | Autumn           | 5         |
| COMP70016    | Natural Language Processing                       | Elective  | B | Spring           | 5         |
| COMP70019    | Probabilistic Inference (not running in 2024-25)  | Elective  | B | Spring           | 5         |
| COMP70030    | Knowledge Representation (not running in 2024-25) | Elective  | B | Spring           | 5         |
| COMP70031    | Modal Logic for Strategic Reasoning               | Elective  | B | Spring           | 5         |
| COMP70086    | Advanced Computer Architecture                    | Elective  | B | Autumn           | 5         |
| COMP70070    | Custom Computing                                  | Elective  | B | Spring           | 5         |
| COMP70068    | Scheduling and Resource Allocation                | Elective  | B | Autumn           | 5         |
| COMP70105    | Deep Graph-Based Learning                         | Elective  | B | Spring           | 5         |
| COMP70098    | Introduction to Concrete Complexity               | Elective  | B | Spring           | 5         |
| COMP70103    | Statistical Information Theory                    | Elective  | B | Autumn           | 5         |
| COMP70112    | Non-Euclidean Methods in Machine Learning         | Elective  | B | Spring           | 5         |
| COMP60003    | Communicating Computer Science in Schools         | Elective  | C | Spring           | 5         |
|              | Elective(s) (outside Department of Computing)     | Electives | C | Autumn or Spring | 5 – 12.5  |
| Credit Total |   |           |   |                  | 90 – 92.5 |

Note: In Years 3 and 4, elective/technical modules from another Imperial degree programme may be allowed with the permission of the Director of UG studies.

## Progression

In order to progress to the next level of study, you must have passed all modules (normally equivalent to 60 ECTS) in the current level of study either at first attempt, at resit or by a compensated pass.

In addition:

- i) In order to progress to the second year, Computing Practical 1 must normally be passed either at the first attempt or having re-sat one or more components in the summer at the end of the first year. In addition to the normal 40% pass mark for Computing Practical 1, students must also have a weighted average of at least 50% in all of its Programming Tests and 40% on the Term 3 Group Project.
- ii) An overall weighted average of at least 60.00% is needed in the second year in order to progress to the third year. Students who fail to achieve this will normally be required to transfer to the third year of the BEng programme.

The overall weighted average for each year must be 40.00% or above, including any modules that have received a compensated pass, in order for you to progress to the next year of the programme. For the final year, the overall weighted average must be 50% or above.

## Resits

With the exception of Computing Practical 1 and 2, students will normally be offered two resit opportunities. The first is normally in the summer at the end of the academic year in question; the second is normally in the following academic year.

## Classification

The marks from modules in each year contribute towards the final degree classification. I-Explore and the Industrial Placement are PASS/FAIL and do not contribute to the final degree assessment.

In order to be considered for an award, you must have achieved the minimum number of credits at the required levels prescribed for that award and met any programme specific requirements as set out in the Programme Specification.

Your classification will be determined through:

- i) Aggregate Module marks for all modules
- ii) Year Weightings

This is known as the Programme Overall Weighted Average.

For this award, Year One is weighted at 7.50%, Year Two is weighted at 20.00%, Year Three is weighted at 36.25% and Year Four is weighted at 36.25%.

The university sets the class of undergraduate degree that may be awarded as follows:

- i) First 70.00% or above for the average weighted module results
- ii) Upper Second 60.00% or above for the average weighted module results
- iii) Lower Second 50.00% or above for the average weighted module results
- iv) Third 40.00% or above for the average weighted module results

## Transferring from the MEng programme to the BEng programmes

Due to the shared core content in the first two years of all Computing degree programmes, it is possible to transfer from the MEng to the BEng programme during a short period only, usually at the beginning of the third year .

## Transferring between MEng Computing specialisms

It is possible to transfer between the different MEng Computing degree specialisms at any point up until April in the fourth year of your programme, provided you have chosen elective modules in Years Three and Four which satisfy the compulsory module requirements for the target specialism.

Please find the full Academic Regulations at [www.imperial.ac.uk/about/governance/academic-governance/regulations/](http://www.imperial.ac.uk/about/governance/academic-governance/regulations/). Please follow the prompts to find the set of regulations relevant to your programme of study.

#### Programme Specific Regulations

A maximum of 15 ECTS credits can be compensated at each level (5, 6 and 7).

## Supporting Information

The Programme Handbook is available from the department.

The Module Handbook is available from the department.

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

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

Imperial's Academic and Examination Regulations can be found at:  
[www.imperial.ac.uk/about/governance/academic-governance/regulations](http://www.imperial.ac.uk/about/governance/academic-governance/regulations)

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[www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/](http://www.imperial.ac.uk/admin-services/secretariat/college-governance/charters/)

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[www.officeforstudents.org.uk/advice-and-guidance/the-register/](http://www.officeforstudents.org.uk/advice-and-guidance/the-register/)

**This document provides a definitive record of the main features of the programme and the learning outcomes that you may reasonably be expected to achieve and demonstrate if you take full advantage of the learning opportunities provided. This programme specification is primarily intended as a reference point for prospective and current students, academic and support staff involved in delivering the programme and enabling student development and achievement, for its assessment by internal and external examiners, and in subsequent monitoring and review.**