

Programme of study for the integrated degree of PhD and MSc (Fluid Dynamics)¹ 2024/25

Entry Requirements

Applicants will normally be required to have obtained a relevant degree *at least* equivalent to a UK upper second class (2:1) honours degree. PGRs whose first language is not English will normally be required to have achieved at least 6.0 on IELTS (with no component below 5.5) or an equivalent English language qualification.

There is normally one entry point for the integrated degrees of PhD and Master in September/October of each academic session.

Year One (a total of 150 credits in taught modular courses will be taken as well as the research project)

- The candidate will commence research under the direction of their supervisor(s) from term 3.
- Compulsory training and skills module:
SOEE5260M Professional Development & Skills 1 (15 credits)
SOEE5261M Professional Development & Skills 2 (15 credits)
- Compulsory specialised subject modules:
COMP5455M Data-Driven Fluid Dynamics (15 credits)
MECH5770M Computational Fluid Dynamics Analysis (15 credits)
MATH5453M Foundations of Fluid Dynamics (30 credits)
MECH5875M Multidisciplinary Team Project (45 credits)
MECH5890M Research Evidence (15 credits)

At the end of the first year the Fluid Dynamics CDT Management Committee will assess the performance of the PGR on the basis of achievement in the module assessment, required training and other activity. PGRs will be required to pass at least 135 taught credits in order to progress on the programme.

Year Two (a total of 30 credits in taught modular courses will be taken as well as the research project)

- The candidate will continue research under the direction of their supervisor(s)
- Compulsory training and skills module:
SOEE5262M Professional Development & Skills 3 (15 credits)
- Candidates are required to take one (15 credits) of the following options:
COMP5930 Scientific Computation (15 credits)
SOEE5835 Advanced Atmosphere and Ocean Dynamics (15 credits)

Other optional modules may be approved. Candidates are advised to discuss this with their supervisors.

PGRs who have been successful in the assessed modules and research components during Year 2 of study, will undergo a Transfer Assessment process at the end of year 2.

PGRs will be required to pass at least 150 taught credits and successfully Transfer to full PhD status in order to progress on the programme.

Years Three and Four

- The candidate will continue research under the direction of their supervisor(s)

¹ To be read in conjunction with the general Programme of Study for the Integrated degrees of PhD and Master (MA, LLM or MSc)

**Learning Outcomes / Transferable Key Skills / Learning Context / Assessment – overall programme
Integrated degree of PhD and MSc (Fluid Dynamics)**

1. Learning Outcomes

On completion of the programme PGRs should have shown evidence of being able:

- to demonstrate in-depth, but also broad-based and interdisciplinary, specialist knowledge and mastery of techniques relevant to Fluid Dynamics: to demonstrate a sophisticated understanding of concepts, information and techniques at the forefront of the discipline;
- to exhibit mastery in the exercise of generic and subject-specific intellectual abilities including fundamental theory, mathematical modelling, numerical methods and experimental techniques;
- to demonstrate a comprehensive understanding of techniques applicable to their own research or advanced scholarship;
- to take a proactive and self-reflective role in working and to develop professional relationships with others;
- proactively to formulate ideas and hypotheses and to develop, implement and execute plans by which to evaluate these;
- critically and creatively to evaluate current issues, research and advanced scholarship in the discipline.
- Undertake a team research project and be able to plan, research, execute and analyse the results from an appropriate programme of work.

2. Transferable (Key) Skills

PGRs will have had the opportunity to acquire the following abilities as defined in the modules specified for the programme:

- the skills necessary to undertake a higher research degree and/or for employment in a higher capacity in industry or area of professional practice;
- evaluating their own achievement and that of others;
- self direction and effective decision making in complex and unpredictable situations;
- independent learning and the ability to work in a way which ensures continuing professional development;
- critically to engage in the development of professional/disciplinary boundaries and norms;
- work effectively in an external environment e.g. industry, overseas laboratory.

3. Learning Context

For Masters (Taught) PGRs the learning context will include the analysis of, and decision making in, complex and unpredictable situations. The structure of the programme will provide breadth and/or depth of study and opportunities for drawing upon appropriate resources and techniques. Opportunities will be provided for PGRs to develop:

- high level interests and informed opinions;
- develop to a high level their design and management of their learning activities;
- develop to a high level their communication of their conclusions;
- make an original contribution to the field.

PGRs will be expected to engage in the exercise of autonomous initiative in their study and work in professional environments.

4. Assessment

Achievement for the degree of Master (taught programme) will be assessed by a variety of methods in accordance with the learning outcomes of the modules specified for the year/programme and will involve the achievement of the PGRs in:

INTEGRATED PHD OF PHD AND MSC (FLUID DYNAMICS)

- evidencing an ability to conduct independent in-depth enquiry within the discipline;
- demonstrating the ability to apply breadth and/or depth of knowledge to a complex specialist area;
- drawing on a range of perspectives on an area of study;
- evaluating and criticising received opinion;
- make reasoned judgements whilst understanding the limitations on judgements made in the absence of complete data;
- Presenting work in a variety of ways e.g. oral presentation to academic groups, lay public; examination, viva, coursework;
- The written style and overall presentation of the thesis.