Programme Information		
Programme Title	Programme Code	HECoS Code
BEng Electronic and Information Engineering	For Registry Use Only	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
BEng Electronic and Information Engineering[1]	3 years	Full-Time	Annually in October	180	360

[1]If you leave before completing the BEng Electronic and Information Engineering programme, you may be offered the following exit awards at the discretion of the Board of Examiners provided that you have met the minimum ECTS requirements for that award in line with College Regulations: Certificate in Higher Education in Electrical and Electronic Engineering (45 ECTS at level 4, 60 ECTS total), Diploma in Higher Education in Electrical and Electronic Engineering (45 ECTS at level 5, 120 ECTS total) or BEng Electrical and Electronic Engineering (Ordinary) (30 ECTS at level 6, 150 ECTS total). These exit awards are not accredited.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Engineering
Teaching Institution	Imperial College London	Department	Electrical and Electronic Engineering
Associateship	City and Guilds of London Institute (ACGI)	Main Location(s) of Study	South Kensington
External Reference			
Relevant QAA Benchmark Statement(s) and/or other external reference points		Bachelor's award in Electronic and Information Engineering	
FHEQ Level		Level 6	
EHEA Level		1st Cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	Institution of Engineering and Technology		
Accreditation received:	2018	Accreditation renewal:	2023
Collaborative Provision			
Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			
Programme Lead		Director of Undergraduate Studies	
Student cohorts covered by specification		2019-2020 entry	

Date of introduction of programme	2019
Date of programme specification/revision	2020

Programme Overview

ABOUT THE DEPARTMENT

The Department's main objectives are to deliver high quality teaching and conduct internationally leading research. We see educating the next generation of engineers as a key role, and our graduates are highly valued by industry and commerce around the world. Our undergraduate degrees are aligned to our research strengths, and we are proud of the depth of analytical treatment and the specialised optional subjects we offer within our degree programmes. Our research feeds especially into the 4th year MEng where members of staff bring their research into the classroom and devise exercises in line with research expectations. The department carries out research across a wide range of topics, and targets both fundamental advances and practical applications of science and technology. The quality and impact of our research are demonstrated by our many highly cited publications, the personal recognition of our researchers through awards and honours, and the commercial adoption of our results and innovations.

The Electronic and Information Engineering discipline is considered interdisciplinary in character because Electrical and Information Engineers work in a wide range of areas including renewable power and smart grids, robotics including machine learning as well as the hardware and control systems, communication systems such as 5G and signal processing, e.g. wearable medical diagnostic devices. Design and analysis of systems is at the core of this programme and you will be offered multiple opportunities to develop your skills in this area. The programme offers technical rigour and depth in a wide range of modern engineering topics. Due to our different streams and extensive list of elective modules in later years, you shape your own specialisation route.

Click on further information to go to the department's website.

ABOUT THE BEng PROGRAMME

The department offers both a three-year BEng programme and four-year integrated Master's MEng programme. Both degree programmes involve substantial group and individual project work. The BEng programme will prepare you to go into the employment market or to proceed with further education elsewhere. Additional features of the MEng programme (but not the BEng programme) include the opportunity to take either and industrial placement or consultancy group project. The MEng stream also offers a wider range of advanced, research-orientated elective modules in the 4th year. It is also possible for students on the MEng to spend a year abroad. For more information on the MEng stream please see the MEng programme specifications.

This programme specification describes the academic path given in figure 1, below.

