TSBE Centre handbook

Where sustainability begins...
Key contacts

**Director: Professor Janet Barlow**
0118 378 6786
j.f.barlow@reading.ac.uk

**Centre Manager: Jenny Berger**
0118 378 7177
j.m.berger@reading.ac.uk

**Centre Administrator: Emma Hawkins**
0118 378 8533
e.e.hawkins@reading.ac.uk

**Business Development: Georgie Watson**
0118 378 4672
g.c.watson@reading.ac.uk
Welcome

I would like to welcome all new Research Engineers and Supervisors to our Technologies for Sustainable Built Environments (TSBE) Centre.

We aim to have a centre of excellence in sustainable built environments, renewable energy and energy management research. The primary objective of the Centre is to train Research Engineers to achieve the qualification of Engineering Doctorate by fostering collaborations between internationally renowned researchers at the University of Reading and leading UK industries.

The Centre is committed to working with the UK construction and energy sectors to encourage the development of an industrial knowledge-base to address challenging sustainability and climate change issues. We aim to do this by reducing the environmental impact of construction and the carbon footprint of building services systems.

I sincerely hope that you will enjoy this experience and benefit from the EngD programme. I look forward to working with you and should you require any help, we in the TSBE Centre would be happy to assist you to ensure your participation here is enjoyable and rewarding.

Professor Janet Barlow – Director

www.reading.ac.uk/tsbe
Background

An Engineering Doctorate (EngD) is a four-year programme leading to a postgraduate degree awarded for industry based research supported with a programme of university taught models. It is an alternative to the traditional PhD for students who want a career in industry.

The Scheme was established by the Engineering and Physical Sciences Research Council (EPSRC) in 1992 following recommendations made in the Parnaby Report to provide an alternative qualification to the PhD with industrial relevance. The EPSRC scheme operates only at approved centres, each focussing on a technical theme or themes. It aims to provide ambitious and capable research engineers with the technical, business and personal development competencies needed by the senior research managers of the future. The new knowledge and skills learned from an intensive programme of taught coursework are applied to one or more doctoral level industrial research projects during the course of the programme. Those enrolled on the programme are known as Research Engineers (REs).

The EngD training is carried out full time over four years. Around 75% of the time is spent on the research project work and 25% on taught courses, the latter typically approximating to a one year Masters course in extent and difficulty. Typically, 50–75% of the four-year period will be spent working with the collaborating company. The research can take the form of a single substantial project or a coherent portfolio of complementary projects.
The TSBE Centre

The Technologies for Sustainable Built Environments (TSBE) Centre is an Industrial Doctorate Centre for training Research Engineers (REs) in the EngD qualification in the areas of sustainable built environments and energy management.

The Centre was set up at the University of Reading (UoR) at the beginning of 2009 with a grant of nearly £6m from the EPSRC, in recognition of the University’s status as an international centre of excellence for construction technology, climate modelling and business enterprise research. The Centre aims to train 50 highly skilled research engineers in appropriate areas of TSBE research during 2009 to 2018.

The TSBE research portfolio is structured around the following two inter-connecting themes:

- Sustainable building and services systems
- Energy management in buildings and infrastructure systems

These two main themes are supported as necessary by the following areas of research:

- Climate, climate change and the built environment
- Sustainable materials and structures
- Innovation, design and sustainable technologies
- Informatics for sustainable technologies
The Research Engineer experience

Research Engineers are recruited onto the TSBE Engineering Doctorate programme by an interview panel comprising the academic supervisors, industrial supervisor and a member of the TSBE Centre. They are registered for the degree by the TSBE Centre and are subject to the academic and other regulations of University of Reading, for more information see the Administration section at the back of the handbook.

The Engineering Doctorate Programme is made up of several components:
- Taught element – compulsory & elective taught modules
- Doctoral level research
- Transferable skills

Research Engineers can start the EngD programme at multiple points in the academic year. Depending on the time of the entry point, Research Engineers may start their research project or the taught element. In the first year they are expected to complete their literature review. Elective modules are chosen based on the needs of the research engineer and the research project, with consultation from the project supervisory team.

The Engineering Doctorate Award

The learning outcomes of the TSBE Centre EngD programme are based on the QAA framework.

The QAA framework for higher education qualifications in England, Wales and Northern Ireland 2008 (1) provides the following guidelines for the required outcomes for a Doctoral Degree:

**Doctoral degrees are awarded to students who have demonstrated:**
- the creation and interpretation of new knowledge, through original research or other advanced scholarship, of a quality to satisfy peer review, extend the forefront of the discipline, and merit publication
- a systematic acquisition and understanding of a substantial body of knowledge which is at the forefront of an academic discipline or area of professional practice
- the general ability to conceptualise, design and implement a project for the generation of new knowledge, applications or understanding at the forefront of the discipline, and to adjust the project design in the light of unforeseen problems
- a detailed understanding of applicable techniques for research and advanced academic enquiry.
Typically, holders of the qualification will be able to:

• make informed judgements on complex issues in specialist fields, often in the absence of complete data, and be able to communicate their ideas and conclusions clearly and effectively to specialist and non-specialist audiences

• continue to undertake pure and/or applied research and development at an advanced level, contributing substantially to the development of new techniques, ideas or approaches.

