

# Innovative and Collaborative Engineering Doctorate

Academic Year 2023/24

Awarding body	Loughborough University
Teaching institution (if different)	N/A
Programme title	Innovative and Collaborative Engineering
Primary award	EngD
Mode of Study	Full-time
Programme length	Full-time: 4 years The duration of the taught component is up to 24 months from registration Submission is expected within the 4-year funded period for full time students
Owning school/department	School of Architecture, Building and Civil Engineering
Campus	Loughborough
Admissions criteria	<a href="https://www.lboro.ac.uk/study/postgraduate/research-degrees/">https://www.lboro.ac.uk/study/postgraduate/research-degrees/</a> Student must also possess an MSc degree
Date at which the programme specification was published	

## Accreditation

None

## Programme Aims

The primary aim of the EngD is to develop Research Engineers who are capable of demonstrating innovation in the application of knowledge to the construction and engineering sectors. The aims of the programme are to:

- Provide a programme that both promotes and facilitates the exchange of ideas, knowledge, experience, and skills for Research Engineers, companies and academics.
- Stimulate and deliver research and innovation with a strong business industry-based focus, whilst contributing to the body of knowledge in a particular industrial sector or multidisciplinary theme.
- Produce high calibre doctoral graduates with a strong level of technical, managerial and business competence who can drive industry innovation and UK business competitiveness.

## Core (45 Credits) Taught Programme Aims

- Provide Research Engineers with the necessary experience and knowledge to undertake rigorous, leading-edge industry-based research.
- Facilitate knowledge acquisition of a range of research methodologies to deliver business sector specific research and innovation.
- Equip students with the necessary training and skills to undertake a study of a real-life problem within an industrial context.
- Enable candidates to acquire a wide range of transferable management and professional development skills within engineering and construction.

## Additional (15 Credit) Taught Programme Aims

- Provide Research Engineers with experience of the process and methodology of research by defining and studying a complex problem in a specialised area relating to their degree.
- Acquire the capabilities and professionalism to deliver novel research in one of the five main research areas: sustainable design and construction; construction technologies and business processes; projects and organisation; digital technologies and processes; or, transport and infrastructure.

## Benchmarks

### Relevant subject benchmark statements and other external and internal reference points used to inform programme outcomes:

- The Frameworks for Higher Education Qualifications of UK Degrees
- Doctoral Degree Characteristics Statement (QAA)
- Credit Level Descriptors for Higher Education (SEEC)
- Loughborough University Quality Reviews
- Research Council Mid-term and Annual Reviews

## Learning Outcomes

### Knowledge and Understanding

On successful completion of this programme, Research Engineers will be able to develop, apply and evaluate:

- Knowledge and expertise at the forefront of the discipline in pursuit of new knowledge in highly abstract and complex business environment contexts.
- Innovative and advanced methodologies to support strategic corporate decisions.

### Skills and other attributes

#### Subject-specific cognitive skills:

On successful completion of this programme, Research Engineers will be able to develop, apply and evaluate innovative and highly advanced:

- Problem-solving strategies, methods and techniques to investigate approaches to tackling (real) complex industrial problems.
- Critical thinking, expert skills and knowledge in complex and unpredictable engineering/ applied science / built environment contexts.
- Optimal and viable solutions to multi-faceted engineering problems, drawing on complex data and evidence.

## Subject-specific practical skills:

On successful completion of this programme, Research Engineers will be able to develop, apply and evaluate innovative and highly advanced:

- Research and innovation skills within a construction and/or an engineering context
- Project and programme management skills.

## Key transferable skills:

On successful completion of this programme, Research Engineers will be able to develop, apply and evaluate innovative and highly advanced:

- Ideas and generate a range of solutions.
- Skills to critique approaches to research investigation.
- Skills in communicating information developed for specialist and diverse audiences.
- Autonomy, leadership, team and networking skills to enhance the process, productivity and outcomes of projects

## University Regulations

University Regulations for Postgraduate Research study are set out in [Regulation XXVI](#) (Higher Degrees by Research).

Please see the [Terms and Conditions of Study](#) for detailed information on your contract with the University.

## Programme structure

All Research Engineers who are registered on the Engineering Doctorate (EngD) programme are required to register for and satisfy the requirements for the curriculum-based component of the programme. The purpose of the taught modules is to develop knowledge and understanding of a number of business and technical subjects.

The curriculum-based component of the programme requires a minimum modular weight of 60 credits. Credit must be achieved in all modules to enable progression on the programme. The curriculum-based component of the EngD programme must be completed within the first two years of the EngD programme.