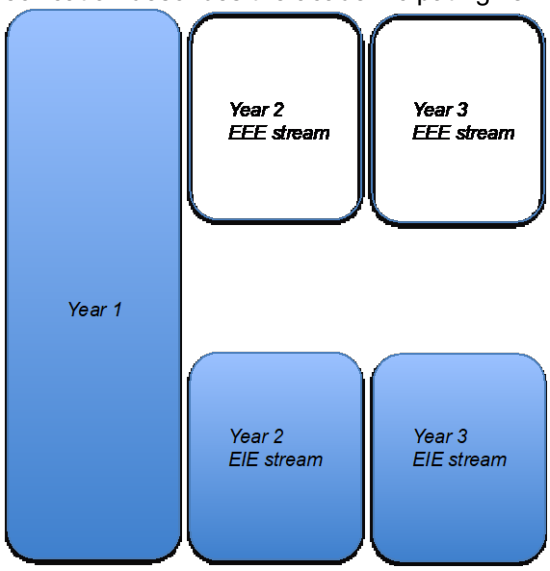

Figure 1: BEng programme structure with the different streams opening up after the 1st year. The colour filled boxes relate to this programme specification. For the other streams, please refer to the appropriate programme specification.

After the first year you will be able to choose between the Electrical and Electronic Engineering (EEE) stream and the Electronic and Information Engineering (EIE) stream. EEE focuses more on the physics behind electrical engineering, whilst EIE is oriented towards information processing. This document describes the EIE stream.

In the first year you will be taught the fundamental principles in engineering. In the first year you will be taught the fundamental principles in engineering. In the second year you will specialise more in information processing and computer engineering related fundamentals. In the third year, you will be able to take advanced specialised topics, which will give you the most direct route to a specialist professional engineering career or enable you to go into further education. You will also have access to some modules offered by other engineering departments and some non-engineering topics such as management and entrepreneurship as well as languages and other modules offered by the Business School and Imperial Horizons.

In the third year of the accredited BEng degree, you will be required to complete an Individual Project.

TRANSFERRING BETWEEN PROGRAMMES
All stream changes should be discussed with your personal tutor or the senior tutor and must be approved by the EIE Course Director.

All Programmes
All programmes within the department have a common first year. It is therefore possible to transfer between the EIE and EEE streams up until the end of your first year.

BEng to MEng
Year two is common between the EIE MEng and EIE BEng. You can choose at any point up until end of year two to change between MEng and BEng. Before stream changes at this stage, you will need to contact the international office concerning any visa requirements (click on International Office to go to their webpage). To progress to year four of the MEng, you must have achieved a minimum of 50% overall (weighted average of years 1 to 3).

ABOUT OUR TEACHING
We use a variety of teaching methods that include large group lecture sessions, workshops, small group exercise sessions, as well as 3-to-1 tutorial sessions. For practical skills you will participate in laboratory sessions with a partner from the same year group, and in the group projects within a larger team of 6-7 people.

Your learning will be supported by online tools such as blackboard for self-assessment and for-credit tests, Maple TA for mathematics support, virtual labs to prepare you for lab sessions and video recordings to demonstrate how certain equipment needs to be used. Members of staff are experts in their field and bring their research and industrial expertise into the classrooms. You can find out more about the connections between our research and teaching here: http://www.imperial.ac.uk/electrical-engineering/study/undergraduate/explore/teaching-staff/

Graduate and Undergraduate Teaching Assistants are involved in our tutor schemes, small group teaching and laboratory teaching.

The BEng programme has been designed based upon a number of key principles:

- **Competence in the fundamental principles of mathematics and electrical/electronic/ information engineering**: You will develop a firm grasp of the fundamental concepts and principles, be able to model complex systems analytically, and analyse and optimise these models.
- **Competence in computer engineering**: You will acquire a high level of competence in both programming and in using the latest computing technologies.
- **Pro-active learning**: You will learn how to learn by yourself and acquire the skill and discipline of lifelong learning.
- **Design Proficiency**: You will develop your ability to incorporate concepts into design of new products or processes, to provide innovations.
- **Development of professional and transferrable skills**: You will learn how to work in groups, develop your ability to communicate scientific/engineering ideas orally or in written form, and to develop general problem-solving skills.
- **Flexibility of provision**: We aim to provide you with a wide variety of options in the third and fourth years of the programme in order to allow you to specialise in specific areas in electrical/electronic/ computer engineering.

