



Programme Specification

Please note that this specification is subject to change, in line with the national guidance on the response to the Covid-19 pandemic.

1. General information

Awarding institution:	Royal College of Art/ Imperial College London
Programme title:	MA/MSc Innovation Design Engineering
Award:	MA (RCA) + MSc (ICL)
Qualification framework level:	Level 7
School/Department or equivalent:	School of Design
Total UK credits:	360 credits
Partner(s) (if applicable):	Imperial College London City and Guilds of London Institute (ACGI)
Date valid from/to:	2020-21

2. Programme Philosophy

Innovation Design Engineering (IDE) is looking to create a new type of designer, one that has innovation focused thinking, refined design skills and engineering or technology mastery. The programme aims to provide a learning environment that will prepare you to fully exploit creativity, to deliver social and economic benefits through design and engineering, and to achieve positive change through innovation. Design is not limited to object-orientated activity, and addresses a broad range of applications from services, platforms, systems, experiences, enterprise and products.

The research, strategy, experience, system – indeed everything around, before, after and supporting the product-service-system proposition - is now within the designers' influence. Whether it is experimental exploration, market-focused product innovations or projects driven by new business models and commercial planning in IDE, our graduates should be able to innovate masterfully within this broad spectrum, have a point of view, search out the questions, and be agents of change.

The programme benefits from the skills and cultures of two very different organisations: a predominantly technical university (Imperial College London) and a college of art and design (Royal College of Art). The programme fosters a collaborative approach involving multidisciplinary team working and encourages external commercial involvement. Graduates move into diverse creative careers, such as consultants, innovators, entrepreneurs, freelancers or taking up senior roles within corporations.

3. Educational Aims and Outcomes of the Programme

The programme aims to provide a postgraduate learning environment which:

- enhances the student’s ability in innovation, design and engineering within the context of the totality delivering social and economic benefit to the world;
- is specifically structured to encourage the full realisation of each student’s unique creative and intellectual potential while being appropriate to his or her individual needs;
- supports a culture where debate on issues of design, engineering and technology, business and social and environmental sustainability is informed by a design perspective;
- promotes the understanding of the integrated relationships between creative engineering and the interplay of form, aesthetics and style, informed by the subtlest needs of the user and stakeholders through a design development process from concept generation to production and marketing;
- encourages collaborative, team-based, and multi-disciplinary working methods, brainstorming techniques, and interdisciplinary projects with both academia (other programmes in the RCA and Imperial) and externally, with other institutions and organisations;
- introduces the “real world” in terms of design and engineering practice and consulting, commercialisation and funding opportunities, licensing and intellectual property, start-ups and the role of the entrepreneur;
- offers insight into activities that play a strategic role within the manufacturing and product roll-out world, such as design management, marketing and business planning.

What will I be expected to achieve?

On completion of this programme, students will be able to:

A. Intellectual Engagement	
A1.	Develop innovative ideas that challenge the understanding of their practice and discipline.
A2.	Apply the principles and methods of design and engineering research in developing innovative propositions.
A3.	Demonstrate how their work has been informed by a global perspective and the social, cultural and environmental aspects of their work.
A4.	Translate an understanding of human factors, behaviour, systems design and engineering into human-centred design solutions.

B. Technical Skills	
B1.	Select appropriate methods, techniques and tools associated with design engineering and apply them with high levels of skill and imagination to create functioning propositions.
B2.	Test and evaluate propositions through simulation, modelmaking and prototyping.

B3.	Assess the impact of design decisions on the sustainability of a proposition
B4.	Integrate methodologies in innovation, business systems, enterprise configuration and stakeholder experience in their workflows.

C. Professionalism	
C1.	Take responsibility in developing project briefs and managing time and resources effectively.
C2.	Collaborate effectively with peers in assigning roles, delegating tasks and communicating outcomes of group working.
C3.	Document and communicate their work effectively using a range of oral, written, visual, audio and textual media.
C4.	Define their professional identity through an exploration of their own values, skills and the environments in which they seek to operate.

4. What will I learn?

First Year

In the first year you embark on a range of units ('modules'), to develop skills and experience. Each of these units focuses on a particular aspect of innovation, design and engineering and involves practice, as well as research activities within the development of products, services, systems, campaigns and experiences, and in exploring broader societal challenges.

In each unit, you undertake a design-led project to a brief - sometimes set and sometimes of your own devising. Emphasis is placed on generating imaginative ideas, development and validation through testing prototypes, simulation and gaining feedback from expert stakeholders such as potential end users, designers, engineers, entrepreneurs.

