

# Geotechnical Engineering Masters/MSc/Diploma

## Postgraduate degree programme Geotechnical Engineering Masters/MSc/Diploma:

There is a wide range of opportunity in the Civil Engineering profession for geotechnical specialists, particularly those who combine geotechnical knowledge with essential managerial skills aspects associated with the Construction Industry.

Modern structures, such as buildings, embankments and dams, must satisfy exacting stability and deformation criteria, and they may have to be sited on weak or compressible ground. It is the responsibility of the geotechnical engineer to plan and direct the necessary ground investigations and laboratory testing, interpret the results, and propose methods of design and construction to overcome difficulties caused by inadequate ground.

The long-term performance of the structure must be predicted, and instruments may have to be installed to check the prediction. This needs a sound knowledge of engineering geology, soil and rock mechanics, current civil engineering design, and of construction management and practice.

This MSc programme is designed to support high level training and enhance both the technical and managerial skills of recent graduates or experienced personnel who work in, or aspire to a career in, the construction or related industries. This programme is aimed at Civil Engineers and Geologists who wish to widen their professional scope or to specialise in geotechnical engineering with the addition of modern managerial skills. To summarise the detailed information above, the teaching concentrates on four essential aspects of the subject, to provide four essential skill sets:

1. Physical, chemical and mechanical properties of soils and rocks; ground investigation; field and laboratory testing
2. Engineering geology
3. Analysis, design and construction of foundations, retaining walls, embankments and slopes including methods of ground reinforcement and improvement.
4. Managerial skills for the construction industry, including law, project and financial management

### Course fact file

**Type of Course:** Continuing professional development, taught

**Study Options:** Full time, part time

**Duration:** 1 year full-time, or on a part-time basis typically over 24–36 months

**Start date:** September

### Related courses

[Civil Engineering postgraduate degree courses](#)

[Taught postgraduate degree courses - School of Civil Engineering](#)

### Contact

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[School of Civil Engineering](#)

### Details

This courses are offered in both Full time and Part time modes.



This programme has developed an excellent reputation since its inception in 1956. Its purpose is to provide advanced training to civil engineers and geologists who wish to widen their knowledge or to specialise in the field of geotechnical engineering. The programme includes lectures, design studies, laboratory classes, site visits and individual projects. In addition, external lectures are provided by experts and leaders from industry.

The syllabus covers:

Physical and mechanical properties of soils

- Consolidation
- Shear strength
- Statistics and numerical methods
- Earthworks
- Foundation design
- Slope stability

- Earth retaining structures, embankments, dams, tunnelling
- Engineering geology
- Ground improvements and environmental ground engineering
- Earthquake engineering
- The laboratory testing of soils
- Geomechanics
- [Information of programme structure and content \(PDF 388KB\)](#)


#### Related links

- [Civil Engineering postgraduate degree courses](#)
- [Taught postgraduate degree courses - School of Civil Engineering](#)


### Why study this course

Why study this course at Birmingham?...in short we offer two masters courses in Geotechnical Engineering that provide flexibility, broad subject coverage, high quality delivery and excellent job prospects on graduation. One course allows a full development of all the important technical aspects associated with Geotechnical Engineering while the other course builds on a strong technical core and yet allows new developments in management practice to be covered. Our courses are ideally suited to recent graduates or those seeking to boost their career prospects.

Birmingham has been providing a highly respected masters course in geotechnical engineering for more than 50 years now and has built up an excellent reputation for providing the graduates industry needs:

 "For the past years Atkins has recruited students from the MSc course at the University of Birmingham. I have found that the MSc course provided the students with a comprehensive and diverse understanding of Geotechnical Engineering, which has allowed the recruits to develop their careers. The course is successful in providing the essential technical aspects in the subject, but also allows a sound practical application of the skills learnt" **Neil Fraser, Divisional Director, Atkins Ltd, Birmingham.**

Our courses are continually updated to meet the ever changing environment faced by geotechnical engineering, underpinned by excellence in research with strong links from industry. Graduates often secure employment long before they graduate or use it as a stepping stone in their career development.

