

Programme of study for Doctor of Philosophy – Materials 2024/25

This programme is delivered as part of the EPSRC Centre for Doctoral Training in Developing National Capability for Materials 4.0, and is delivered in partnership with University of Manchester (lead partner), the University of Cambridge, Imperial College, University of Oxford, University of Sheffield and Strathclyde University.

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. International PGRs 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.

Equivalent academic and English Language qualifications can be found on the University website at <https://www.leeds.ac.uk/research-applying/doc/applying-research-degrees>

There is normally one entry point in October of each academic session.

This programme is not available for study on a Split-site or Distance Learning basis.

Duration of the Programme (excluding overtime period)

- 4 years FT

Programme Outline

Candidates will be based at the University of Leeds throughout, with training activity at other partners amounting typically to up to 12 weeks over the whole programme (three weeks a year on average). Training content will be delivered by and in co-operation with partners in the CDT award (universities of Manchester, Cambridge, Imperial, Oxford, Sheffield, Strathclyde) plus the National Physical Laboratory and Alan Turing Institute.

Year 1

Candidates may be required to attend a short induction course of 1 to 2 weeks' duration at the University of Manchester at the start of the programme.

Training: students will gain the basic knowledge and develop the core skills required for their transition to researchers.

Commencement of PhD research.

Year 2

Training: students will deepen their background knowledge and develop the skills necessary to pass on their learning.

Continuation of PhD research.

Full-time candidates must submit their Transfer report and undergo assessment by no later than 18 months from the start of the candidature and will be required to successfully transfer to full PhD status by no later than Month

24 in order to progress on the programme.

Year 3

Training: students become involved in training the wider community of materials researchers from beyond the CDT and CDT students in following cohorts, which will help them deepen their own subject-specific knowledge and hone their skills.

Continuation of PhD research.

Annual Progress Review.

Year 4

Training: students will grow into leaders and become advocates for the digitalisation of materials discovery and manufacturing in industry and academia.

The PGR will continue research under the direction of their supervisor(s).

Annual Progress Review (if Thesis not submitted).

Thesis submission deadline

Candidates are strongly encouraged to submit their thesis within the Standard Period of Study (4 years), which will usually coincide with the funding period for CDT-funded candidates.

Where an overtime period is required to complete the writing up of the thesis, the thesis submission deadline is the end of month 60.

Learning Outcomes / Transferable Key Skills / Learning Context / Assessment for PhD

1. Learning Outcomes

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

- to discover, interpret and communicate new knowledge through original research and/or scholarship of publishable quality which satisfies peer review;
- to present and defend original research outcomes which extend the forefront of a discipline or relevant area of professional/clinical practice;
- to demonstrate systematic and extensive knowledge of the subject area and expertise in generic and subject/professional skills;
- to take a proactive and self-reflective role in working and to develop professional relationships with others where appropriate;
- to independently and proactively formulate ideas and hypotheses and to design, develop, implement and execute plans by which to evaluate these;
- to critically and creatively evaluate current issues, research and advanced scholarship in the discipline;
- to demonstrate systematic knowledge of and be able to critically assess, analyse and engage with the ethical and legal context of their research and any ethical and legal implications of their research.

2. Transferable (Key) Skills

PGRs will have had the opportunity to acquire the following abilities through the research training and research specified for the programme:

- the skills necessary for a career as a researcher and/or for employment in a senior and leading capacity in a relevant area of professional/clinical practice or industry;
- 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;

3. Learning Context

This will include the critical analysis of, and decision making in, complex and unpredictable professional and/or clinical situations. The structure of the programme will provide research and/or professional training, breadth and depth of study and opportunities for drawing upon appropriate resources and techniques. Opportunities will be provided for PGRs to:

- develop to a 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 will be assessed by the examination of the candidate's thesis and performance under oral examination. Assessment will involve the achievement of the candidate in:

- evidencing an ability to conduct original and independent broad and in-depth enquiry within the discipline or within different aspects of the area of professional / clinical practice normally leading to published work;
- drawing on and/or developing a range of research techniques and methodologies appropriate to enquiries into the discipline/area of professional practice;
- demonstrating independent critical ability in the application of breadth and depth of knowledge to complex issues within the discipline or specialist area of professional/clinical practice;
- drawing on a range of perspectives on the area of study;
- evaluating and criticising received opinion;
- making reasoned and well-informed judgements on complex issues within the specialism whilst understanding the limitations on judgements made in the absence of complete data;
- the written style and overall presentation of the thesis