Imperial College London

Programme Information		
Programme Title	Programme Code	HECoS Code
Biomedical Engineering with a Year in Industry	BHV2	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MEng[1] BHV2	5 Academic years	Full-time	Not available for direct entry	300	600
BEng* BH81	N/A	N/A	N/A	240	480
DipHE*	N/A	N/A	N/A	120	240
CertHE*	N/A	N/A	N/A	60	120

[1] The MEng Biomedical Engineering with a Year in Industry (BHV2) is a pathway within the MEng Biomedical Engineering degree (BH9C) where students take a placement in industry after their third year. A placement is subject to performance at upper second-class level in the first two years of the programme, and acceptance by a suitable industrial host. The placements are competitive, and the final selection is made by the company typically following an interview.

The MEng Biomedical Engineering with a Year in Industry programme (BHV2) is not available for entry. All students must apply to join the MEng Biomedical Engineering (BH9C).

*The DipHE and CertHE exit awards are not accredited by any professional body. The BEng is an honours degree and is not available for entry. Students may be eligible for transfer onto the BEng if they meet the criteria as specified in the progression and classification section, it may also be offered as an exit award in exceptional circumstances. All students must apply to and join the MEng

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Engineering
Teaching Institution	Imperial College London	Department	Bioengineering
Associateship	City and Guilds London Institute	Main Location(s) of Study	South Kensington Campus
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Engineering	
FHEQ Levelv		MEng Level 7 BEng Level 6 DipHE Level 5 CertHE Level 4	
EHEA Level		2nd Cycle	

External Accreditor(s) (if applicable)			
External Accreditor 1:	Institution of Mechanical Engineers		
Accreditation received:	2014	Accreditation renewal:	2024
External Accreditor 2:	Institute of Physics and Engineering in Medicine		
Accreditation received:	2018	Accreditation renewal:	2024
External Accreditor 3:	The Institution of Engineering and Technology		
Accreditation received:	2014	Accreditation renewal:	2024
External Accreditor 4:	The Institute of Materials, Minerals and Mining		
Accreditation received:	2014	Accreditation renewal:	2024
External Accreditor 5:	The Institution of Engineering Designers		
Accreditation received:	2018	Accreditation renewal:	2024
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 Maria Parkes		
Student cohorts covered by specification	2023-24 entry		
Date of introduction of programme	October 02		
Date of programme specification/revision	March 24		

Programme Overview

Biomedical engineers use their technological knowledge and understanding to help people live longer, healthier, happier lives. In our Biomedical programme you will develop the technical knowledge and understanding required of an engineer and learn how to apply this knowledge in the analysis and solution of Biomedical Engineering problems. Our programme combines lectures, study groups and taught classes where you gain a theoretical understanding with many practical wet and dry labs and activities where you will and work on real world projects in medicine and biology with life-changing potential. You will also have many opportunities to take part in design, test and build activities starting in the first year and continuing through the degree programme.

Our programme will also build your communication and inter-personal skills through a range of teaching activities including a substantial amount of group and team work as collaboration in interdisciplinary teams is a key feature of working as a professional Biomedical Engineer. This begins in the first week of year 1 where group working is introduced in fresher's week.

We expect our graduates to have the ability to become leaders in their chosen areas and so our programme is also designed to develop your leadership skills, introduce you to professional standards and to develop your understanding of engineers' obligations to society, the profession and the environment.

In your first two years all modules are compulsory and are delivered in the department. The first two years are designed to ensure that all students achieve a common breadth and depth of knowledge in the technical areas

of Mathematics and Computing, Electrical Engineering, Mechanical Engineering and Bioengineering delivered in *a Biomedical Engineering context*. You will also follow a module developing your design skills and professional practice. At the end of the second year you will have a broad knowledge base which will provide a platform for specialisation.

In the third year of the MEng programme there are a small number of compulsory modules including the group project that make up 25 ECTS. The remaining 35 ECTS is made up of modules that you can choose. 15 of these ECTS will form the basis of your specialisation from a choice of four: Bioengineering, Computational Bioengineering, Mechanical Bioengineering and Electrical Bioengineering.

