

Civil Engineering PhD/MPhil

Postgraduate PhD degree Civil Engineering PhD/MPhil:

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[Study here and find out why the University of Birmingham was awarded The Times and The Sunday Times University of the Year 2013-14](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)
[\(<http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx>\)](http://www.birmingham.ac.uk/news/latest/2013/09/20-sep-Birmingham-announced-as-University-of-the-Year.aspx)

Course fact file

Type of Course: Doctoral research

Study Options: Full time, part time

Duration: PhD: 3 years full-time; MPhil: 2 years

Start date: Research degrees can start at any time by agreement with the supervisor

Contact

Admissions Tutor: Professor Miles Tight

Contact us online (<http://bham.hobsons.co.uk/ask.aspx?cid=1223&did=24>) or at +44 (0) 121 414 4160.

School of Civil Engineering (</schools/civil-engineering/index.aspx>)

Follow us on Twitter (http://twitter.com/eps_unibham)

Details

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Transport Technology

A healthy public transport system is fundamental to the prosperity of any nation. Within the UK, the road and rail network is at the heart of this and raises scientific questions, on its reliability, its future and the effects of climate change on transport systems – its use and its development.

Transport based research (</research/activity/civil-engineering/highways-transport/index.aspx>) at the University of Birmingham has a long history, dating back to the 1960s. Research in highway engineering makes strong advances in pavement structural performance and highway capacity, design, deterioration modelling and maintenance. Railway engineering is underpinned by the multi-disciplinary Birmingham Centre for Railway Research and Education (BCRRE).

Railway Engineering

Within Britain, the rail network is at the heart of the transportation infrastructure. Its reliability, its future and the management of the effects of climate change on the use of railway systems are key to ensuring the network's future success. The **Birmingham Centre for Railway Research and Education** (</research/activity/railway/index.aspx>) brings together a multidisciplinary team from across the university to tackle fundamental railway engineering problems. The team actively engages with industry, other universities through Rail Research UK Association, and international partners.

BCRRE also delivers the **MSc programme in Railway Systems Engineering** (</postgraduate/courses/taught/civil-engineering/railway-systems-engineering.aspx>) and Integration and the **MRes programme in Railway Systems Integration** (</postgraduate/courses/combined/civil-engineering/railway-systems-mres.aspx>), as detailed earlier in this brochure. There are six main areas of research within BCRRE, covering all aspects of railway engineering:

- Aerodynamics and Environment
- Capacity Management
- Monitoring and Decision Support
- Materials and Testing
- Traction and Energy
- Systems and Control

Further details on the research topics. (</research/activity/railway/research/index.aspx>)

Transport and Sustainability

Research in this area includes: long term large scale change and transitions to sustainability; behavioural change; the role of walking and cycling in sustainable transport policy and how these modes might be enhanced; environmental impacts of transport and transport infrastructure, including climate change and local air pollution; road safety and risk, especially consideration of human factors, behaviour and engineering solutions; equity issues in transport; global issues.

Contact information. For information regarding research opportunities in the field of Transport and Sustainability please contact:

Road Management and Engineering

Research in Road Management and Engineering includes road asset management, road management and investment assessment systems, road economics and financing, road development and strategic planning, road maintenance and operations, road safety, road administration, energy use and vehicle emissions, social benefits from road investments, pavement design and analysis, the development of long-term prediction relationships, data collection and analysis methods, data integrity and information quality.

Research in highway management and engineering informs the [MSc programme in Road Management and Engineering \(/postgraduate/courses/taught/civil-engineering/road-management-engineering.aspx\)](#). The Group also delivers Continuing Professional Development (CPD) courses such as the [Senior Roads Executive Programme \(SREP\) \(/postgraduate/courses/cpd/civil-engineering/senior-roads-executive.aspx\)](#) and other bespoke courses and workshops in the areas of road management and financing.

Contact information. For information regarding research opportunities in Highway Management and Engineering, please contact: Dr Michael Burrow, +44 (0)121 414 2626. Email: m.p.burrow@bham.ac.uk (<mailto:m.p.burrow@bham.ac.uk>).

Vehicle Aerodynamics

Research in vehicle aerodynamics concentrates on the behaviour of road and rail vehicles in cross winds, the development of early warning systems for high winds, investigations of the slipstreams and wakes of vehicles, and the effect of transient pressure loading on train structures due to other trains passing and the passage through tunnels.

Recent work in this area at the University of Birmingham has concentrated on the effects of cross winds on road and rail vehicles, the effects of vehicle slipstreams and the dispersion of pollutants in the wake of vehicles.