First Year Units

Unit Name	Unit Short Description	Led by	Credits		Unit weighting to MSc classification
			MA (ECTS / CATS)	MSc (ECTS / CATS)	
Innovation Design Engineering Methods	IDE Methods introduces three modes of enquiry for design-led innovation: – evolutionary, revolutionary and experimental.	ICL	-	10 / 20	0% (Pass/Fail)
Gizmo (Physical Computing and Machine	Combining the approaches of Physical Computing and Mechatronics, with	ICL	-	10 / 20	0% (Pass/Fail)

Learning)	particular emphasis on mechanisms, and the possibilities of Machine Learning and Artificial Intelligence for exploring, explaining, and predicting information in design-led innovation.				
X- Y (Science-Design Visioning)	X Y introduces frameworks and tools from the field of Future Studies (or 'Foresight') to help participants embed longer-term thinking in their practices, explore how they might influence alternative developmental pathways in the present, to achieve preferable futures.	ICL	-	10 / 20	0% (Pass/Fail)
Solo Exploration	Solo Exploration enables you to identify your own strengths and weaknesses in innovation, design and engineering by undertaking a significant self-directed project.	ICL & RCA	10 / 20	10 / 20	0% (Pass/Fail)
School-wide Platform and Project	You will take a series of lectures and workshops that examine the principles, techniques and practice of design, culminating in a project in which you will work with students from across the RCA School of Design on a Grand Challenge - one of the major issues of our time.	RCA	10 / 20	-	0% (Pass/Fail)
Superform	Superform implements an approach that aims at nurturing an explorative spirit and experimenting with methods for developing new forms and new functionalities.	RCA	5 / 10	-	0% (Pass/Fail)

GoGlobal	GoGlobal is a cross-cultural innovation collaboration, in which you consider how a design agenda fits into the global context and how it can influence and inform issues of culture and diversity. For approximately 3 weeks, the IDE1 studio relocates (conditions permitting), to investigate a strategic challenge.	ICL & RCA	5 / 10	5 / 10	0% (Pass/Fail)
Critical & Historical Studies (CHS)	CHS enables you to propose an intellectual framework within which you begin to establish a coherent relationship between theory and practice. More information about this unit is provided below.	RCA	15 / 30	-	0% (Pass/Fail)

Second Year

The second year programme of work sees you exploring topics of your own interest, resulting in two innovation projects: one that is team based ('group project'), and one that is undertaken individually (a self-generated 'solo project'). The thematic areas that students choose to explore are diverse and are supported by a broad range of expert tutors.

The solo project runs throughout the year and the group project runs during the Autumn term and a brief period of the Spring term. The group project is assessed at the end of Autumn term, followed by exhibition at a Work in Progress Show. The solo project is assessed at the end of the academic year as part of the Final Examination, with work shown in the RCA Final Show and Imperial Design Engineering Show.

Second Year Units

Unit Name	Unit Short Description	Led by	Credits		Unit weighting to MSc classification
			MA (ECTS / CATS)	MSc (ECTS / CATS)	
Group Project	The group project emphasises an interdisciplinary collaboration and team-based project work. Working in teams of 3 or 4 people, you conduct an innovation project, for which outputs are validated, contextualised, and deliver real	ICL & RCA	15 / 30	15 / 30	33.4%

	value to the users.				
Solo Project	Working individually on a self-generated-and-directed project, you integrate your values, beliefs, passions with research and experimentation to define, develop and deliver a project that demonstrates mastery in innovation design and engineering.	ICL & RCA	30/ 60	30 / 60	66.6%

Critical & Historical Studies

In your first year as an MA student at the RCA, you will undertake the Critical and Historical Studies programme. This programme includes lectures, seminars, workshops and reading groups, led by our team of CHS Tutors. The purpose of the programme is to encourage debate, understanding, intellectual confidence and self-expression in the history, philosophy and criticism of the various disciplines taught at the College, across contemporary and historical themes pertinent to art and design disciplines. You will benefit from a wide variety of learning and teaching methods, embedded in the different aspects of the CHS programme. We divide these into CHS Platforms (lecture-based content) and CHS Practice (supporting the dissertation process).

CHS provides:

- contemporary, thought-provoking lectures by the CHS and visiting tutors team;
- seminars, workshops and reading groups to extend and expand themes and contexts that are pertinent to art and design practices
- the opportunity for students to explore the ways to articulate in text a self-selected research project, through a taught process; theoretical background and aspects of their chosen discipline through a taught dissertation process;
- individual and group tutorial support from expert tutors.

The CHS (GID & IDE) programme allows you to select from two assessment routes:

Dissertation: The CHS dissertation is a tutored piece of written work on a particular topic and it takes the form of a written and illustrated text of between 4,500 and 7,500 words. The dissertation offers an exciting chance to explore, express and test your ideas in an extended written form.