You may choose to take some technical elective modules in other departments of the Faculty of Engineering. In this case you will attend the same lectures and take the same assessments as the senior year students in the hosting department. This confirms that the first two years have provided a solid platform for specialisation. The knowledge, understanding and skills that you acquire throughout the Faculty will be translated into a Bioengineering themed final year individual project.

In the third year of the course you are also required to select an I-Explore module hosted outside of the department so that you will be taught alongside students from other degree programmes. These modules include business and management modules as well as other topics outside the Bioengineering discipline that will allow you to apply your knowledge in a new context.

Your placement Year in Industry will normally take place in year four. You are expected to demonstrate employability skills by applying for and securing a placement. You will do this with support from the department's Industrial Liaison Manager who will continue to monitor and support you during your industry placement. During this year you will be expected to work effectively within your job role and will be required to keep a logbook of your activities which can be used as evidence towards gaining chartership with some of the professional engineering bodies. Towards the end of this year you will be expected to prepare a presentation giving an overview of your year suitable for presentation to your peers on the Biomedical Engineering course. This year is assessed on a pass/fail basis and does not contribute towards your final degree mark.

In your final year you must complete an individual project worth 30 ECTS. This individual project will be hosted within a research group and allows you to gain an understanding of the latest developments in the Bioengineering field as well as develop your ability to work independently. As much of the final year is spent on this individual project this is reflected in the ECTS weighting of the project. The remaining 30 ECTS is made up of advanced modules that you choose. You may choose to follow the topics that have caught your interest and build on your chosen specialisation or you may choose more broadly to keep your options open.

Learning Outcomes

The following Learning Outcomes are in line with FHEQ levels 4-7 and the UK-SPEC outcomes required for accreditation by professional engineering bodies.

The Learning Outcomes are categorised into the following groups:
* **Knowledge and Understanding [KU]**

* **Intellectual Abilities [IA]**

* **Practical and Transferable skills [PT]**

Upon successful completion of the MEng Biomedical Engineering with a Year in Industry programme you will be able to:

[KU1] Describe and explain the underlying scientific principles, engineering mathematics and computational models and tools that underpin Biomedical Engineering and identify their limitations.

[KU2] Describe and explain the core concepts, principles and theories of related disciplines including Electrical Engineering, Mechanical Engineering and Materials Engineering and how these are relevant to historical, current and future developments and technologies in a Biological and Medical context.

[KU3] Give examples of a wide range of innovative and creative engineering solutions applied to healthcare problems and quality-of-life issues and discuss these examples in terms of their commercial, economic and social implications.

[KU4] Recognise and explain the need for a high level of professional and ethical conduct in engineering, based on a knowledge of professional codes of conduct and how ethical dilemmas can arise and your experience in industry.

[KU5] Demonstrate a knowledge of intellectual property, environmental and legal issues within the modern professional industrial world.

[IA1] Apply a wide range of engineering principles, tools and notations proficiently.

[IA2] Critically select engineering principles and tools for the analysis and solution of familiar and unfamiliar bioengineering problems.

[IA3] Apply diagnostic skills, technical knowledge and understanding of engineering design processes to establish rigorous and creative solutions to complex Bioengineering problems.

[IA4] Extract pertinent data and critically evaluate information gathered from academic and technical resources.

[PT1] Plan and safely execute experiments in diverse types of laboratories.

[PT2] Demonstrate advanced leadership, teamwork and communication skills in both academic and industry settings.

[PT3] Exercise judgement in a range of situations and accept accountability for decisions made and the quality of outcomes produced.

[PT4] Employ advanced skills to conduct research, advanced technical and professional activities.

[PT5] Plan, monitor and improve upon a personal programme of work designed to ensure continuous professional development.

CertHE, DipHE and BEng exit awards are available to students via the MEng Biomedical Engineering programme. Please refer to the MEng Biomedical Engineering programme specifications for learning outcomes by exit award.