Contact information. For information regarding research opportunities in the field of Vehicle Aerodynamics please contact: Professor Chris Baker, +44 (0)121 415 5067. Email: c.j.baker@bham.ac.uk (<mailto:c.j.baker@bham.ac.uk>).

Safety and Reliability Management

This research theme focuses on target risk and reliability, safety-cost analysis based decision making, life cycle analysis, uncertainty analysis, safety-critical software assessment, dynamic and static finite element analysis, and overall safety case preparation for industry. It transfers research in risk and reliability from the construction industry into the transport industry.

Contact information. For more information regarding research opportunities in the area of Safety and Reliability Management, please contact: Dr Min An, +44 (0)121 414 5146. Email: m.an@bham.ac.uk (<mailto:m.an@bham.ac.uk>).

Resilience and Sustainability

Our ability to respond in a sustainable way to the challenges that we and future generations face is at the core of this theme. These challenges may be posed by climate change, regulation and natural disasters, and how we adapt our existing cities to ensure that they are future-proof, gives a flavour of the type of research questions we are concerned with.

However, unlike traditional approaches, we do not restrict ourselves to considering only the structural engineering options; instead we endeavour to ensure that non-structural measures are at the heart of our thinking. Two distinct research areas emerge:

- **Long-term resilience** of the built environment and built infrastructure, ie, the sustainability of the physical infrastructure into the far future, notably in delivering utility service provision
- **Short-term resilience** of the built environment and built infrastructure to natural hazards, the severity and frequency of which is often increasing due to climate change

Research topics in resilience and sustainability include:

- Geotechnical Engineering
- Environmental Engineering
- Risk and Reliability Management
- Structural Engineering
- Wind Engineering and Aerodynamics
- Water Engineering
- Highways Management
- Computation Engineering and Modelling

Contact information. For more information about research opportunities in the area of Resilience and Sustainability please contact: Professor John Bridgeman, +44 (0)121 414 3071. Email: j.bridgeman@bham.ac.uk (<mailto:j.bridgeman@bham.ac.uk>).

Related links

- [School of Civil Engineering \(/schools/civil-engineering/index.aspx\)](#)
- [Civil Engineering research \(/research/activity/civil-engineering/index.aspx\)](#)

Fees and funding

Standard fees ([/postgraduate/dr-fees/tuition.aspx](#)) apply.

Learn more about **fees and funding** ([/postgraduate/dr-fees/index.aspx](#)).

Scholarships and studentships

Several research council studentships, bursaries and postgraduate scholarships are available for MPhil and PhD students, most of which provide full funding and some of which are enhanced by industrial funding, where the topic has a specific industrial relevance.

Other sources of funding are the EPSRC, the BBSRC, the Knowledge Transfer Partnership (KTP), the European Union and industrial funding for UK and EU students.

International students can often gain funding, Commonwealth scholarships or their home government.

For further information contact the School directly or email sfo@contacts.bham.ac.uk (<mailto:sfo@contacts.bham.ac.uk>).

Entry requirements

The normal entrance qualification for PhD study is either at least an upper second-class Honours degree, or a first degree of a lower classification, along with an MSc/MRes, or evidence of substantial relevant industrial experience.

Learn more about [entry requirements \(/postgraduate/requirements-dr/step1.aspx\)](#).

International students

We accept a range of qualifications from different countries – learn more about [international entry requirements \(/postgraduate/requirements-dr/step1.aspx\)](#).

[Standard English language requirements \(/postgraduate/requirements-pgt/international/index.aspx\)](#) apply.

How to apply

It is recommended to contact the research theme leader before making any application for PhD study to discuss your project and funding. Thereafter, applications for PhD study can be [submitted on-line \(https://pga.bham.ac.uk/lpages/EPS015.htm\)](#).

Learn more about [applying \(/postgraduate/requirements-dr/index.aspx\)](#)

When clicking on the Apply Now button you will be directed to an application specifically designed for the programme you wish to apply for where you will create an account with the University application system and submit your application and supporting documents online. Further information regarding how to apply online can be found on the [How to apply pages \(http://www.birmingham.ac.uk/students/courses/postgraduate/apply-pg/index.aspx\)](#)

[Apply now \(https://pga.bham.ac.uk/lpages/EPS015.htm\)](https://pga.bham.ac.uk/lpages/EPS015.htm)

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Related links

[Postgraduate degree courses in Civil Engineering at Birmingham \(pdf 1 MB\) \(/Documents/college-eps/civil/brochure/postgraduate-courses-civil-engineering.pdf\)](#)

Related news and events

[Prathan Rungthongkit does it again \(/schools/civil-engineering/news/archive/rungthongkit.aspx\)](#)

[Research news: Dr N Metje grant award \(/schools/civil-engineering/news/archive/metje-award.aspx\)](#)

Research interests of staff

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These pages give a brief overview of the types of research that we regularly undertake. If you wish to find out more contact our Director of Research, Dr Mark Sterling (m.sterling@bham.ac.uk (<mailto:m.sterling@bham.ac.uk>)).

