Programme Information		
Programme Title	Programme Code	HECoS Code
Medical Robotics and Image Guided Intervention Medical Robotics and Image Guided Intervention (Clinical Robotics and AI) (CRAI)	A1H6T A1H61	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 Certificate	N/A	N/A	N/A	30	60

You must apply to and join the MRes programme.

The PG Certificate does not include the specialism in the title and may be offered as an exit award at the discretion of the Board of Examiners.

Ownership			
Awarding Institution	Imperial College London	Faculty	Faculty of Medicine
Teaching Institution	Imperial College London	Department	Surgery and Cancer
Associateship	Diploma of Imperial College (DIC)	Main Location(s) of Study	South Kensington Campus 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		2nd Cycle	
External Accreditor(s) (if applicable)			
External Accreditor 1:	N/A		
Accreditation received:	N/A	Accreditation renewal:	N/A
Collaborative Provision			
Collaborative partner	Collaboration type	Agreement effective date	Agreement expiry date
N/A	N/A	N/A	N/A
Specification Details			

Programme Lead	Daniel Elson
Student cohorts covered by specification	2024-25 entry
Date of introduction of programme	October 19
Date of programme specification/revision	October 23

Programme Overview

This programme 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. The modules exclusive to the main Medical Robotics and Image Guided Intervention stream include additional engineering and computing aspects, whereas those on the Clinical Robotics and AI stream focus more on the application, translation and deployment of these concepts into clinical practice.

Both streams involve a group project and an eight month individual research project. It may be possible for projects to be carried out partly or wholly at an external organisation and requests will be considered on a case by case basis.

Upon completion of the programme you may either enter further study (PhD) or work in an industry with related research activity. Students on the Clinical Robotics and AI stream may additionally re-enter the healthcare sector.

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:

https://www.imperial.ac.uk/about/education/our-graduates/

Entry Requirements	
Academic Requirement	The minimum requirement is normally a 2:1 UK Bachelor's Degree with Honours in a science or engineering or an MBBS based subject (or a comparable qualification recognised by the university). Applicants with a lower degree qualification but at least three years' work experience may be considered. For further information on entry requirements, please go to www.imperial.ac.uk/study/apply/postgraduate-taught/entry-requirements/accepted-qualifications/
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 are available from the department.

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.
- The Clinical Robotics and AI stream additionally involves a clinical Observership.

You are encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden your 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 programme 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 lectures 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.

MRIGI:

	Oral/poster presentation	Written report/ coursework	Exams
Percentage of total assessment	28%	68%	4%

CRAI

	Oral/poster presentation	Written report/ coursework	Exams
Percentage of total assessment	20.4%	75.2%	4.4%

Academic Feedback Policy

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

You will receive feedback on your progress in several ways. The exercises during classwork are one mechanism for judging your progress on the programme. These may not be 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, numerical marks after the exams and written comments with numerical marks after submitting the courseworks and literature review, within a 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
www.imperial.ac.uk/students/success-guide/pgt/study-and-research-skills/feedback/

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	NA	N/A

Programme Structure[1]					
Year 1 – FHEQ Level 7 **You will study all core and compulsory modules associated with your chosen stream.**					
Code	Module Title	Core/ Compulsory	Group*	Term	Credits
SURG70001	Medical Robotics and Instrumentation	Compulsory	MRIGI	Autumn - Spring	5
SURG70002	Minimally Invasive Surgery	Compulsory	MRIGI and CRAI	Autumn - Spring	5
SURG70003	Medical and Surgical Imaging	Compulsory	MRIGI	Autumn – Spring	5
SURG70004	Image Guided Intervention	Compulsory	MRIGI	Autumn - Spring	5
SURG70005	Sensing, Perception and Neuroergonomics	Compulsory	MRIGI	Autumn	5
SURG70097	Clinical Robotics	Compulsory	CRAI	Autumn	7.5
SURG70098	Surgical Data Science and AI	Compulsory	CRAI	Autumn	7.5
SURG70099	Observership	Compulsory	CRAI	Autumn	5
SURG70006	Group Project	Core	MRIGI and CRAI	Autumn - Spring	5
SURG70007	Individual Project	Core	MRIGI and CRAI	Autumn-Summer	60
				Credit Total	90

[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.

Progression and Classification

Award and Classification for Postgraduate Students

Award of a Masters Degree (including MRes)
To qualify for the award of a postgraduate degree you must have:

1. accumulated credit to the value of no fewer than 90 credits at Level 7
2. and no more than 15 credits as a Compensated Pass;
3. met any specific requirements for an award as outlined in the approved programme specification for that award.

Exit Award:

Award of a Postgraduate Certificate (PG Cert)
To qualify for the award of a postgraduate certificate you must have a minimum of 30 credits at Level 7.

Classification of Postgraduate Taught Awards

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

1. Distinction: 70.00% or above
2. Merit: 60.00% or above but less than 70.00%.
3. Pass: 50.00% or above but less than 60.00%.

For a Masters, your classification will be determined through the Programme Overall Weighted Average and the designated dissertation or final major project module meeting the threshold for the relevant classification band.

Your degree algorithm provides an appropriate and reliable summary of your performance against the programme learning outcomes. It reflects the design, delivery, and structure of your programme without unduly over-emphasising particular aspects.

Programme Specific Regulations

N/A

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: https://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/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.