

Programme Information		
Programme Title	Programme Code	HECoS Code
Medical Robotics and Image Guided Intervention	For Registry Use Only	For Registry Use Only

Award	Length of Study	Mode of Study	Entry Point(s)	Total Credits	
				ECTS	CATS
MRes	1 Calendar Year	Full-time	Annually in October	90	180
PG Cert	Four months	Full-time	N/A	30	60

All students must apply to and join the MRes programme, the PG Certificate may be offered as an exit award at the discretion of the Board of Examiners and is not available for entry.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Medicine
Teaching Institution	Imperial College London	Department	Surgery and Cancer
Associateship	N/A	Main Location(s) of Study	St Mary's Campus

External Reference	
Relevant QAA Benchmark Statement(s) and/or other external reference points	N/A
FHEQ Level	Level 7 - Master's
EHEA Level	Choose an item.

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	Daniel Elson
Student cohorts covered by specification	2019-20 entry

Date of introduction of programme	October 19
Date of programme specification/revision	October 18

Programme Overview

This course will provide you with the research skills and experience required to work within the highly innovative field of medical robotics and surgical technology.

Medical Robotics and Image-Guided Intervention are two technology-driven areas of medicine that have experienced tremendous growth and improvement over the last twenty years, partly driven by the surgical aim of progressively less invasive and harmful treatments.

This is a multidisciplinary field and is led by three internationally-known departments:

- The Hamlyn Centre for Medical Robotics (part of the Institute of Global Health Innovation)
- The Department of Surgery and Cancer
- The Department of Computing

Taught modules include a mixture of engineering and medical topics such as medical robotics and instrumentation, minimally invasive surgery, surgical imaging and optics, image guided intervention, sensing, perception and neuroergonomics.

You will spend eight months working on a cutting-edge research project.

Upon completion of the course you may either enter further study (PhD) or work in an industry with related research activity.

Learning Outcomes

Upon completion of the PG Cert, you will be able to:

1. Assess the prospects for future developments in surgical technology;
2. Collaborate with peers to propose interdisciplinary solutions to open problems in surgical robotics;
3. Propose enhancements in surgery, based on principles of anatomy, imaging and process control;
4. Retrieve, integrate and critique evidence from a variety of sources.

Upon completion of the MRes programme, in addition to the above LOs, you will also be able to:

5. Model human-machine interactions in a clinical setting, and incorporate considerations of safety and ergonomics;
6. Extend the range or utility of interventions used in current surgical practice, with a focus on better clinical outcomes;
7. Identify challenges, define problems, formulate hypotheses, and evaluate proposals;
8. Plan and implement an original experimental research project;
9. Acquire, analyse and interpret data using a range of statistical and modelling approaches;
10. Communicate effectively with peers and the wider scientific community through presentations, written reports and scientific publications.

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	The minimum requirement is normally a 2:1 UK Bachelor's Degree with Honours in a science or engineering based subject (or a comparable qualification recognised by the College). Applicants with a lower degree qualification but at least three years' work experience may be considered.
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	For further information on entry requirements, please go to https://www.imperial.ac.uk/study/pg/apply/requirements/pgacademic/
Non-academic Requirements	None.
English Language Requirement	Standard requirement Please check for other Accepted English Qualifications
Admissions Test/Interview	Candidates may be invited for interview in person or online if the review panel need further clarification of mathematical, computing or analytical ability, motivation and interest in the course, understanding of the course content and expectations of future progression.

The programme's competency standards documents can be found at: TBC

Learning & Teaching Approach

- A taught component consisting of a combination of lectures, problem-solving classes, online study material, self-study and coursework;
- A group research skills project, where you will get the opportunity to put what you have learnt in the taught component into practice (4-5 students per group);
- An individual, supervised research project.

Students are encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.

Intellectual skills, professional skills, experimental design and statistical skills are developed through the group research skills project and individual project.

The course consists of a total of 2250 hours comprising approximately 85 hours of lectures, 40 hours of problem-solving classworks, 500 hours of self-study, 125 hours of group project work and 1500 hours of individual project work, including approximately 32 hours of individual supervision.

Assessment Strategy

Assessment Methods

The lecture courses are evaluated through a mixture of coursework – including programming exercises, written assignments and oral presentations – as well as written examinations. The assessments are all completed by the middle of the second term.

Group projects are assessed by submitting an inception report, as well as a summative presentation to your peers.

The individual research project is assessed through a poster presentation to your peers and other researchers from inside and outside Imperial College London, as well as an oral presentation and written dissertation.

	Oral/poster presentation	Written report/ coursework	Exams
Percentage of total assessment	26%	64%	10%

Academic Feedback Policy

Feedback is provided to you or obtained by us, at various stages of the course.

You will receive feedback on your progress in several ways. The worked problem sheets during classwork are one mechanism for judging your progress on the course. These are not assessed and do not count towards your final mark but provide an opportunity to gauge your progress and you can discuss this with your personal tutor if required. You will also receive written feedback after the group project presentations, indicative grades

after the exams and written comments with indicative grades after submitting the courseworks and literature review, within a specified period of 21 days. Your personal tutor can also be able to inform you of your progress if required. You will receive verbal feedback from your supervisor during the research projects, usually on a weekly or fortnightly basis.

There is an excellent guide to what constitutes feedback available in the 'Success Guide – Master's students' website

<https://www.imperial.ac.uk/students/success-guide/pgt/study-and-research-skills/feedback/>

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 which are not included in students' tuition fees.

Description	Mandatory/Optional	Approximate cost
None	NA	0

Programme Structure ¹					
Year 1 – FHEQ Level 7 Students study all core modules.					
Code	Module Title	Core/ Elective	Group*	Term	Credits
	Medical Robotics and Instrumentation	Compulsory		1	5
	Minimally Invasive Surgery	Compulsory		1	5
	Medical and Surgical Imaging	Compulsory		1	5
	Image Guided Intervention	Compulsory		1	5
	Sensing, Perception and Neuroergonomics	Compulsory		1	5
	Group Project	Core		1	5
	Individual Project	Core		2-4	60
Credit Total					90

Progression and Classification
<p>Award of a Degree of Master of Research (MRes) To qualify for the award of Master of Research a student must have passed all of the modules to the value of no fewer than 90 credits.</p> <p>Classification of Postgraduate Taught Awards The College sets the class of Degree that may be awarded as follows:</p> <ol style="list-style-type: none"> 1. Distinction: The student has achieved an overall weighted average of 70.00% or above across the programme. 2. Merit: The student has achieved an overall weighted average of above 60.00%. 3. Pass: The student has achieved an overall weighted average of 50.00%. <p>a. For a Masters, students must normally achieve a distinction (70.00%) mark in the individual project module in order to be awarded a distinction.</p> <p>b. For a Masters, students must normally achieve a minimum of a merit (60.00%) mark in the individual project module in order to be awarded a merit.</p> <p>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.</p>
Programme Specific Regulations
N/A

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.

Supporting Information

The Programme Handbook is available at: N/A

The Module Handbook is available at: N/A

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
N/A	N/A	N/A	N/A