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

Entry Requirements

Academic Requirement A- Level	The minimum requirement is normally A*AA overall at A-level This usually comprises of: A* in Mathematics A in Physics A in any further subject preferably Biology, Chemistry or Further Maths (or a comparable qualification recognised by the College).
IB	Minimum **38** points (or a comparable qualification recognised by the College **6** in Mathematics at higher level **6** in Physics at higher level **6** in a third subject at higher level (or a comparable qualification recognised by the College).
Non-academic Requirements	N/A
English Language Requirement	Standard requirement IELTS score of 6.5 overall (minimum 6.0 in all elements)

Admissions Test/Interview	Applicants can move from the standard Biomedical Engineering programme during year 3 if they arrange a suitable Industrial Placement with the help of the Department's Industrial Liaison Manager.

The programme's competency standards documents can be found at: www.imperial.ac.uk/media/imperial-college/faculty-of-engineering/bioengineering/public/student/Competency-Standards---Bioengineering-UG-PG---June-2016-Final.pdf

Learning & Teaching Approach

Scheduled Learning & Teaching

Students are taught through a combination of lectures, study groups and tutorials, laboratories and computing labs, guest lectures and presentations. Study groups and tutorials will enable you to discuss and develop your understanding of topics covered in lectures whilst in smaller groups of around 30 students. Dry laboratories in electrical, mechanical and bioengineering will allow you to develop practical skills and gain experience in the application of the theory discussed in lectures and study groups. Wet laboratories will allow you to develop an understanding of how to handle biological and chemical materials. Computing labs will support the maths and computational content of the course. In laboratories you will work in pairs or trios.

The Virtual learning environment Blackboard will be used as a repository for teaching materials including recordings of all lectures, lecture notes and problem sheets. Learning technologies will be used to support teaching activities including in-class polling with Mentimeter, online self-diagnostic quizzes and online class forums.

The first two years of the programme will be made up of compulsory modules which all students on the programme will study. In years three and four, there will be a small number of ccompulsory modules and you will be able to choose the remainder of modules you study.

Independent Learning
Students are expected to spend significant time on independent study outside of face to face contact time. From our experience students that undertake independent learning have improved academic performance, increased motivation and confidence in themselves and their abilities. By undertaking independent learning you are also preparing yourself for professional practice where it is expected that you will manage your own continued professional development. Independent learning activities that you will be expected to undertake will typically include accessing online resources, completing problem sheets, reading journal articles and books, undertaking research in the library, reviewing lecture notes and watching lecture recordings, working on individual and group projects, working on coursework assignments and revising for exams.

Bioengineering uses flipped teaching for some modules, meaning that you need to actively engage with on-line eModules ahead of attending timetabled sessions. This independent learning is followed by sessions lead by the lecturer where all students work in small groups to apply that knowledge to more practical examples. This helps you to further consolidate and enhance your understanding of the topics you study and allows us the time to focus on more challenging concepts in the taught sessions.

During your industrial placement in year 4 you will be expected to carry out significant independent learning to gain the most from this placement year. You will be expected to set your own objectives for the year with support from your industrial line manager and the department's Industrial liaison manager. Using a logbook you will then be expected to monitor your progress against these objectives and reflect on your performance. In this way you will build the skills needed to be able to plan and carry out continuous professional development in your future engineering career.

Design and Research Projects
A key part of this programme are the second and third year group projects and the fifth year individual research project. In second and third year you will work in a small group to design, make and test a solution to a bioengineering problem. These projects will allow you to develop professional engineering skills and appreciate the subtleties of working in a team. You will also be given support in managing a team and giving effective feedback to others, which includes training and practice with the process of peer review which will form part of the assessment for these projects. For the process of peer review each member of a team is asked to provide relative effort marks for their team members via an anonymous on-line form. We guide you through this process, including an early practice run to ensure that this is fair and informative. In fifth year you are required to undertake a substantial research project embedded in a research team within the Bioengineering department. Whilst this project will be based in Bioengineering it may involve collaboration with groups in other Imperial departments or with Industry.