Resilience and sustainability - Civil Engineering research

Resilience and Sustainability - Civil Engineering research: our ability to respond in a sustainable way to the challenges that we and future generations will face is at the core of this theme. The challenges posed by climate change, regulation and natural disasters, and how we adapt our existing cities to ensure that they are future-proof, gives a flavour of the type of research questions we are concerned with.

[Birmingham Centre for Railway Research and Education \(/research/activity/railway/index.aspx\)](#)

The Birmingham Centre for Railway Research and Education brings together a multidisciplinary team from across the University to tackle fundamental railway engineering problems. The team actively engage with industry, other universities through Rail Research UK-A, and international partners. The centre also delivers the MSc postgraduate programme in Railway Systems Engineering and Integration.

Related research

- [Birmingham Centre for Railway Research and Education \(/research/activity/railway/index.aspx\)](#)
- [Civil Engineering research \(/research/activity/civil-engineering/index.aspx\)](#)

Employability

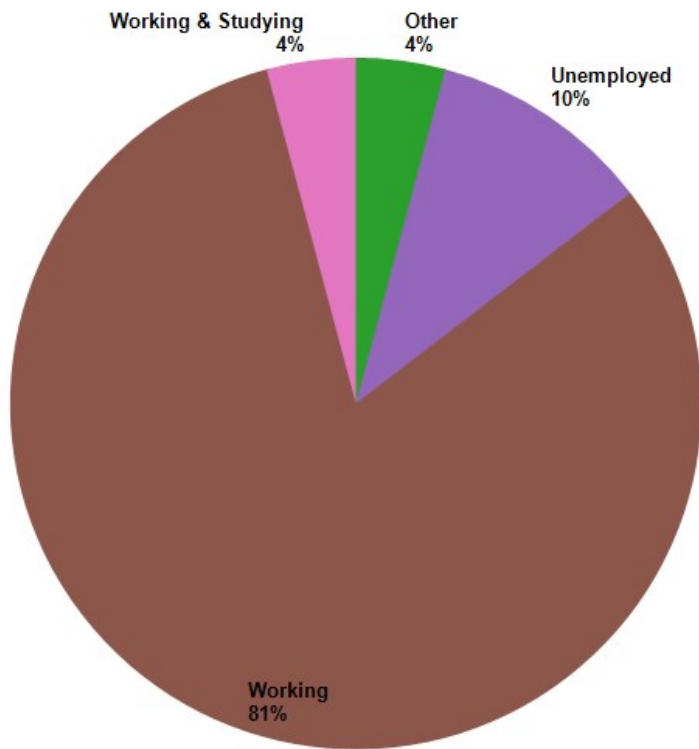
University Careers Network

Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you achieve your goal.

Our unique careers guidance service is tailored to your academic subject area, offering a specialised team (in each of the five academic colleges) who can give you expert advice. Our team source exclusive work experience opportunities to help you stand out amongst the competition, with mentoring, global internships and placements available to you. Once you have a career in your sights, one-to-one support with CVs and job applications will help give you the edge.

Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

The DLHE survey is conducted 6 months after graduation.



Examples of employers

- AECOM
- Amey
- Arup
- Atkins
- British Army
- Hyder Consulting
- Interserve
- Laing O'Rourke
- Mouchel
- Network Rail

Examples of occupations

- Assistant Civil Engineer
- Consultant Engineer
- Graduate Bridge Engineer
- Graduate Leader
- Graduate Site Engineer
- Graduate Tunnelling Engineer
- Officer Cadet
- Site Engineer
- Structural Engineer
- Water Engineer

Further study - examples of courses

- MRes Materials and Sustainable Technology

- MRes Science and Engineering of Materials
- MSc Computer Science
- MSc Construction Management
- MSc Environmental Technology
- MSc Railway Systems Engineering and Integration
- MSc Road Engineering and Management
- PhD Civil Engineering

Visit the [Careers section of the University website \(https://intranet.birmingham.ac.uk/as/employability/careers/college/eps.aspx\)](https://intranet.birmingham.ac.uk/as/employability/careers/college/eps.aspx) for further information.