All candidates shall register at the beginning of their programme and subsequently at the beginning of each academic year for the modules which they are taking in that year, subject to their satisfactory progress in research and the extension of their registration for the Degree of EngD in accordance with paragraph 4.3 of the Regulations for Higher Degrees by Research. Candidates are not eligible to register for modules whilst they remain in debt to the University.

The PGCert shall be awarded as an early exit route only.

The programme is split into a taught and research element. The taught element is undertaken in the first two years through teaching in lectures, tutorials and workshops. Coursework and examinations are used for assessment.

The research is undertaken over the whole 4 years of the programme. The Research Engineers must submit an EngD Thesis which consists of a discourse and published peer-reviewed papers or technical reports at the end of their study. They are examined via a Viva.

The taught component is assessed and forms an integral part of the degree. Participants will be expected to attend the University to take these modules. Research Engineers have the option to take a limited set of modules from other Schools in the University, if available.

## Part R0

Research Engineers will complete the following:

Commence consultation with supervisors and industry/impact partners to identify and agree on the research topic.

30 credits in modular courses in accordance with Regulation XXI which will include:

Compulsory modules: All students must complete the following modules (30 credits)

<b>Module title</b>	
1	CVP319 Research Methods (15 credits)
2	CVP034 Management and Professional Development 1 (15 credits)

### **Progression assessment**

By the end of R0, it is expected that students should have accumulated 30 credits from taught modules. In accordance with Regulations XXI, students who fail to gain credit in a module at the first attempt shall be eligible to take one further reassessment attempt in that module. In exceptional circumstances, R0 modules may be completed in R1.

Submission of a 2,000-word research report at the mid-way point of Part R0 and submission of a satisfactory 5,000-word research report (end of Part report) towards the end of Part R0 in accordance with the provisions of Regulation XXVI.

Typically, the timetable for reports in R0 will follow the schedule below.

Time spent in R0	6 months	12 months
Full-time	2,000-word mid-part report	5,000-word end of part report

## Part R1

Research Engineers will complete the following:

30 credits in modular courses in accordance with Regulation XXI which will include:

Compulsory modules: All students must complete the following modules (15 credits)

<b>Module title</b>	
1.	CVP035 Management and Professional Development 2 (15 credits)

Optional modules: All students must complete a further 15 credit module

<b>Module title</b>	
1.	15 credit level 7 module suitable to programme aims and approved by the Programme Director

Students will continue EngD research under the direction of their assigned supervisors.

### **Progression assessment**

By the end of R1, students must have successfully accumulated 60 credits from taught modules. In accordance with Regulations XXI, students who fail to gain credit in a module at the first attempt shall be eligible to take one further reassessment attempt in that module.

Submission of a 2,000-word research report at the mid-way point of Part R1 and submission of a satisfactory 10,000-word research report (end of Part report) towards the end of Part R1 in accordance with the provisions of Regulation XXVI.

Typically, the timetable for reports in R1 will follow the schedule below.

Time spent in R1	6 months	12 months
Full-time	A draft of a journal paper publication or a 2,000 word research report.	10,000-word end of part report. Evidence of a journal publication submitted with the approval of the supervisors.

## Part R2

Research Engineers will complete the following:

Submission of a satisfactory 10,000-word research report (end of Part report) towards the end of Part R2 in accordance with the provisions of Regulation XXVI.

Typically, the timetable for reports in R2 will follow the schedule below.

Time spent in R2	12 months
Full-time	10,000-word end of part report

## Part R3

At the end of R3, Research Engineers will submit either

- 1) a collection of published papers and a discourse of no more than 20,000 words setting out the aims, objectives, findings and industrial relevance/impact of the research work undertaken. The submission shall include a minimum of 3 published (peer reviewed) papers or papers accepted for publication, of which at least one should be in an appropriate journal.
- 2) Where the nature of the research programme made the production of publications unlikely, technical reports should be included in lieu of published papers. Such technical reports shall have been subject to external assessment. The reports shall be accompanied by a discourse of no more than 20,000 words setting out the aims, objectives, findings and industrial/relevance impact of the research work undertaken in accordance with the provisions of Regulation XXVI.

Where the thesis is not ready for submission at the end of part R3, Research Engineers must submit a written report detailing the plan for submission within the maximum registration period of 4 years and six months.

## Criteria for Progression and Degree Award

To progress from Part R0 to R1, Part R1 to Part R2 and from Part R2 to Part R3, and to be eligible for an award, candidates must satisfy the assessment requirements set out in Regulation XXVI. Candidates must complete all the requirements for each Part outlined above in order to progress to the next Part. If an end of part report does not meet the standards required for progression, candidates may undertake further work and resubmit the report on one occasion only in accordance with the provisions of [Regulation XXVI](#).