Benefits of accreditation
This programme is professionally accredited by the Institution of Engineering and Technology (IET) on behalf of the Engineering Council for the purposes of fully meeting the academic requirement for registration as an Incorporated Engineer and partly meeting the academic requirement for registration as a Chartered Engineer.

Achieving a professionally accredited degree demonstrates to employers that you have achieved an industry-recognised standard of competency.

Like our MEng degrees, our BEng degree counts towards the educational requirements for becoming a Chartered Engineer (CEng). A CEng is a highly respected qualification earned by professionals working in engineering, which can lead to higher earning potential and better career prospects. It also brings international recognition of your qualification, which is particularly useful when preparing for a career abroad.

While our MEng degrees fully satisfy the educational requirements of this professional qualification, BEng graduates will need to undertake further study on graduation to demonstrate that their knowledge is at Master's degree level.

Learning Outcomes

At the end of the three year BEng programme you will be able to:

Science and Mathematics

1. Explain the fundamental concepts, mathematical abstractions, physical principles and applied techniques that underpin electronic and computer engineering in depth.
2. Solve familiar problems using established methodologies as well as deriving, adapting and applying new ones with guidance.

Engineering Analysis

3. Apply analytic principles and techniques, software engineering skills, as well as commercial software packages, to critically analyse, design, implement and simulate engineering systems incorporating both hardware and software, justifying approaches and recommending alternative ones in line with design criteria.
4. Interpret abstraction and justify the use of computational techniques, and be able to identify appropriate components to automate and optimise systems and processes.

Design

5. Communicate, interact and work with peers and professionals from other disciplines, as well as non-specialist stakeholders and manage work in terms of project plans, deliverables and costs.
6. Generate creative and innovative design for products, systems, components or processes to fulfil new needs.

Economic, legal, social, ethical and environmental context

7. Explain the role of business processes in engineering, including the commercial, societal and legal framework within which industry operates and advise stakeholders on their implications.
8. Incorporate ethical, sustainability and environmental issues into your professional conduct, and integrate these into your engineering practice.

Engineering Practice

9. Manage projects in both interdisciplinary and multidisciplinary environments by using relevant practical and laboratory skills on your own or as a member or leader in a team.
10. Design relevant systems, components or processes that meet specified industrial requirements and constraints while keeping within public health and safety, cultural, societal, and environmental constraints. Work proactively with others to formulate solutions to the implications of ethical dilemmas.

Exit awards are only granted at the discretion of the Board of Examiners in line with College Regulations. None of the exit awards are accredited. Should you wish to pursue recognition as a professional computer engineer after withdrawing, a full review of your academic formation and possibly further study will be necessary to support your application for professional registration.

On completion of Year Two (Diploma in Higher Education exit award) you will be able to:

Science and Mathematics

1. Explain the fundamental concepts, mathematical, physical principles and techniques that underpin electronic and computer engineering.
2. Solve familiar problems using established methodologies as well as deriving, adapting and applying new ones with guidance.

Engineering Analysis

3. Apply analytic principles and techniques, software engineering skills to analyse, design,

implement and simulate electronic engineering systems, justifying approaches in line with design criteria.

Design

4. Communicate, interact and work with peers and professionals from other disciplines and manage work in terms of project plans, deliverables and costs.

Economic, legal, social, ethical and environmental context

5. Explain the role of business processes in engineering, including the commercial, societal and legal framework within which industry operates and advise stakeholders on their implications.
6. Have an insight into ethical, sustainability and environmental issues related to your professional conduct.

Engineering Practice

7. Manage projects by using relevant practical and laboratory skills on your own or as a member in a team.

On completion of Year One (Certificate in Higher Education exit award) you will be able to:

Science and Mathematics

1. Describe and recall the fundamental concepts, mathematical, physical principles and techniques that underpin electronic and information engineering.
2. Solve familiar problems using established methodologies with guidance.

Engineering Analysis

3. Apply analytic principles and techniques, software engineering skills to analyse and simulate electronic engineering systems, recognising the approaches needed in line with design criteria.