And have:

• the qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex and unpredictable situations, in professional or equivalent environments.

• Reference: The framework for higher education qualifications in England, Wales and Northern Ireland August 2008 QAA 264 08/08
  www.qaa.ac.uk/academicinfrastructure/fheq/ewnio8/#p4.5

The Research Engineer’s responsibilities

The Research Engineer is responsible for their progress on the taught modules and of their research; they must ensure that all work is completed within agreed timeframes. They should seek guidance from their supervisors, the TSBE Centre staff or University support systems to resolve difficulties.

All RE’s are registered for four years full time and are expected to submit their final thesis within this period. Please note that extensions are not normally allowed.

The RE has the following responsibilities to their supervisory team:

• organise meetings with academic, industrial supervisors, and other appropriate project staff, to ensure the smooth running of the project.

• attend scheduled meetings, on time, to take minutes at supervisory meetings and circulate to the supervisors after the meeting

• keep a logbook of all their work, including attendance on taught courses, copies of assignments and the progress of project work

• keep the supervisors informed of their progress, to provide a monthly report on progress and to raise any issues

• arrange the 6 monthly review meetings

• discuss with the supervisors the arrangements for submission of their thesis prior to submitting

• attend the Annual TSBE Centre conference

In addition the Research Engineer is expected to:

• act with due regard for the health and safety of themselves, others and for University property. It is crucial that all Company and University health and safety guidelines and policies are followed. Including a Risk Assessment form.

• work a minimum of 37.5 hours per week on the programme and be available full time during the working week for the four years of the programme.

• follow the normal working hours of the sponsoring Company when on the Company premises. The RE will have a normal specified place of work where they are expected to work from, this will usually be the Company premises or the University, not home.
- inform the University of changes to registration or other personal circumstances;
- respond to evaluation questionnaires or other requests for information and student opinion;
- support activities in the Centre as directed by the Centre Manager;
- attend TSBE Centre activities and team meetings and support the student representative on the Steering Committee.
- comply with all confidentiality and IPR requirements of the Company and the University.

Current REs should act professionally and be ambassadors for the EngD scheme. Where opportunities arise, they should promote the scheme during the course of their training programme. They must ensure that they do not act in any way that might undermine the value of an EngD or the reputation of the TSBE Centre. Past REs are also encouraged to act as ambassadors for the scheme.

The Research Engineer’s progress usually runs smoothly and without incident, but in the event that problems occur, these should be raised through the Supervisors or the Centre Manager who will act as necessary and give advice or other support that is available, including Head of School and the Student Representative. The University also offers support in many areas and these can be found on the website.

### EngD Programme Structure

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Taught element</strong></td>
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</tr>
<tr>
<td>Induction week</td>
<td>Elective modules</td>
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<tr>
<td>Compulsory modules (60 credits) + elective module(s) 10/20 credits</td>
<td>Total credits passed at the end of year 2 must total 120</td>
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<tr>
<td>Literature review</td>
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<tr>
<td><strong>Research project</strong></td>
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<tr>
<td>Research project (part time)</td>
<td>Research project (part time)</td>
<td>Research project (full time)</td>
<td>Research project (full time)</td>
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<tr>
<td><strong>Transferable skills</strong> (Reviewed annually)</td>
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<td></td>
<td></td>
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<tr>
<td>How to write a paper</td>
<td>Statistics</td>
<td>Making yourself employable</td>
<td>Career planning &amp; development</td>
</tr>
<tr>
<td>Intellectual Property Rights</td>
<td>Presentation</td>
<td>Surviving the viva</td>
<td>Interview skills</td>
</tr>
<tr>
<td>Engaging the public with research</td>
<td>Networking</td>
<td>How to write a thesis</td>
<td>CV workshop</td>
</tr>
<tr>
<td>Time management</td>
<td>How to work with people</td>
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<tr>
<td>Presentation</td>
<td>Negotiation</td>
<td></td>
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<tr>
<td>Team Working/Stake Holder Management</td>
<td>Ensuring confirmation of registration</td>
<td></td>
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<tr>
<td><strong>Output</strong></td>
<td></td>
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<tr>
<td>TSBE Conference</td>
<td>TSBE Conference</td>
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<tr>
<td>Seminar &amp; team meeting presentations</td>
<td>Seminar &amp; team meeting presentations</td>
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<td>Journal paper</td>
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<td></td>
<td>External conference paper/poster/presentation</td>
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</table>

At the start of your EngD programme, you will need to carry out a Learning Needs Analysis (LNA). This is then reviewed as part of annual progress reports and at confirmation of registration – where you can comment on the extent to which the training you have undertaken has met your needs, and what further training and development activities you require. This template should be completed (by students and discussed with supervisors) within four weeks of registration, and sent to the School / Department Director of PGR Studies. It should be updated when new needs become apparent and students should therefore keep a copy of their completed LNA document.