Portfolio of Texts: The portfolio of texts is a tutored collection of shorter texts on a particular theme or associated themes. The submission takes the form of between 3 and 6 texts that together constitute 4,500 to 7,500 words. The portfolio option offers the chance to explore and articulate your research through different modes of writing. The portfolio can be submitted either as one full portfolio at the end of the programme or in two phases (January and March), to allow you to stagger the workload.

Details of lecture schedules and key assessment deadlines are outlined in the CHS Handbook, provided to students each academic year, and through Moodle.

5. How will I learn?

Please note that these are subject to change, in line with the national guidance on the Covid-19 response.

The MA/MSc joint Masters programme is of six terms duration, spread over two years. The programme takes an experiential approach to learning, with design projects as the main context for developing knowledge, skills and honing attitudes required for innovation through design engineering. These projects are supported by a variety of other learning activities which include lectures, workshops, gateway presentations, seminars, technical instruction and tutorials with staff and visiting tutors.

All formal reviews, seminars and workshops require students' mandatory attendance. At the beginning of each unit, students are informed of the mandatory attendance of other timetabled activities, online or in person.

Personal Tutorials

Each student is assigned a personal tutor when they enrol on the programme, who you can contact primarily, if you are in need of pastoral assistance. One tutorial a term is designated to allow you to reflect on your progress as well as challenges in your studies and any challenges they face outside of the college.

Group and joint tutorials

Students review their work-in-progress with a variety of staff and visiting tutors in tutorials, typically 1-to-1 or small group interactions. Students in IDE year 2 also have Progress Review Tutorials. These sessions are work reviews, so it is expected that students will attend with their work, which may include research results, sketches, prototypes, simulations.

Lectures

Lectures cover a range of subjects in innovation, design and engineering. These sessions augment the intense creative and developmental demands of the project-based units. The programme runs a series of practice and research-related lectures and talks by staff, visiting tutors and guest experts.

Formal Reviews (Gateways and Assessments)

During project work and at the end of each unit, students present their work to others in the year group plus selected staff and Visiting Tutors. Verbal feedback is given during the reviews and written feedback (and grades for assessments) is made available after the event.

Seminars and workshops

Seminars are structured presentation and discussion events that are facilitated by staff and, on occasions, special guests. These sessions are based on peer interaction and review with tutor guidance and are an excellent chance to see where your work lies in relation to your classmates. They are a safe and relaxed place to test new ideas, admit mistakes, demonstrate excellence, and share anything relevant as well as take advantage of the serendipitous nature of innovation.

You may get the opportunity to participate in an exhibition of your student work, either during or at the conclusion of your studies. Your Programme Handbook should provide more information on the nature of this participation.

6. Assessment and feedback

Assessment

The progress of an IDE student is reviewed on a continuous basis through verbal and written feedback and through summative assessment of each unit of study. Summative assessment is formal assessment of learning (i.e. how well do students demonstrate the intended learning outcomes of the unit or programme). A variety of assessment methods are used throughout the programme including:

- Individual and group coursework
- Written reports and portfolios
- Movies
- Practical's and Demonstrations
- Oral presentations
- Viva voce

First Year

First year units are individually assessed against the learning outcomes of that unit, leading to summative assessments and ensuring that students have the opportunity for feedback moving from one unit to the next.

In order to progress to the second year, an IDE student must achieve a grade of at least Satisfactory (pass) in each unit, including CHS. A student who has failed any unit will be sent for referral in that unit. If a student has failed 30 ECTS (60 CATS) credits or more, it is an automatic fail and they will not be allowed to pass to the second year of the programme.

Second Year

The second year of the programme consists of two units, the Group project and Solo project. These units are summatively assessed through the following assessments, weighted as follows:

GROUP PROJECT

- Movie 20%
- Group project presentation 80%

SOLO PROJECT

- Gateway 3 (oral presentation) 10%
- Project Documentation 20 %
- Final Examination 70 %

IDE FINAL GRADE

- Group Project 33.4 %
- Solo Project 66.6 %

Final Examination

The Final Examination consists of a viva-voce, which takes place in the final term of the programme. The solo project will be assessed during the exam by a panel of academics. The IDE Final Examination Panel is normally made up of an equal number of members of staff from both RCA and Imperial College.

Each student's work is assessed by academics, and a sample of the cohort's work is reviewed by External Examiners. Results will be recommended to the RCA Academic Board for Concessions & Discipline for ratification.

Award Classification

For the award of the MSc (Imperial), a student may be considered for a merit or distinction classification. The MA award (RCA) is not classified, therefore is awarded on a pass / fail basis.

At the Final Exam, students are awarded an overall grade that relate to the MSc degree classification in the following manner:

Students awarded an overall grade of Excellent or Very Good will be considered for MSc – Distinction

Students awarded an overall grade of Very Good or Good will be considered for MSc - Merit

Students awarded an overall grade of Satisfactory will receive MSc - Pass.