Design

4. Communicate, interact and work with peers and manage work in terms of project plans, deliverables and costs.

Economic, legal, social, ethical and environmental context

5. Recognise the need for a commercial, societal and legal framework for business processes in engineering.
6. Have an insight into ethical, sustainability and environmental issues related to your professional conduct.

Engineering Practice

7. Manage projects by using relevant practical and laboratory skills on your own or as a member in a team.

The Imperial Graduate Attributes are a set of core competencies that 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	Minimum entry standard is A*AA: A* in mathematics A in physics A in another subject with a preference to science-related subjects. For non A-level students, a comparable qualification recognised by the College – e.g. for International Baccalaureate: a minimum grade of 38 and 6 in both Mathematics and Physics at higher level. For further information on entry requirements, please go to https://www.imperial.ac.uk/study/ug/apply/requirements/ugacademic/
Non-academic Requirements	NA
English Language Requirement	Higher requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	If you look likely to meet our entry requirements, and your personal statement shows a clear motivation for electronic and information engineering, we will invite you to participate in an interview either here at Imperial, or by Skype. Applicant days are held on Wednesday afternoons between November

	and March. On these days you will meet some key members of staff and our students will show you around the department. You will be allocated a 30 minutes slot with a member of the academic staff who will quiz you on your UCAS statement, your interests and your mathematics and/or physics knowledge. Interviews are aimed at getting to know you better and ensuring our department is the right place for you to study. Interviews can also happen via skype if you cannot attend an applicant day.

The programme's competency standards documents can be found at:
http://www3.imperial.ac.uk/electricalengineering/teaching/undergraduate/teaching

Learning & Teaching Approach

Teaching Delivery Methods
Your course material will be delivered in different ways, including large cohort lectures in lecture theatres, team-based-learning in smaller groups, flipped classroom approaches, workshops, video recordings for online learning and laboratory work in software, hardware and embedded systems. In addition, tutorials in groups of 3-4 students will support you in analysing your progress and allow you to discuss problems in a more personal environment. Work in the laboratories is done in small teams and will teach you experimental skills, data management and how to work with other people. Team-based-learning will focus mainly on developing analytical skills in solving both well defined as well as open-ended engineering problems. You will be expected to carry out preparation work before lectures and laboratories. Revision of material is a continuous process and keeping up with new contents is key to understanding and remembering engineering concepts and how they link together.

Design and build projects
The aim of the laboratories is to add a practical aspect to the taught modules, to teach you experimental skills, including the safe use of equipment and how to choose components and encourages you to develop robust data recording and analysis skills. Design and build projects aim to bring all the taught concepts and the hard- and software skills together in order to deal with more complex systems that solve an engineering problem supported by a team of 5-8 students. These projects will also allow you to improve your team working skills together with obtaining expertise in management of time and cost. The design and build project will be mainly student-driven in order to allow you liberty in personal development and self-paced assimilation of contents. There will be group projects in the 1st and 2nd year. In the 3rd year you will carry out an individual project.

Professional and transferable skills
Throughout your programme, you will also attend workshops designed to develop transferable skills (e.g. career development, team building, ethical behaviour, and report-writing and presentation skills). These will be complemented by options to develop individual interdisciplinary interests by choosing electives in humanities, business and management studies and other STEM subjects from across the College. Professional Engineering is a topic that is integrated in all projects (group, individual and industrial) and is assessed by a Professional Portfolio that needs to be completed in the fourth year.

Independent learning
Independent study is an important part of higher education and we expect you to invest at least two to three hours of independent study for every contact hour. E-learning tools, books in the library and online digital information will support independent study. You are advised to read widely around the topic to expand your knowledge. The aim of independent study is not only to assimilate taught material but also to become an independent learner who, after graduation, can take responsibility for your future learning and development.

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 equates to an expected total study time of 25 hours. Of course, assimilation of new topics is different for everyone and therefore some students will need more or less time to achieve the same learning outcomes.