[www.reading.ac.uk/gs-assess-training-needs.aspx](http://www.reading.ac.uk/gs-assess-training-needs.aspx)
<table>
<thead>
<tr>
<th>Dates</th>
<th>Module title</th>
<th>Room</th>
<th>Credits</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Energy, carbon and the environment</td>
<td>Green Park Visit</td>
<td>10</td>
<td></td>
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<tr>
<td></td>
<td>Business domain and requirements analysis</td>
<td></td>
<td>20</td>
<td></td>
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<tr>
<td></td>
<td>Energy in buildings (part 1)</td>
<td>Site visit (compulsory)</td>
<td>10</td>
<td></td>
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<tr>
<td></td>
<td>Research methods</td>
<td></td>
<td>10</td>
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<td></td>
<td>Carbon management</td>
<td></td>
<td>10</td>
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<tr>
<td></td>
<td>Examinations</td>
<td></td>
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<tr>
<td></td>
<td>Total credits</td>
<td></td>
<td>60</td>
<td></td>
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<tr>
<td>Module code</td>
<td>Module title</td>
<td>Notes</td>
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<tr>
<td>CEMB9</td>
<td></td>
<td>It is recommended that 20 credits are taken in year 1</td>
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</table>

Please complete with your personalised taught element details
## Taught element – compulsory modules

<table>
<thead>
<tr>
<th>Module code</th>
<th>Credits</th>
<th>Module title</th>
<th>Topics covered include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEMREC</td>
<td>10</td>
<td>Energy, carbon and the environment</td>
<td>The role of energy in society</td>
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<td></td>
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<td>Trends in energy consumption</td>
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<td></td>
<td>Environmental impacts of energy production and consumption</td>
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<td></td>
<td>Introduction to fluids, thermodynamics and heat transfer</td>
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<td>Survey of ‘traditional’ means of energy production</td>
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<td>Brief introduction to new and renewable energy technologies</td>
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<td>Introductory meteorology for renewable energy systems</td>
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<td></td>
<td></td>
<td>The principles underlying the integrated analysis of energy systems</td>
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<tr>
<td>CEMRMR</td>
<td>10</td>
<td>Research methods</td>
<td>Presentation methods, report writing, giving a seminar</td>
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<td></td>
<td></td>
<td></td>
<td>Process of defining aims and objectives for project planning</td>
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<td></td>
<td>Use of time-planning systems such as GANTT charts</td>
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<td></td>
<td>Testing of project plans against external criteria</td>
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<tr>
<td>CEMREB1</td>
<td>10</td>
<td>Energy in buildings (part 1)</td>
<td>Requirements for acceptable indoor environment</td>
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<td>Energy flow in buildings and its modelling</td>
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<td>Energy performance assessment methods</td>
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<td></td>
<td>Low energy buildings</td>
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<td></td>
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<td></td>
<td>Sustainable energy as a source for heating, cooling and ventilating</td>
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<td></td>
<td></td>
<td></td>
<td>Energy efficient lighting systems; building energy management systems</td>
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<tr>
<td>INMR66</td>
<td>20</td>
<td>Business domain and requirements analysis</td>
<td>Rationale for business analysis and requirements;</td>
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<td></td>
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<td>Organisational, social and cultural impacts on business domain analysis;</td>
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<td>Strategy analysis; stakeholders analysis;</td>
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<td>Business process and workflow; business use cases analysis and design;</td>
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<td>Enterprise architecture; requirements formulation; technology acceptance and managing change</td>
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<tr>
<td>CEMRC1</td>
<td>10</td>
<td>Carbon management</td>
<td>Climate change and its implications</td>
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<td>Greenhouse gases</td>
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<td>The history of international negotiations and the Kyoto Protocol</td>
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<td>Thermodynamic analysis of basic energy conversion technologies.</td>
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<td>The tools available to policy makers to address carbon management.</td>
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<td>EU Emissions Trading Scheme, CDM and JI</td>
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<td>UK carbon policy</td>
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<td></td>
<td>Carbon footprinting techniques; carbon management implications for business</td>
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</table>

**Total credits: 60**

## Recommended elective module to be taken in Year 1

<table>
<thead>
<tr>
<th>Module code</th>
<th>Credits</th>
<th>Module title</th>
<th>Topics covered</th>
</tr>
</thead>
</table>

Research Engineers may choose to select elective modules from across University of Reading. A total of 60 compulsory credits and 60 elective credits must be passed by the end of year 2. Expectation is that 80 credits will be completed in year 1 and the remaining 40 in year 2.
Programme specification

Engineering Doctorate in Technologies for Sustainable Built Environments

The full Programme Specification is available for reference on the TSBE Blackboard site. The progression requirements are outlined below:

The taught component

In order to successfully complete the taught element of the EngD programme a student must fulfil the requirements of the Postgraduate Diploma, to a minimum of the Pass level, detailed below.