Overall Workload

Your overall workload consists of face-to-face sessions and independent learning. While your actual contact hours may vary according to the optional modules you choose to study, the following gives an indication of how much time you will need to allocate to different activities at each level of the programme. At Imperial, each ECTS credit taken equates to an expected total study time of 25 hours. Therefore, the expected total study time is 1500 hours per year.

Typically, in the first two years (levels 4 and 5) you will spend around 25% of your time on lectures, seminars and other scheduled activity (around 400 hours) and around 75% of your time on independent study (around 1100 hours).

In the third and fifth years (level 6 and 7), you will spend less time in scheduled activity (around 250 hours) with the reminder in independent study, a significant proportion of which will be the 3rd year group project and 5th year individual research project.

Assessment Strategy

Assessment Methods

A variety of assessment methods will be used to test your understanding. Assessments are grouped as formative and summative.

Formative assessments do not contribute to the module mark but provide information on your progress as an individual and in the context of the class. This allows you to learn by using your new skills to solve problems and receive feedback on your performance to guide your future learning. This supports you to achieve a better performance in the summative assessments which do count towards your module marks. Formative assessments also provide feedback to the teaching staff which allow us to adapt our teaching.

Summative assessments are used to assess your learning against the intended module learning outcomes and contribute towards your achievement of the programme learning outcomes, detailed above. There is summative assessment during and/or at the end of each module and these assessments will contribute towards your mark for each year.

The choice of assessment method is largely determined by the learning objectives being assessed and includes:

Assessed Coursework
- Problem sheets
- Laboratory reports – individually or as part of a portfolio.
- Practical demonstrations
- Project reports
- Oral presentations
- Poster presentations
- Academic tutorials
- Industry Logbook

Examinations
- In class progress tests
- Mastery examinations (online/written)
- Written examinations

The design of our programme will allow you to test your understanding of the subject using formative assessments such as problem sheets, on-line diagnostic tests and mock/past examinations before you complete the summative assessments that count towards your final mark.

The table below is indicative of the balance of assessment based on a typical pathway through the course.

	Year 1	Year 2	Year 3	Year 4	Year 5
Coursework	30 %	30 %	47 %	100 %	59 %
Examinations	70 %	70 %	53 %		41 %

Academic Feedback Policy

Feedback will be provided in one of many formats, including:

- Oral (during or after lectures, personally or as a group feedback session)
- Personal (discussion with academics during office hours, meetings with Personal Tutors)
- Interactive (problem solving with GTAs & study groups, peer feedback)
- Written (solutions/model answers to coursework, notes on submitted reports)
- Online (results of online tests with correct answers provided)
- Self-reflective (personal journals, reflective essays and class discussion)

It is department policy to provide feedback to students within 10 working days of assessment submission. This timeframe may be extended for significantly large assessments or for final examinations. In this case the date when feedback will be available by will be communicated to students.

Individual feedback will not be provided on written examinations. However, feedback on the general performance of the cohort on the exam questions will be given. Numerical results will be published after the meeting of the final Board of Examiners.

The College'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

As an accredited degree, students on this programme are subject to the standards set by the Engineering Council in relation to compensation: a maximum of 15 ECTS credits can be compensated across the entire programme[*].

Years 1 and 2
Years 1 and 2 In the absence of approved mitigating circumstances, and following any application of allowed compensation, Year 1 and Year 2 students who have failed modules at first attempt will normally be:
• offered a capped in-year re-assessment opportunity of failed modules, if they have passed at least 45 ECTS in that year of programme;

• required to retake the year in attendance as if for the first time (can only be offered once), retake the failed modules, or resit the failed modules' assessments in the following year, if they have passed at least 30 ECTS (but fewer than 45) in that year of programme;

• required to withdraw from the programme if they have passed fewer than 30 ECTS in that year of programme. At the discretion of the Board of Examiners, an exit award may be offered provided that the students have met the requirements for that award.