Year 1 and 2:
The ECTS allocated to each module are defined in the programme structure. Normally for 5 ECTS you will have 20 hours of lectures, 10 hours of team based learning, and 20 hours of laboratories. For every hour of face-to-face support you will be expected to spend two to three hours in self-study, supported by videos, online

self-assessment, course notes and lecture hand-outs. This estimation includes tests and exam preparation time. For the laboratory, preparation/revision time will be less but you are expected to spend an hour of preparation for each hour of lab. Preparation for labs will include engaging in the virtual labs, watching the support videos in your own time and reading around the topic. The Electronics Design Projects run over 7 weeks in the summer term. Timetabled hours will be allocated to Engineering Practice within the project module. Access to laboratories will be timetabled. You will receive help to get organised and how to manage the time spent on the project with the members of your team. A member of staff will follow and guide your progress but will not micromanage. We estimate that you will have to spend about 200 hrs on the project. The ratio of self-study to face-to-face time will increase from Year 1 to Year 3 since we expect you to develop towards becoming independent learners.

Year 3:

Modules have 5 ECTS with approximately 20 hours of face-to-face lecture time, and 5 hours of revision support for exam assessed modules. Video recordings support a move to a more self-learning style. Support outside the timetable is available upon request and is delivered by both the academic lead as well as the GTAs. You are expected to spend a significant amount of time in self-study – approximately 163 hours/module.
For modules that are assessed by coursework, an additional 10 hours face-to-face time will be put in place to support the hardware or software labs for the coursework. Coursework-assessed modules are mainly done in teams and it is expected that a team spends an additional 163 hour/module on coursework outside the face-to-face time. Help from lab technicians and GTAs can be obtained upon request. To be successful with multiple coursework assessment modules that run in parallel, good time management skills will be required to fulfil these obligations.

You must take an I-Explore or I-STEM module and complete an individual project in your 3rd and final year.

Members of staff define the Final Year Projects (Year 3). You will be expected to take initiative to progress with the work and apply good project management skills. Although meetings with your supervisor are not timetabled, both you and your supervisor should mutually agree on suitable times to meet on a regular basis.

Department of Computing

Please read their programme specifications for more details as the DoC modules might differ from the approach in the Electrical and Electronic Engineering Department. In general DoC modules have a similar workload, and also provide similar support.

Assessment Strategy

Assessment Methods

Year 1 and 2:

- Formative assessment (in-process, low stakes evaluations that give you an insight in your understanding and progress but that do not count towards the marks of your final degree) will be conducted through different techniques, including online self-assessment, key skills assessments, tutorial sessions

- Summative assessment (assessments that evaluate your understanding of engineering concepts and gives the department an insight into how well you master these). Summative assessments will count towards your final degree and will take one or more of the following forms:
  1. Online in-class confidence tests that evaluate your understanding of the fundamental principles explained in the modules. This will be closed-book tests and will in general be organised during the mid-term weeks.
  2. Laboratory tests evaluate your lab skills and also your understanding of the key concepts in each module and test your engineering competence. Your logbooks of your lab experiments support your lab orals. Laboratory tests will happen in the mid-term weeks and the last week of each term.
  3. Some modules will not have online tests, confidence test marks will come from the team-based-learning (TBL) tests or from portfolios.
  4. Module level exams. Exams will be closed book but formulae sheets are made available during the exams when needed. Exams are organised in the beginning of the summer term, unless otherwise specified in the module description. Some modules will not be examined but will be fully assessed by coursework.

  Thus each module assessment will consist of[1]:

Tests per module	Type	Term and number	% Weighting in module
Written (online)	Confidence test	Autumn term x 1	10

[1] Unless otherwise specified in the module description.

Written (online)	Confidence test	Spring term x 1	10
Practical (lab)	Competence test	Autumn/Spring x 2	30
Written	Exams	Summer x 1	50

5. Projects are mainly assessed via reports, presentations and portfolios that evaluate your mastery of concepts across module boundaries. These will also evaluate Engineering Practice.