The SCME Postgraduate Examination Board assesses all the taught component modules. The current marking criteria and classification framework as shown at: www.reading.ac.uk/Exams will be applied by the Examination Board. The assessment criteria relating to the 120 credit Postgraduate Diploma will be applied to the taught component of this programme.

Students who do not meet the required standard for the award of Engineering Doctorate or who leave the Programme early may be awarded a Postgraduate Diploma or a Postgraduate Certificate.

For PG Diploma in Technologies for Sustainable Built Environments
(120 credits required)

To qualify for Distinction, students must gain an overall average of 70 or more over 120 credits and must not have any mark below 40.

To qualify for Merit, students must gain an overall average of 60 or more over 120 credits and must not have any mark below 40.

To qualify for Passed, students must gain a weighted average mark of 50 or more over modules totalling over 120 credits, which must include the 70 credits specified as compulsory listed above and 50 credits from relevant level 7 elective modules. The total credit value of all modules marked below 40 must not exceed 30 credits and the total credit value of all modules marked below 50 must not exceed 55 credits. The optional modules chosen for each student must demonstrate the application of knowledge to professional engineering applications. The module choice will be agreed between the student and the Supervisory Panel.

For PG Certificate in Technologies for Sustainable Built Environments
(60 credits required)

To qualify for a Postgraduate Certificate, students must gain a weighted average mark of 50 or more over 60 credits from the modules listed as compulsory and have no mark below 40 in any of the selected modules.

The Director of the EngD programme is a member of the Examination Board which includes the Directors of all taught postgraduate programmes and external examiners for those programmes. The module results for all RE’s is separately reported to the Examination Board and reported to the Annual Review Panel.
The research component

The research project will form the basis for the RE’s EngD thesis to be submitted at the end of year 4.

Candidates for the EngD will be supervised by University and Industrial supervisors and progress will be monitored at 6-monthly intervals.

A review panel (also referred to as a monitoring team), which will be comprised of University and Industry supervisors and at least one Independent Assessor, will formally assess student progress at least on an annual basis. This process will operate with regard to the procedures outlined in the Code of Practice on Research Students (Section 6 [b]). If the view of the review panel is that progress is unsatisfactory then the procedures stated in the Code of Practice on Research Students (Section 6 [d]) would normally be applied in the first instance. Subsequently, if progress is still deemed unsatisfactory then the Head of School may need to invoke the University’s procedures on Neglect of Work and Unsatisfactory Progress (as enshrined in Ordinance XVII).

During the second year of registration, the student should undergo an in-depth assessment of progress, which will be equivalent to the ‘Confirmation of Registration’ process outlined in the Code of Practice for Research Students (Section 6 [f]); the possible outcomes of this process are set out in the Code.

In the final year the Annual Review Panel will be superseded by the examination of the RE’s thesis.

The Supervisor roles

A good supervisory relationship is crucial for a successful research project. Each research project must have a minimum of three supervisors, two academic and one industrial. The academic and industrial supervisors will jointly oversee the development of the RE and provide advice and support on the project.

It is expected that all supervisors will attend the induction training day, the progress and annual reviews and the Annual EngD conference.
The Industrial Supervisor

The Industrial Supervisor will be the main point of contact with the collaborating company. He/she may also assume the role of industrial mentor. Normally RE’s should be treated in a similar manner to employees of the sponsoring Company when working from the Company and they should comply with local HR arrangements such as those for monitoring absence and should follow local policies for claiming travel and subsistence expenses. The industrial supervisor is responsible for:

- ensuring suitable arrangements are in place for the RE to work from the sponsoring Company premises
- the progress of the research within the Company and that it is in line with the Company’s research requirements
- meeting with the RE on a regular basis to provide guidance and feedback on the research project
- ensuring that the RE has the opportunity within the company to develop further the competencies given by the taught modules and conduct the EngD research project.
- keeping the RE aware of decisions within the company that might have a bearing on the project or its direction.

The Academic Supervisors

Although the research work and final thesis is the responsibility of the RE, the Academic Supervisors are responsible for ensuring the overall quality, delivery and submission of the thesis:

- providing guidance on the technical nature of the research and the standard expected
- providing guidance on the planning of the research programme
- providing guidance on requisite techniques for the project (including arranging for instruction where necessary
- ensuring the RE is aware of their Health and Safety Responsibilities and provide necessary training as appropriate to the nature of the project environment
- maintaining regular contact with the RE, as a minimum once a month.
- attending project meetings, which will be held a minimum of quarterly. The Centre Manager will attend as required.

