

INTEGRATED DEGREE OF PHD AND MSC (BIOENERGY)

Programme of study for the integrated degree of PhD and MSc (Bioenergy)¹

Year One (a total of 135 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:
CAPE5950 Transferable Skills and Professional Development (15 credits)
- Compulsory specialised subject modules as follows:
CAPE5970 Interdisciplinary Research Project (90 credits)
CAPE5440 Advanced Renewable Technologies (15 credits)
- Candidates will be required to study 15 credits from the following optional modules:
CAPE5990 Commercial Software (15 credits)
CIVE5392 Bioenergy from Wastes (15 credits)
CAPE5410 Energy Management and Conservation (15 credits)
CAPE5450 Energy Systems: Analysis and Efficiency (15 credits)
SOEE5550 Climate Change: Impacts and Adaptation (15 credits)

PGRs will be required to pass at least 120 taught credits in order to progress on the programme.

Year Two (a total of 45 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:
CAPE5960 Transferable Skills and Professional Development (30 credits)
- Candidates will be required to study 15 credits from the following optional modules:
CAPE5990 Commercial Software (15 credits)
CIVE5392 Bioenergy from Wastes (15 credits)
CAPE5410 Energy Management and Conservation (15 credits)
CAPE5450 Energy Systems: Analysis and Efficiency (15 credits)
SOEE5550 Climate Change: Impacts and Adaptation (15 credits)

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)
- Optional and compulsory non-credit bearing training and skills modules selected as appropriate from the wide-range of training courses provided at the University of Leeds (e.g. Writing for Research PGRs in the Sciences, Thesis Presentation).

Changes may be made from time to time to the titles of modular courses and the optional modular courses that are available.

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

1. Learning Outcomes

On completion of the Integrated PhD with MSc as a whole, PGRs should have shown evidence of being able to:

- discover, interpret and communicate new knowledge through original research in the field of bioenergy and produce scholarship of publishable quality which satisfies peer review;

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

INTEGRATED DEGREE OF PHD AND MSC (BIOENERGY)

- independently and proactively formulate ideas and hypotheses and to design, develop, implement and execute plans by which to evaluate these;
- demonstrate systematic and extensive knowledge across the four interdisciplinary themes of Feedstocks, processing and safety; Conversion; Products, Utilisation and Impact; Sustainability and Whole Systems;
- critically and creatively evaluate current issues, research and advanced scholarship in the above themes;
- exhibit generic and subject specific skills and techniques necessary for effective working in an interdisciplinary research-intensive environment, in liaison with academic and industrial partners, ensuring widening participation through engagement in public events, enterprise and knowledge transfer;
- demonstrate a portfolio of transferable professional skills through the use of Personal Development Plans including, for example, communication and presentation skills, ethics, networking and team development, commercial awareness; to take a proactive and self-reflective role in working and to develop professional relationships with others where appropriate;
- undertake an individual research project in the area of Bioenergy, incorporating research in a specific area, but also including reference to the wider context of energy policy, legislation and environmental impact; to present and defend research outcomes which extend the forefront of the bioenergy discipline and professional practice;
- demonstrate 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 practice or industry;
- evaluate their own achievement and that of others;
- exhibit self-direction and effective decision making in complex and unpredictable situations;
- demonstrate independent learning and the ability to work in a way which ensures continuing professional development.

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

The learning context will include the critical analysis of, and decision making in, complex and unpredictable professional and 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:

- interests and informed opinions;
- their involvement in the design and management of their learning activities;
- their communication of their conclusions;
- PGRs will be expected to progress to fully autonomous study and work.

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 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.

INTEGRATED DEGREE OF PHD AND MSC (BIOENERGY)

- Presenting work in a variety of ways e.g. oral presentation to academic groups, lay public; examination, viva, coursework.