Doctor of Philosophy - Nuclear Energy - GREEN (Growing skills for Reliable Economic Energy from Nuclear) 2024/25

This programme is no longer recruiting and has been replaced by Nuclear Science and Engineering, delivered as part of the EPSRC Centre for Doctoral Training in SATURN (Skills And Training Underpinning a Renaissance in Nuclear)

Programme of study for Doctor of Philosophy - Nuclear Energy - GREEN (Growing skills for Reliable Economic Energy from Nuclear)

Entry Requirements: 1st, 2.1, MEng or Distinction, Merit, MSc in a relevant science or engineering discipline.

Taught Components Year 1
Year One (a total of 120 credits)

- Compulsory individual project:
  CAPE5995M CDT Short Research Projects (60 credits)

- Compulsory training and skills module:
  JUMNNG001 Introduction to the Chemistry and Physics of the Nuclear Fuel Cycle (15 credits)
  JUMNNG002 Materials Science in the Nuclear Fuel Cycle (15 credits)
  JUMNNG003 Environmental Radiochemistry and the Science of Radioactive Waste Disposal (15 credits)
  JUMNNG004 Site Visits, Winter School and Skills Training (15 credits)

Research Component Year 1

PGRs will begin their main PhD research in year one; taught components will be complete by the end of Month 9. In order to progress PGRS must satisfy the CDT Academic Progression Committee by demonstrating aptitude for doctoral level research, along with successful completion of the taught components of the programme.

Research Component Year 2

PGRs must submit their transfer report 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.

Research Component Years Three and Four

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

Exit Paths

Candidates are eligible for the award of Postgraduate Certificate and Postgraduate Diploma qualifications at certain exit points in the programme, provided that they have satisfied the relevant regulations for the award of these qualifications as set out in Ordinance XI (Taught Postgraduate Awards) and the Rules for award, if they

either decide to leave or do not progress beyond the relevant stages.

- Postgraduate Certificate (60 taught credits)
- Postgraduate Diploma (90 taught credits)

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