More information is available from the Graduate School:
www.reading.ac.uk/graduateschool/aboutthegraduateschool/gs-ab-about.aspx
## Monitoring and assessment

### Monitoring of progress on TSBE EngD Programme

Listed below are the required management processes relating to the progress of the EngD students (RE). Full details and report templates are documented in the TSBE Centre Quality Manual and are available online and on Blackboard.

<table>
<thead>
<tr>
<th>Monitoring/assessment method</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supervisor/student meeting</td>
<td>Typically one-to-one meetings with academic supervisors – or alternative arrangements by mutual agreement. Minutes taken by RE &amp; issued to supervisor. Industry one to one supervision meetings – typically monthly</td>
</tr>
<tr>
<td>RE monthly report</td>
<td>Executive summary style short report prepared by RE to communicate activities, progress, issues and monthly objectives to all supervisors and Centre Manager.</td>
</tr>
<tr>
<td>3 monthly project meeting</td>
<td>Attended by the RE plus academic and industrial supervisors. Aim: to review progress, exchange information, address issues, plan next period. Meeting arranged and minutes taken &amp; issued by RE</td>
</tr>
<tr>
<td>6 monthly progress review (Formal review of progress)</td>
<td>Attended by RE plus all supervisors. Chaired by Centre Director or Manager. Aim: to review and monitor progress against agreed objectives and plan for the next period. Address issues arising. Identify training requirements. Meeting arranged by RE. Report compiled by Chairperson Supervisors required to complete report form Location – company premises or alternative by agreement</td>
</tr>
<tr>
<td>Annual review (Formal review of progress)</td>
<td>Attended by the RE plus all supervisors. Chaired by an independent assessor. Aim: in depth review of technical report &amp; academic progress; to review progress against agreed objectives and plan for the next period. Address issues arising. Identify training requirements. Formalise progression onto next year. RE required to submit detailed technical report Supervisors required to complete report form Report compiled by Chairperson Location – University campus or alternative by agreement</td>
</tr>
<tr>
<td>TSBE team meeting – monthly</td>
<td>To involve all RE’s and Centre staff for communication, networking, shared learning and team building within the cohort. Each student to present their research to the cohort at least once during each year. Programme of invited speakers and shared management training are organised.</td>
</tr>
<tr>
<td>Personal development and training log</td>
<td>Maintained by the RE, reviewed with supervisors and Centre Manager at 6 monthly intervals. Record of all transferable skills training.</td>
</tr>
</tbody>
</table>
Thesis submission

Format and content

The length of the thesis for EngD should normally not be greater than 90,000 words. The thesis must be completely printed on A4 paper (30 cm x 21 cm) including any offprint, tables, graphs or illustrations. There must be sufficient space between each line of type to ensure legibility (i.e., normally one-and-a-half or double spacing) with a margin of 35 mm on the left-hand side of the page (or right-hand side of a page of offprint or tables etc. where appropriate) before binding. Other margins should not be less than 15 mm.

The pages containing any offprint, tables etc. must be numbered in sequence with the rest of the thesis. Good quality reproductions of typescript or printing, such as photocopies will be accepted. Full details of typographical requirements for your thesis are given in www.rdg.ac.uk/Exams/ThesesRules.pdf

For the academic content in theses, the Research Engineer (RE) must discuss them with their supervisors.

Submission

Prior to completing the period of registration for the degree of Engineering Doctorate (EngD), the RE should notify the Examination Office at Reading via the principal academic supervisor for an intention to submit four months prior to the thesis submission. This is defined as ‘Notice of Intention to Submit’.

The candidate is required to sign a standard declaration of original authorship, which reads: ‘Declaration: I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.’

- A copy of the declaration must be bound in each copy of the thesis.
- Two copies of the thesis should normally be submitted for the examination.

Each copy of the thesis must contain a title page containing the information as follows:

**University of Reading**

Title of thesis
Candidate’s name
Submitted in Partial Fulfilment of the Requirement of the Degree of Engineering Doctorate (EngD) in Technologies for Sustainable Built Environments
The School’s name
Date of submission (i.e., month and year)

Research Engineers may submit other published papers in addition to the thesis, as supporting evidence. These papers must be supplied and be put in a pocket at the back of each copy of the thesis.

The bound copies of the thesis may initially be submitted for the examination in ‘perfect’ binding (i.e. pages glued into a soft cover) or comb-binding, but not in any other form of temporary binding.

A final version of theses after the examiners have accepted, the RE must submit two copies in hard binding (one for the University Library and the other for the
School) before or immediately after the Senate has approved the award of the degree but before the candidate is permitted to graduate (a third copy may be hard bound for the candidate’s retention and a copy should be presented).