Years 3 and 5

In the absence of approved mitigating circumstances, and following any application of allowed compensation, Year 3 and Year 5 students who have failed modules at first attempt will normally be:

• offered a capped in-year re-assessment opportunity of failed modules if they have passed at least 45 ECTS in that year of the programme;

• required to retake the modules they have failed in attendance, or resit the failed modules' assessments next year, if they have passed at least 30 ECTS (but fewer than 45) in that year of the programme;

• required to withdraw from the programme if they have passed fewer than 30 ECTS in that year of the programme. At the discretion of the Board of Examiners, an exit award may be offered provided that the students have met the requirements for that award

For non-progressing students after in-year re-assessments have taken place, the Board of Examiners' decisions will be dictated by clauses 11.5 and 11.7 of the Regulations of Taught Programmes of Study.

For students with accepted MCs, in-year uncapped deferrals will be offered to give them the opportunity to progress. The student can choose to take all or some of these during the summer re-assessment period. However, advice will be offered to the student by Board of Examiners, the Director of Teaching, the Academic Tutor and the Student Well-being Adviser.

The College's Policy on Re-sits is available at: www.imperial.ac.uk/about/governance/academic-governance/academic-policy/exams-and-assessment/
Mitigating Circumstances Policy
The College's policy on mitigating circumstances makes provision for the Departmental Boards of Examiners to use their discretion where extenuating circumstances are independently corroborated and are judged by the Departmental Mitigating Circumstances Board to be of sufficient severity to have substantially affected a student's performance. The College'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
Course materials - Electronics textbook	Optional	£40
Personal Protective Equipment – Bioengineering Overalls	Mandatory	£26

Programme Structure

Year 1 – FHEQ Level 4
Students study core modules

Code	Module Title	Core/ Compulsory/ Elective	Group*	Term	Credits
BIOE40001	Bioengineering Science 1	Compulsory	N/A	Autumn-Spring	10
BIOE40004	Mathematics 1	Compulsory	N/A	Autumn-Spring	10
BIOE40002	Computer Fundamentals and Programming 1	Compulsory	N/A	Spring-Summer	10
BIOE40006	Mechanics and Electronics 1	Compulsory	N/A	Autumn-Spring	15
BIOE40010	Medical and Biological Science 1	Compulsory	N/A	Autumn-Spring	10
BIOE40003	Design and Professional Practice 1	Compulsory	N/A	Autumn-Summer	5
				Credit Total	60

Year 2 - FHEQ Level 5
Students study all modules

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
BIOE50006	Mathematics 2	Compulsory	N/A	Autumn-Spring	7.5
BIOE50011	Signals and Control 2	Compulsory	N/A	Autumn-Spring	7.5
BIOE50004	Fluid and Solid Mechanics 2	Compulsory	N/A	Autumn-Spring	10
BIOE50003	Electronics and Electromagnetics 2	Compulsory	N/A	Spring-Summer	10
BIOE50002	Design and Professional Practice 2	Compulsory	N/A	Autumn-Summer	10
BIOE50010	Programming 2	Compulsory	N/A	Autumn	5
BIOE50001	Bioengineering Science 2	Compulsory	N/A	Spring	5
BIOE50008	Medical Science 2	Compulsory	N/A	Autumn	5
				Credit Total	60

Year 3 - FHEQ Level 6 (except ^)

All students study the first four compulsory modules listed in this table, including the I-explore module (Total 35 ECTS)

Students on the MEng programme must then choose one of the four pathways and study the associated compulsory modules: A) Bioengineering, B) Mechanical Bioengineering, C) Electrical Bioengineering and D) Computational Bioengineering (Total 15 ECTS)

Students can then choose two elective modules from Group E, across levels 6 and 7 (Total 10 ECTS) Please note: You must accumulate 60 ECTS of level 7 modules by the end of Year 5.

Students transferred to the BEng programme do not need to choose a pathway, but must choose 5 elective modules from Group E. These modules must be hosted in the department of Bioengineering.

