IMPERIAL

Programme Information

Programme Title		Programme Code	HECoS Code
Computing		G400	For Registry Use Only

Award BSc	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
BEng (Hons)	3 years	Full time	October	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.

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 QAA Benchmark Statement(s) and/or other external reference points	Computing
FHEQ Level	Level 6
EHEA Level	1st 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	2025-26 entry
Date of introduction of programme	September 19
Date of programme specification/revision	January 25

Programme Overview

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.

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 you well for a more hybrid work culture of the future.

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.

The mathematical foundations of computing, which includes various topics in discrete and continuous mathematics, is taught through a series of core and compulsory modules[1] in the first two years. Follow-on modules in the third year allow you to apply the knowledge and skills gained to build and reason about computer-based systems, with key drivers being correctness, usability, security, reliability and performance.

Machine Learning is a stream throughout the curriculum which combines foundations in Computing and Mathematics taught in year one in a dedicated module in year two. Follow-on elective modules then take this further through exploration of more advanced Machine Learning systems, more sophisticated modelling techniques, and by introducing application domains, such as Computer Vision, Natural Language Processing and Robotics.

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.

In the final year of the degree you will also 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, 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

---

[1] **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.

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 includes an industrial placement and also the opportunity to study more research-focused modules in the fourth year.

Learning Outcomes

Upon successful completion of the programme a typical BEng 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.

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.
15. Communicate effectively, both orally and in writing, as part of a team.
16. Explain the statistical foundations of descriptive and predictive statistical models.
17. Apply machine learning techniques to derive data-driven insights.

On completion of the BEng, all the ILOs above and…
18. 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.
19. Develop computer-based systems in a manner that respects relevant legal, social, ethical and other professional practices.
20. Select and apply appropriate methods, techniques and tools to ensure correctness, security, reliability, performance, and maintainability of computer-based systems.
21. Apply mathematical methods and scientific reasoning to novel computing-related problems.
22. Demonstrate effective application of Computing in scientific, engineering and industrial domains, as an individual.
23. Communicate effectively, both orally and in writing, as individuals.

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

	A-levels
Academic Requirement	Our typical A-level offer is A*AA - A*AAA with an A* in Maths. Typical offers also require STEP I/II.

	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.
	We also accept the Edexcel International A levels.
	International Baccalaureate
	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.
	For further information on entry requirements, please go to www.imperial.ac.uk/study/apply/undergraduate/entry-requirements/ and the Department's admission pages at www.imperial.ac.uk/computing/prospective-students/courses/ug/beng-meng-computing/
Non-academic Requirements	N/A
English Language Requirement	Standard requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	You must sit the Test for Mathematics for University Admission (TMUA) as part of the application process for this course. 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 online.

The programme's competency standards documents can be found at:
 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[2]. In year 1 the programming and various mathematics modules are backed up with small group tutorials in groups of approximately eight to ten students. A senior undergraduate student will act as an Undergraduate Teaching Assistant for many of these tutorials.

The third year comprises a mixture of compulsory and elective modules, together with a core major individual project. 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. You will also 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 three 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

---

[2] **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.

assessed as part of various group and individual project activities throughout the degree. When developing software systems in years 2 and 3 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 online 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.

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-based 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 year modules.

The weighting of coursework varies among modules, with the normal weighting being 20% of each taught module in year 3. 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.

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 to solve the type of real-world problems encountered by industry.

Balance of assessment
The approximate percentages below are 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.

	Year 1	Year 2	Year 3
Coursework	10	10	7.5
Examination	84	57	42.5
Practical	6	33	50

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/

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/

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/

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.

Programme Structure

Year 1 – FHEQ Level 4

Code	Module Title	Core/ Compulsory/ 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-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-Summer	20
				Credit Total	60

Year 2 – FHEQ Level 5

In addition to the core modules, you must select one module from the two electives.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
COMP50001	Algorithm Design and Analysis	Compulsory	N/A	Autumn	5
COMP50002	Software Engineering Design	Compulsory	N/A	Autumn	5
COMP50004	Operating Systems	Compulsory	N/A	Autumn	5
COMP50008	Probability and Statistics	Compulsory	N/A	Autumn	5
COMP50003	Models of Computation	Compulsory	N/A	Spring	5
COMP50013	Machine Learning	Compulsory	N/A	Spring	5
COMP50005	Networks and Communications	Compulsory	N/A	Spring	5
COMP50007	Computing Practical 2	Core	N/A	Autumn-Spring	15
COMP50010	Designing for Real People	Core	N/A	Spring-Summer	5
COMP50009	Symbolic Reasoning	Elective	N/A	Spring	5

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
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 35 or 37.5 ECTS from the list of electives below.					
Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
COMP60021	Year 3 Software Engineering Group Project	Elective		Spring	10
COMP60010	Individual Project	Core		Autumn-Summer	20
	I-Explore	Compulsory		Autumn &/or Spring	5-7.5
COMP60013	Logic-Based Learning	Elective		Spring	5
COMP60007	The Theory and Practice of Concurrent Programming	Elective		Autumn	5
COMP60006	Computer Vision	Elective		Spring	5
COMP60005	Graphics	Elective		Spring	5
COMP60008	Custom Computing	Elective		Spring	5
COMP60003	Communicating Computer Science in Schools	Elective		Spring	5
COMP60015	Network and Web Security	Elective		Spring	5
COMP60001	Advanced Computer Architecture	Elective		Autumn	5
COMP60019	Robotics	Elective		Spring	5
COMP60020	Simulation and Modelling (not running in 2025-26)	Elective		Autumn	5
COMP60017	System Performance Engineering	Elective		Spring	5
COMP60016	Operations Research	Elective		Autumn	5
COMP60009	Distributed Algorithms (not running in 2025-26)	Elective		Spring	5
COMP60023	Type Systems for Programming Languages	Elective		Autumn	5
COMP60029	Data Processing Systems	Elective		Autumn	5
COMP60012	Introduction to Machine Learning	Elective		Autumn	5

COMP60032	Networked Systems	Elective		Autumn	5
COMP60033	Computing Research Collective	Elective		Autumn	5
COMP60034	Deep Learning	Elective		Spring	5
COMP60035	Natural Language Processing	Elective		Spring	5
COMP60036	Compilers (not running in 2025-26)	Elective		Spring	5
COMP60037	Mathematics for Machine Learning	Elective		Autumn	5
	Technical Option (outside Department of Computing)	Elective		Autumn or Spring	5 – 7.5
				ECTS Total	60 – 62.5

In Year 3, a technical module from another Imperial degree programme may be allowed with the permission of the Director of UG studies.

Progression and Classification

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 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.

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.

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 modules 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 at 35.00% and Year Three at 57.50%.

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

You must have achieved an overall average of 60.00% in Year Two in order to transfer to the third year of one of the MEng programmes.

Please find the full Academic Regulations at 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/
Imperial's Quality & Enhancement Framework is available at: 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
Imperial College London 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 Imperial's Centenary, 8th July 2007, established Imperial as a University with the name and style of "The Imperial College of Science, Technology and Medicine". www.imperial.ac.uk/admin-services/secretariat/university-governance-structure/charters/
Imperial College London is regulated by the Office for Students (OfS) 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.