Candidates are not permitted to submit as their thesis a thesis which is being submitted for a degree in another University or for which a degree has already been conferred in this or any other University, but they are not precluded from incorporating work which they have already submitted for a degree in this or any other University provided they indicate in the thesis any work which has been so incorporated.

Full details of submission requirements can be found at: www.rdg.ac.uk/Exams/ThesesRules.pdf

**Examination procedure**

An EngD thesis examination is the final assessment for an award of Engineering Doctorate (EngD). It is referred to as *viva voce* examination. The RE will defend their thesis to the appointed examiners (at least one internal and one external) in a formal examination condition. Research Engineers must attend their EngD thesis examination in Reading, UK.

A scheduled *viva voce* examination will be communicated with the RE. The RE may be required to provide a formal presentation or an oral description about the research and contribution to the examiners. A number of questions from the examiners will be put forward to the student for clarifying the evidence that:

- the RE should be able to exercise independent critical power;
- the RE has demonstrated the ability to conduct an original investigation;
- the RE’s work contains an original contribution to knowledge;
- the thesis is worthy of publication in its original or in a modified form.

Based on a satisfaction of the defence to the thesis, the examiners will make a joint decision for awarding or not awarding the examinee the degree of Engineering Doctorate (EngD). It is usual for a decision that an RE will be awarded the degree of Engineering Doctorate (EngD) subject to ‘minor correction’, or ‘major correction’. The appropriate actions for the RE will then be formally communicated and informed with a date for submitting the revised thesis by the Examination Office.

Based on a satisfaction of all the required corrections, the examiners will make an official recommendation to the Examination Office for awarding the degree of Engineering Doctorate (EngD) to the RE. The RE will be informed officially of the result of the examination after the result has been approved by the Senate of the University. This may, in practice, mean some delay between the *viva* examination and official confirmation of the result.

If the RE feels a mock *viva voce* examination would be of value, he or she should approach the principal academic supervisor.

An RE who is successful in the examination for the degree of Engineering Doctorate and whose result has been approved by the Senate will normally be admitted to the degree at the next degree congregation. Degree congregations are held in July and December of the year. A form detailing graduation will be sent to each RE at the appropriate time by the Graduation Office.
Administration: Programme and Centre information

The handbook

This handbook is structured to be a source of reference and provide general information and guidance for the EngD programme in TSBE. It is mainly intended for providing answers to questions that may be raised by the REs, sponsoring companies and supervisors. However, it is not intended to be a complete guide for the Research Engineer who is taking the EngD route and it should be read in conjunction with other relevant UoR regulations and guidelines issued at the registration and available at the UoR websites at:
www.reading.ac.uk/web/files/qualitysupport/hbookresstudent.pdf

At the time of writing, the information provided in this handbook is believed to be accurate and full but any issues that are not dealt with in the document should be raised with the industrial and/or academic supervisors in the first instance and if these are not dealt with satisfactorily by contacting the TSBE Centre management if necessary.

Blackboard

Research Engineers will be enrolled on the TSBE Centre Blackboard (BB) site to enable them to access and download documents. Course information, module guidance and results are also posted on Blackboard. REs will also have access to the main School of Construction Management and Engineering (SCME) BB site and any other schools required for the completion of their EngD programme.

Quality Assurance in Research (QAR)

The University current web pages for Quality Assurance in Research contain a range of information on the process of QAR, including details of how the system operates at Reading, and can be found at: www.reading.ac.uk/qar/index.htm

University Code for Research Students

A copy of the University Code of Practice on Research Students is provided on the web at: www.reading.ac.uk/web/files/qualitysupport/copresstudents.pdf

The Code provides information and guidance for research students and their supervisors on the following areas:

• Induction
• Supervision arrangements (including responsibilities of students and supervisors)
• Skills training
• Monitoring and assessment of progress
• Examinations (including information on and links to the University's Rules for the Submission of Theses for Higher Degrees and the Guide for Examiners for Higher Degrees by Thesis)
• Complaints and appeals
• Further requirements for students ‘working-away’ from the University
**TSBE Centre Governance**

**The TSBE Centre and EngD Programme Organisation**

The TSBE Centre is responsible for the coordination and management of the TSBE EngD programme. The role of the Centre is to: facilitate the participation of the companies; to coordinate project selection; to recruit RE’s; to ensure the provision of the appropriate coursework and training, to provide the supervisory framework for the RE’s and to publicise the programme.

The Centre Director is responsible for the delivery of the programme. The Director is supported by the Centre Manager and Administrator. The TSBE centre is governed by a Steering Committee and a Management Committee.

**The Centre Management Committee**

This Committee will be responsible for scrutinising arrangements around the taught element of the course, and reviewing the set-up of new research projects, and quality assurance of existing projects. Input to ensure smooth running across multiple Schools and according to latest University and School policies is also sought. Changes to the routine operation of the Centre should be approved. The Management Committee will convene once per term for an hour long meeting and will report to the TSBE Centre Steering Committee and the PG Committee of the Science Faculty.