^Level 7 modules

**Modules hosted by other departments. These are subject to availability.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
BIOE60011	Probability and Statistics for Bioengineering	Compulsory	N/A	Autumn	5
BIOE60005	Bioengineering Group Project	Compulsory	N/A	Autumn-Summer	20
BIOE60024	Modelling in Biology	Compulsory	N/A	Autumn-Spring	5
	I-Explore	Compulsory	N/A	Autumn or Spring	5
Year 3 Bioengineering Pathway compulsory modules – FHEQ Level 6 (except where noted ^ as Level 7)					
BIOE60003	Biomedical Instrumentation	Compulsory (for stream)	A	Spring	5
BIOE60014	Biomechanics	Compulsory (for stream)	A	Autumn	5
BIOE60034	Biomaterials for Bioengineers	Compulsory (for stream)	A	Autumn	5
Year 3 Mechanical Bioengineering Pathway compulsory modules – FHEQ Level 6					
BIOE60014	Biomechanics	Compulsory (for stream)	B	Autumn	5
BIOE60009	Physiological Fluid Mechanics	Compulsory (for stream)	B	Spring	5
BIOE60002	Biomedical Advanced and Computational Stress Analysis	Compulsory (for stream)	B	Spring	5
Year 3 Electrical Bioengineering Pathway compulsory modules – FHEQ Level 6					
BIOE60003	Biomedical Instrumentation	Compulsory (for stream)	C	Spring	5
BIOE60008	Image Processing	Compulsory (for stream)	C	Spring	5
BIOE60006	Digital Biosignal processing	Compulsory (for stream)	C	Autumn	5

Year 3 Computational Bioengineering Pathway compulsory modules – FHEQ Level 6					
BIOE60008	Image processing	Compulsory (for stream)	D	Spring	5
BIOE60010	Software Engineering for Bioengineers	Compulsory (for stream)	D	Autumn	5
BIOE60006	Digital Biosignal Processing	Compulsory (for stream)	D	Autumn	5
Year 3 Elective Modules – FHEQ Level 6 (except where noted ^ as Level 7)					
BIOE60006	Digital Biosignal Processing	Elective	E	Autumn	5
BIOE60014	Biomechanics	Elective	E	Autumn	5
BIOE60008	Image Processing	Elective	E	Spring	5
BIOE60009	Physiological Fluid Mechanics	Elective	E	Spring	5
BIOE60012	Foundations of Synthetic Biology	Elective	E	Spring	5
BIOE60007	Human Centred Design of Assistive and Rehabilitation Devices	Elective	E	Spring	5
MECH60005	Manufacturing Technology and Management A**	Elective	E	Autumn-Spring	5
MECH60001	Machine Dynamics and Vibrations A**	Elective	E	Autumn-Spring	5
BIOE60003	Biomedical Instrumentation	Elective	E	Spring	5
BIOE60002	Biomedical Advanced and Computational Stress Analysis	Elective	E	Spring	5
ELEC60002	Statistical Signal Processing and Inference**	Elective	E	Spring	5
ELEC60008	Control Engineering**	Elective	E	Autumn	5
ELEC60029	Semiconductor Devices**	Elective	E	Autumn	5
ELEC60023	Optoelectronics**	Elective	E	Autumn	5
DESE61004	Design-led Innovation and Enterprise**	Elective	E	Spring	5
BIOE60013	Tissue Engineering and Regenerative Medicine	Elective	E	Spring	5
BIOE60034	Biomaterials for Bioengineers**	Elective	E	Autumn	5
BIOE60016	Communicating Biomedical Science and Engineering	Elective	E	Spring	5
BIOE70012	Biomimetics^	Elective	E	Spring	5
BIOE60015	Advanced Imaging Technologies for Systems Biology and Biomedical Research	Elective	E	Autumn	5
				Credit Total	60
Year 4 – Year in Industry					

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
BIOE70024	Year in Industry	Compulsory	N/A	Autumn-Summer	60
				Credit Total	60

Year 5 - FHEQ Level 7 (except ⸸)

Students must complete the compulsory Individual Project module (30 ECTS)