In year 1 the module weighting is: 5 ECTS - 8.2%, 7.5 ECTS - 12.5%, 10 ECTS - 16.7%.
In year 2 the module weighting is: 5 ECTS - 8.5%, 7.5 ECTS - 12.5%, 10 ECTS - 16.5%.

Year 3

- Formative assessment will be available as feedback on reports and professional portfolios.

- Summative assessment might take any of the following forms:
  1. Individual tests (online, oral, written).
  2. Alternative methods (demonstrations, presentations, reports, peer assessments, automated source code evaluation)

Assessment type	**Individual tests**	**Alternative methods**
Exam-based	80%	20%
Coursework-based	20%	80%

The number and type of assessments depend on the optional module choice. Coursework consists of mini-projects that are module specific and are normally done in small groups. The actual ratio may vary slightly and full details will be in the individual module specifications.
For year 3, on average 50% of the assessments will be exam based and 50% will be based on alternative assessment methods.

Test	**% Weighting in year**
Individual tests	30
Alternative methods	30
Final year project	40

For year 3, each elective module carries 10% of the marks. The compulsory EEE modules also carry 10% of the marks. The I-Explore module does not carry marks but must be passed to graduate.

Department of Computing
Please read their programme specifications for more details as they might differ from the approach in the Electrical and Electronic Engineering Department

Academic Feedback Policy

Formative feedback (unmarked)
Will be via online self-assessment opportunities, team-based-learning approaches (in class and online), comments on reports and portfolios, in-class module feedback, automated self-assessment of code, and feedback via tutorials.
In Years one and two, weekly mathematics homework will be set on paper or e.g. MapleTA and feedback will be made available within a week. The first year modules Mathematics and Software for Engineers will both be supported by extra, small group work and 1-to-1 tutorials.

Laboratory demonstrators will be available for help and feedback during the laboratory session.
For your final year project, you will receive feedback during an interview on approach and progress from your second marker at an interim stage.

Summative assessments (marks count towards degree)
Will be via online assessment with automatic feedback, comments on reports and portfolios and in-class module test feedback. Feedback on exams is in the form of grades and annotated example answers that will be made available after the September Examiners' Meeting. Summative feedback on laboratory orals and presentations will be provided during the sessions.

Important note: You will have an opportunity to take some optional modules from the Department of Computing. Please read their programme specifications for more details as they might differ from the approach in the Electrical and Electronic Engineering Department.

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
The College's Policy on Re-sits is available at: www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/
Mitigating Circumstances Policy
The College's Policy on Mitigating Circumstances is available at: www.imperial.ac.uk/student-records-and-data/for-current-students/undergraduate-and-taught-postgraduate/exams-assessments-and-regulations/

Additional Programme Costs		
This section should outline any additional costs relevant to this programme that are not included in students' tuition fees.		
Description	Mandatory/Optional	Approximate cost
Laptop computer	Optional	The recommendation is that you bring your own laptop to join the bring-your-own-devices (BYOD) scheme. The Department runs a free laptop loan scheme for those students without laptop or those who forgot to bring their laptop to College.
Computer software	Optional	The College/Department gives all students access to the required software that support the modules. In those cases where external GPU time is needed, the department runs a refund scheme.

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 when implemented in session. Updated versions will be on-line at the start of the academic year.