Reassessment/Referral Policy

For students who are referred at the end of their first year, reassessment will normally take place in the September before the next academic year begins. Final year students may be offered the opportunity for examination in December or the following June. It is not possible for students who are referred to be examined in the same examination period.

Final Examination

If at Final Examination a student's work from the exam or assessed work from earlier units is considered to be Poor (a borderline fail) the student may be required to retrieve the work within an academic term, or at a referral examination within 12 months.

For the Imperial award (MSc) a student taking a Referral Project will normally only be credited with a Pass mark if successful. However, where illness has affected a candidate's performance at an examination, or there are other mitigating circumstances, the Joint Board of Examiners has discretion to credit the candidate with the actual marks achieved in their Referral examination.

Information regarding individual assessments will be included in the Unit Descriptors, and will be available to students at the beginning of the academic year.

7. What award can I get?

To be awarded a Double Masters degree you need to gain 360 credits at level 7 of the Framework for Higher Education Qualifications (FHEQ). This will involve successfully completing all units.

If you fail a unit at the first attempt, you will be offered an opportunity to resit the unit. If you are successful you will be awarded the credits for that unit. If you are unsuccessful, you cannot progress further in your programme.

For more detailed information about the College's assessment, progression and awards policies see the Regulations.

8. Admissions

Entry Requirements	
Academic Requirement	Minimum 2.1 UK Honours degree (or equivalent)
English Language Requirement	IELTS 6.5 with a minimum of 6.0 in each element or equivalent
<p>The Innovation Design Engineering MA/MSc programme accepts a multidisciplinary range of applicants – we want diversity of expertise, culture and experience. We are interested in engineers, scientists and technologists; we are looking for designers from all aspects of the subject area and we welcome applicants from other diverse fields such as business, social science, and the arts. In fact, successful IDE applicants can come from many fields: anyone with outstanding skills in their current activities that has an excellent aptitude for innovation and team working and has a fundamental belief that design can make a direct contribution to the quality of life. Engineers, designers, scientists, technologist, artists, social scientists, business people, if you have intelligence, curiosity, passion and a drive to improve the world then IDE is interested in you.</p> <p>IDE is a double Master's programme run jointly between the RCA and Imperial College London, and consequently applicants need to meet the requirements of both institutions.</p> <p>Candidates for Innovation Design Engineering are normally required to have at least a UK honours degree at 2:1 level (or the equivalent) in any subject relevant to innovation. It is desirable for candidates to have some relevant work experience.</p> <p>In exceptional circumstances applicants without the required degree qualification will be considered, for example, excellent professional experience or outstanding creative or technical abilities. Special cases for admissions require unanimous approval from the IDE Entrance Examination Board, then approval by the RCA's Academic Board for Concessions and Discipline (ABCD) and Imperial's Programme's Committee.</p> <p>Entrance requirements are described at: Royal College of Art: Entrance requirements are described at: Royal College of Art: www.rca.ac.uk/study/apply/entrance-requirements/ma-entrance-requirements/ Imperial: www.imperial.ac.uk/study/pg/apply/requirements</p> <p>Applicant Qualities Generally, we are looking for applicants to demonstrate their:</p> <ul style="list-style-type: none">• creativity, imagination and innovation;• ability to articulate the intentions of the work;• intellectual engagement in areas relevant to the work;• technical skills appropriate to the work;• potential to benefit from the programme and achieve MA standards overall. <p>English Language Applicants who are not a national of a majority English-speaking country will need to demonstrate</p>	

their English language proficiency. The College accepts a range of English language qualifications. The full list can be seen at <https://www.rca.ac.uk/studying-at-the-rca/apply/entrance-requirements/english-language-requirements/>

Applicants are exempt from this requirement if they have received a 2.1 degree or above from a university in a majority English-speaking nation within the last two years.

If a student would need a Tier 4 visa to study at the RCA, they will also need to meet the Home Office's minimum requirements for entry clearance.

Admission Process

Applications must be made directly to the College through our online application portal: <https://www.rca.ac.uk/studying-at-the-rca/apply/application-process/ma-application-process/>

Portfolio

All applicants are required to submit a portfolio as part of the application process. A portfolio is a showcase of an applicant's work as an artist or designer and can be made up of images, videos or writing examples. The portfolio helps us to better understand the applicant and allows them to show evidence of their ability and motivation to undertake a given programme.

Each programme is looking for different things in a portfolio; each Head of Programme provides specific advice on portfolio requirements in the online application system. We advise prospective students to consider these requirements carefully before submitting their application.

Please consult the College website for further information on programme-specific admission and portfolio requirements.