Students can then choose 5 elective modules from Group G, and 1 from Group H, across levels 6 and 7 (30 ECTS)

Please note: You must accumulate 60 ECTS of level 7 modules by the end of Year 5.
⸸ Level 6 modules

**Modules hosted by other departments. These are subject to availability.

Code	Module Title	Core/ Compulsory/ Elective	Group	Term	Credits
BIOE70004	Individual Project	Compulsory	N/A	Autumn-Summer	30
BIOE70013	Computational Neuroscience	Elective	G	Spring	5
BIOE70011	Brain Machine Interfaces	Elective	G	Spring	5
BIOE70008	Advanced Physiological Monitoring and Data Analysis	Elective	G	Autumn	5
BIOE70017	Molecular, Cell and Tissue Biomechanics	Elective	G	Spring	5
BIOE70005	Cellular and Molecular Mechanotransduction (not running in 2023-24)	Elective	G	Spring	5
BIOE70016	Human Neuromechanical Control and Learning	Elective	G	Spring	5
BIOE70019	Orthopaedic Biomechanics	Elective	G	Spring	5
BIOE70018	Molecular and Tissue Imaging	Elective	G	Spring	5
BIOE70009	Bits, Brains and Behaviour	Elective	G	Autumn	5
BIOE70015	Hearing and Speech Processing	Elective	G	Autumn	5
BIOE70012	Biomimetics	Elective	G	Spring	5
BIOE70003	Animal Locomotion and Bioinspired Robots	Elective	G	Spring	5
MATE70018	Advanced Biomaterials**	Elective	G	Spring-Summer	5
MATE70016	Advanced Tissue Engineering**	Elective	G	Spring-Summer	5
MECH70015	Computational Fluid Dynamics**	Elective	G	Autumn-Spring	5

ELEC70022	Modelling and Control of Multi-Body Mechanical Systems**	Elective	G	Autumn	5
MECH70019	Advanced Stress Analysis**	Elective	G	Autumn-Spring	5
MECH70012	Finite Element Analysis and Applications**	Elective	G	Autumn-Spring	5
TBC	Data Analysis and Probabilistic Inference**	Elective	G		5
ELEC70001	Adaptive Signal Processing and Machine Intelligence**	Elective	G	Spring	5
ELEC70004	Analogue Signal Processing**	Elective	G	Spring	5
ELEC70013	High Performance Analogue Electronics**	Elective	G	Spring	5
ELEC70031	Radio Frequency Electronics**	Elective	G	Spring	5
BIOE70001	Application Specific Integrated Circuits (ASICs) for Bioengineering	Elective	G	Spring	5
ELEC70098	Optimisation**	Elective	G	Autumn	5
ELEC70070	Information Theory**	Elective	G	Spring	5
MECH60001	Machine Dynamics and Vibrations A ⱦ **	Elective	G	Autumn-Spring	5
MECH60019	Tribology A ⱦ **	Elective	G	Autumn-Spring	5
BIOE60034	Biomaterials for Bioengineers ⱦ	Elective	G	Autumn	5
MECH60005	Manufacturing Technology and Management A ⱦ **	Elective	G	Autumn-Spring	5
MECH60021	Computational Continuum Mechanics A ⱦ **	Elective	G	Autumn	5
COMP60005	Graphics ⱦ **	Elective	G	Spring	5
BIOE60013	Tissue Engineering and Regenerative Medicine ⱦ	Elective	G	Spring	5
BIOE60014	Biomechanics ⱦ	Elective	G	Autumn	5
BIOE70014	Medical Device Entrepreneurship	Elective	H	Autumn	5
BIOE70056	Biomaterials for Biomedicine and Sustainability	Elective	G	Autumn	5
BIOE70022	Industrial Applications of Cellular Engineering	Elective	G	Spring	5
BIOE70149	Nanotechnologies for Cancer Diagnosis and Cancer Therapy	Elective	G	Autumn	5
BIOE70020	Neuroscience	Elective	G	Autumn	5
	Business for Professional Engineers and Scientists ⱦ	Elective	H	Autumn-Spring	5
BIOE70076	Communicating Biomedical Science and Engineering L7	Elective	G	Spring	5

BIOE70028	Medical Device Certification	Elective	H	Autumn	5
COMP70006	Computational Finance**	Elective	H	Autumn	5
ELEC70003	Advanced Electronic Devices**	Elective	G	Spring	5
				Credit Total	60

* 'Group' refers to module grouping (e.g. a group of electives from which one/two module(s) must be chosen).