The Director is responsible for the strategic planning for the Centre, as well as ensuring the vision is maintained, the objectives achieved and the Centre is sustained. She is responsible for the financial aspects of the Centre, day-to-day management, and is responsible for addressing concerns raised by the Supervisory and Progress Panels.

**The Centre Steering Committee**

The Centre Steering Committee comprises the Centre Director, Industry Representatives, and representatives from other University departments and schools, a representative from EPSRC and is chaired by an industrialist. The Steering Committee will meet twice per year and its remit is to provide strategic guidance to the Centre and discuss recent innovative advances and upcoming opportunities.

**Enrolment**

All REs are required to enrol at the start of their research programmes. Enrolment is completed online and on campus. The Faculty Offices will send details of how to enrol at the start of the term in which REs commence their research. The enrolment process provides the University with important and essential information about the student. The initial online and on campus process will generate your username, password etc. For more details refer to: [www.reading.ac.uk/internal/enrol/enrol.aspx](http://www.reading.ac.uk/internal/enrol/enrol.aspx)

Bank details must be completed to enable payment of the stipend.

REs are also required to re-enrol at the beginning of each academic year in which they are studying for a research degree at Reading. The Faculty Office will provide you with guidance on online re-enrolment at the appropriate time. It is important that you complete the process as soon as possible so that the University has up-to-date information. It is also important that you inform your Faculty Office of any changes of address during the year.

The Faculty Office can provide guidance and advice on your enrolment status throughout the year.
Acknowledgments and communication

Acknowledgement of EPSRC Sponsorship

EPSRC sponsored REs should acknowledge EPSRC support on any papers, posters and any other publications arising from the training programme. The suggested wording is:

“This work was completed under EPSRC Grant number EP/G037787/1 as part of the Technologies for Sustainable Built Environments (TSBE) Centre.”

EPSRC’s published regulations concerning eligibility, financial arrangements, conduct and completion of the training programme all apply (as modified where appropriate) to the EngD programme.

Communication by email

The University provides all students with a University email account and email is used regularly in the University as an ‘official’ form of communication between staff and students. Therefore in addition to checking School notice boards and the Research Engineers room for mail, you must also check your University email account regularly and reply as necessary to messages received.

As a bare minimum, teaching staff and students are required to check their email accounts every day during term-time and whilst on university business i.e. attending conferences.

You are expected to use your University email account in preference over private Internet Service Provider accounts.

General and welfare information

Extenuating circumstances

If there are circumstances which you think might affect or have affected your performance in examinations or assessment, you should complete the University’s notification of extenuating circumstances form. The form is available from School Offices, the University Medical Practice, the Counselling Service and on the University’s website at www.reading.ac.uk/exams/extcircsform09.htm

The completed form should be submitted as soon as possible to the TSBE Centre Office. If you have suffered an illness or injury which has been treated by a doctor not attached to the University Medical Practice, you will need to provide a medical certificate or report from the doctor. If your medical condition has been treated by a doctor at the University Medical Practice, you do not need to obtain a medical certificate, but you should give your consent on the extenuating circumstances form for the doctor to disclose information about your condition.

You are responsible for notifying the Centre of any circumstances which you consider might have affected your performance. If you do not submit an extenuating circumstances form, you circumstances will not be considered. In addition, you should inform your academic supervisor.

Examiners will take note of illness or other serious personal circumstances in considering a result, provided that appropriate information has been submitted. A candidate may, at the discretion of the Examiners, be deemed not to have sat an examination if illness or other serious personal circumstance has prevented the candidate from sitting the examination or has significantly affected the candidate’s performance. A student who has been deemed not to have sat at the first attempt may sit the examination at the next opportunity as if for the first time.
If you are ill or have other difficulties at the time of the examinations, the Examinations Officer may be able to arrange for you to take examinations in an examinations centre with special arrangements.

**Annual leave**

Research student programmes do not usually follow University terms, nor do REs have set working hours, although it is expected that weekend and evening work may be required at some times. The University expects that students and supervisors should arrive at mutually acceptable arrangements, which ensure that the student maintains an appropriate work/recreation balance to achieve the research objectives. Accordingly, the following guidelines on annual leave are provided:

Full-time research students are entitled, with the prior agreement of their supervisors, to take up to 26 days’ holiday each year plus public holidays and University closure periods. RE’s must get approval from their industry and academic supervisors and inform the TSBE Centre Manager before taking any leave.

**Maternity leave**

REs are entitled to receive a stipend in line with current University guidance.

**Contract terms during maternity leave**

All terms of contract will be preserved during maternity leave, although you may have your studentship extended to correspond with the term of maternity leave.