Programme Structure[2]					
Year 1 – FHEQ Level 4 **You study all core modules.**					
Code	Module Title	Core/ Elective	Group*	Term	Credits
ELEC40010	Mathematics 1A	Core		1	7.5
ELEC40011	Mathematics 1B	Core		2	5
ELEC40009	Topics in Electrical Engineering	Core		1&2	7.5
ELEC40002	Programming for Engineers	Core		1&2	10
ELEC40003	Analysis and Design of Circuits	Core		1&2	10
ELEC40004	Digital and Computer Architecture	Core		1&2	10
ELEC40006	Electronics Design project 1	Core		3	10
				Credit Total	60
Year 2 - FHEQ Level 5 **You study all core modules.**					
Code	Module Title	Core/ Elective	Group	Term	Credits
ELEC50011	Mathematics for Engineers 2	Core		1	5
ELEC50006	Discrete Mathematics	Core		1	5
ELEC50010	Instruction Architectures and Compilers	Core		1&2	7.5
ELEC50014	Software Systems	Core		1	7.5
ELEC50009	Information Processing	Core		1&2	10
ELEC50002	Communications	Core		2	7.5
ELEC50004	Control Systems	Core		2	7.5
ELEC50003	Computer Engineering Design Project	Core		3	10
				Credit Total	60

[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.

Year 3 - FHEQ Level 6 **You must take the Core Individual Project module. You must choose at least 3 modules from group A+B, and at least 2 computing modules from group DoC. In total you must take 7 modules from the combined A+B+DoC group. You must take one iExplore module.**					
Code	Module Title	Core/ Elective	Group	Term	Credits
	Advanced Mathematics for Signals and Systems	Elective	A	1	5
	Artificial Intelligence	Elective	A	1	5
	Machine Learning	Elective	A	1	5
	Communication Systems	Elective	A	1	5
	Communication Networks	Elective	A	1	5
	Digital Signal Processing	Elective	A	1	5
	Control Engineering	Elective	A	1	5
	Embedded Systems	Elective	B	2	5
	Digital Systems Design	Elective	B	2	5
	Advanced Signal Processing	Elective	B	2	5
	Real Time Digital Signal Processing	Elective	B	2	5
	Principles of Classical and Modern Radar	Elective	B	2	5
	High Level Programming	Elective	B	2	5
	Deep Learning	Elective	B	2	5
	Computing Modules	Elective	DoC	1&2	5
	I-Explore	Compulsory	C	1 and/or 2	5 or 7.5
	Individual Project	Core	P	1,2,3	20
Credit Total					60 or 62.5

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

Important notice: The range of electives available in a given year is dependent on staff availability (influenced by sabbaticals, retirements and resignations). Where possible, you will be given notice of which options are available to you ahead of making module choices.

Progression and Classification

Progression
In order to progress to the next level of study, you must have passed all modules in the current level of study at first attempt, at resit or by a compensated pass.

The overall weighted average for each year must be 40.00%, including where a module(s) has been compensated, in order for you to progress to the next year of the programme.

Compensation
Compensation is the practice of allowing marginal failure of one or more modules, on the basis of good overall academic performance. A compensated module will receive the pass mark. Core modules cannot be compensated.

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 this award the weightings are:

Year 1	7.50%
Year 2	35.00%
Year 3	57.50%

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

First	70.00% or above for the average weighted module results
Upper Second	60.00% or above for the average weighted module results
Lower Second	50.00% or above for the average weighted module results
Third	40.00% or above for the average weighted module results

Please find the full Academic Regulations at https://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

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.

Supporting Information
The Programme Handbook is available at: http://www3.imperial.ac.uk/electricalengineering/teaching/undergraduate
The Module Handbook is available at: http://www3.imperial.ac.uk/electricalengineering/teaching/undergraduate
The College's entry requirements for postgraduate programmes can be found at: www.imperial.ac.uk/study/pg/apply/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 a typical student may reasonably be expected to achieve and demonstrate if s/he takes full advantage of the learning opportunities provided. This programme specification is 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.

Modifications			
Description	**Approved**	**Date**	**Paper Reference**
Addition of new modules: Principles of Classical and Modern Radar	Yes - DTC	10/2019	
Clarification of 1st year module assessment	Yes - DTC	11/2019 & 12 Feb 2020	
Major change to module organisation in year 1.	Yes - DTC	12 Feb 2020	
All other modifications are related to small changes in word use in text and re-organisation of 4th year modules between autumn and spring term.	Chair's action		
2nd year module codes added	Chair's action	25 Nov 2020	