** Modules hosted in other departments are subject to availability.

Progression and Classification

Progression

Year One
A student must:

- Achieve a mark of at least 40% in each module. A student may be compensated in modules up to the value of 15 ECTS across the entire programme, with a qualifying mark of at least 30%.

Year Two
A student must:

- Achieve a mark of at least 40% in each module. A student may be compensated in modules up to the value of 15 ECTS across the entire programme, with a qualifying mark of at least 30%.
- Achieve an overall aggregate mark of at least 60% to remain on the MEng pathway.
- A student achieving between 55% and 60% may at the discretion of the Director of Teaching be allowed to remain on the MEng program subject to agreed module choices, provided a case is made by the student.
- A student achieving an overall aggregate mark of less than 55% but satisfying all other requirements will be transferred to the programme BH81 (BEng Biomedical Engineering). Module choices in the third year of this course must be agreed with the Director of Teaching and will not normally include modules outside the department of Bioengineering.

Year Three
A student must:

- Achieve a mark of at least 40% in each level 6 module and 50% in each level 7 module. A student may be compensated in modules up to the value of 15 ECTS across the entire programme, with a qualifying mark of at least 30% for level 6 modules and 40% for level 7 modules.

Year Four
A student must:

- Complete the proposed year in Industry placement as agreed with the department's Industrial Liaison manager. This will include submission of an Industry logbook and a summary presentation.

Year Five
A student must:

- Achieve a mark of at least 40% in each level 6 module and 50% in each level 7 module. A student may be compensated in modules up to the value of 15 ECTS across the entire programme, with a qualifying mark of at least 30%. for level 6 modules and 40% for level 7 modules.

Classification

The marks from modules in each year contribute towards the final degree classification.

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

For the MEng award, Year One is weighted at 7.5%, Year Two at 20% and Year Three at 36.5%, Year Four at 0% and Year Five at 36.5%.
For the BEng award, Year One is weighted at 7.5%, Year Two at 35% and Year Three at 57.5%.

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

i)	First	70% or above for the average weighted module results
ii)	Upper Second	60% or above for the average weighted module results
iii)	Lower Second	50% or above for the average weighted module results
iv)	Third	40% or above for the average weighted module results

Programme Specific Regulations

You must complete a Business based elective at level 6 or above to meet the learning outcomes set by the professional engineering bodies for accreditation. This can be achieved by selecting in year 5 a group H Module (BPES module, Medical Device Design and Entrepreneurship, Medical Device Certification or Computational Finance). If your choice of an iExplore module in year 3 was a BPES module, you are exempt from this requirement and can select another technical elective module from group G in year 5.

To allow you the greatest range of flexibility in technical elective options we also allow you to take some level 7 modules in year 3 and some level 6 modules in year 5 as detailed in the programme structure section of this document. You must complete 60 ECTS at level 7 across years 3 and 4 to achieve the MEng qualification.

As an accredited degree, students on this programme are subject to the standards set by the UK Engineering Council in relation to compensation: a maximum of 15 ECTS credits can be compensated across the entire programme.

Supporting Information
The Programme Handbook is available at: www.imperial.ac.uk/bioengineering/admin/current-ug
The Module Handbook is available at: www.imperial.ac.uk/bioengineering/admin/current-ug/
The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/
The College's Quality & Enhancement Framework is available at: www.imperial.ac.uk/registry/proceduresandregulations/qualityassurance
The College's Academic and Examination Regulations can be found at: 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". www.imperial.ac.uk/admin-services/secretariat/college-governance/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.