**Communication during maternity leave**

Although we realise that you will be focused on other things it is important that you keep in touch with the TSBE Centre and your supervisors throughout your maternity leave.

**Nursery facilities on campus**

The Little Learners Nursery accepts the children of both staff and students. See the link below for more information: www.reading.ac.uk/internal/student/OnlineStudentHandbook/osh-nursery.aspx

**Paternity leave**

A total of 10 days unpaid paternity leave may be taken during a partner’s pregnancy or within three months following the birth. This must be approved in advance by the Centre Manager and all supervisors.

**Support available**

The EngD course is academically demanding and REs are expected to manage their work load efficiently balancing the needs of the academic work and the company requirements. This is not always easy and if difficulties arise, Research Engineers should speak to the person that they feel most comfortable approaching; a member of the Centre staff, peer support mentor or student representative. Student counselling and study support is also available.
Financial, contractual and IP Matters

Expenses

Details of the expenses which will be paid by the TSBE Centre are outlined in the TSBE Centre Expenses policy document.

Payment of stipend

The stipend is paid quarterly in advance. The payment is made directly into the REs bank account. The stipend is currently tax free but REs are responsible for checking their own individual circumstances with their Tax Office. The advice of the TSBE Centre is to declare the stipend on tax returns and seek guidance from the Tax Office. Queries about the payment of the stipend should in the first instance be addressed to the Centre Administrator.

Contractual requirements

All EngD students are required to sign a legal Collaboration Agreement Contract between the University, the sponsoring Company and themselves outlining the area of research and the agreed stipend payments. Students are required to pay a tuition fee for each year they are registered for their research programme, for students funded through EPRSC this fee will be paid by the TSBE Centre. The Contract will outline all other agreed payments between the RE, the Company, the TSBE Centre and the University. All contractual issues will be dealt with by the University's Contracts Department.

Intellectual Property Rights (IPR's)

All parties involved in the research project will be expected mutually to respect confidentiality. In setting up the projects however the industrial and academic supervisors must allow for the RE to report progress at 6 monthly intervals to his/her cohort and at the annual conference. The terms of the IPR will be outlined in the Contract.
Conference and output

EngD Annual Conference

Regular workshops and seminars will be organised by the TSBE Centre where REs will present their research inviting discussion and feedback from fellow REs, supervisors and other research staff in the University and sponsoring companies. In addition, well-known engineers and researchers in the TSBE areas, both from within the UK and abroad, will be invited to speak at events to expose REs to experienced professionals and foster networking. Every RE will be expected to orally present a paper at least one TSBE Annual Conference and will receive feedback from supervisors and other experts on the content and style of the presentation. This feedback should be discussed with supervisors.

Papers will be published as conference proceedings and on the Centre’s website. Before any paper or article is presented or published, REs must ensure that their supervisors have approved the content and any confidentiality-related issues are discussed and agreed with the industrial supervisor. REs may also need to prepare a poster presentation.

Conference attendance

REs may apply for approval to attend other Conferences and seek funding from the Project Expense Account. The case should be presented in writing on the appropriate form and be supported by all supervisors. REs are also encouraged to seek other sponsorship from their sponsor, and from relevant professional bodies and associations. Sources recommended by the TSBE Centre are: The Royal Society, the Royal Academy of Engineering and CIBSE.

Scientific publications

In addition to the Annual Conference papers, every RE is expected to submit at least two research articles for publication in refereed journals or presentation at national and international conferences. At least one article should be published by the end of Year 2 of the EngD programme and another by the end of Year 3. Plans for submitting these articles should be agreed with the supervisors well in advance and their contents approved by them and any confidentiality issues.
Other information

University health and safety policy
www.reading.ac.uk/web/FILES/health-and-safety/Univ_HSPolicy_Revised_Nov_09.pdf

Intellectual property ownership
www.reading.ac.uk/internal/res/AcademicLegalServices/IntellectualPropertyManagement/PoliciesandProcedures/reas-IPMPoliciesandProcedures.aspx

Rules for the submission of theses for higher degrees
www.reading.ac.uk/Exams/ThesesRules.pdf

Statement on academic misconduct
The University’s Statement on Academic Misconduct, which includes the University’s definition of plagiarism, is available at:
www.reading.ac.uk/Exams/academicmisconduct.pdf

Statement and guidance on harassment
www.reading.ac.uk/Personnel/rdg-only/harassment_procedures.htm

Peer support
www.reading.ac.uk/internal/peersupport/peer-homepage.aspx

Freedom of information
www.reading.ac.uk/internal/imps/FOIA/imps-FOIA.aspx

Graduate School
www.reading.ac.uk/graduateschool/aboutthegraduateschool/gs-ab-about.aspx

Taught modules – personalised timetables
www.timetable2012-13.reading.ac.uk

Equal opportunities
www.reading.ac.uk/internal/student/OnlineStudentHandbook/osh-equalopportunities.aspx