 **Rob Tranter, former full time student,** "Coming from an assistant geologist position in a small consultancy the MSc course has allowed me to appreciate the technical theory behind geotechnics and how to apply that theory to actual geotechnical problems. I have found the course to be structured with defined learning outcomes supported by helpful lecturers. I feel that the course prepares engineers for entry into industry having a confident grasp of the subject that allows for contribution to any geotechnical project."

### The best in geotechnical engineering

Maintaining high standards in teaching and research has enabled us to consistently produce outstanding graduates. [Find out about some of our most recent award winning alumni.](#)

### Modules

- [Information of programme structure and content \(PDF 388KB\)](#)

### Fees and funding

#### Tuition Fees for UK and EU students 2014/15

- Full-time MSc: £6840
- Full-time Diploma: £5610
- Postgraduate Certificate: £2805

**Part-time programmes:** Most part-time programmes run for two years and their fees are one half of the standard full-time programme fees.

#### Tuition fees for international students (2014/2015)

International student tuition fees are set at **£17335**. For further information please view the [fees for international students](#) page.

Part-time programmes: UK student visa regulations mean that students classed as overseas for fees purposes may normally only register on a full-time basis.

#### Scholarships and studentships

Scholarships may be available. International students can often gain funding through overseas research scholarships, Commonwealth scholarships or their home government. For part time students funding may also be available through the Panasonic Trust – for details see: <http://www.panasonictrust.net/>

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

### Entry requirements

The basic requirement is a good Honours degree in an appropriate discipline (for example, Engineering, Sciences, Geology, Geography or Mathematics) and evidence of adequate knowledge of English. However, practical experience may also be an important consideration.

Learn more about [entry requirements](#)

#### International students

We accept a range of qualifications from different countries – learn more about [international entry requirements](#)

[Standard English language requirements](#) apply



## How to apply

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](#)

[Apply now](#)

### Related links

[Civil Engineering postgraduate degree courses](#)

[Taught postgraduate degree courses - School of Civil Engineering](#)

[Postgraduate degree courses in Civil Engineering at Birmingham \(pdf 1 MB\)](#)

## Learning and teaching

### Assessment

Candidates must pass the written examinations, achieve a satisfactory project assessment, submit satisfactory coursework, satisfy practical training requirements and comply with University Regulations. Successful candidates are awarded the degree of Master of Science (Geotechnical Engineering) at the Degree Congregation held in December following the end of the Programme.

Candidates who score an overall average of 70% or more are awarded a degree of Master of Science with Distinction

### Staff details

The course is taught by several University staff and by visiting lecturers who provide material that is enhanced by a depth of research and industrial experience. The University staff teaching on the programme include:

- Professor Chris Rogers
- Professor Andrew Chan
- Dr David Chapman
- Dr Gurmeh Ghataora
- Dr Dexter Hunt
- Dr Ian Jefferson
- Dr Alex Royal

Visiting include:

- Professor Peter Braithwaite (Arups)
- Professor Martin Culshaw (British Geology Survey)
- Professor Terry Ingold (Independent consultant)
- and many other leading industrialists in the geotechnical engineering

## Employability

### University Careers Network

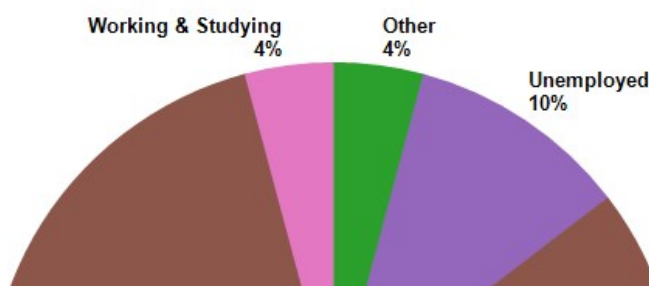
Preparation for your career should be one of the first things you think about as you start university. Whether you have a clear idea of where your future aspirations lie or want to consider the broad range of opportunities available once you have a Birmingham degree, our Careers Network can help you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

If you make the most of the [wide range of services](#) you will be able to develop your career from the moment you arrive.

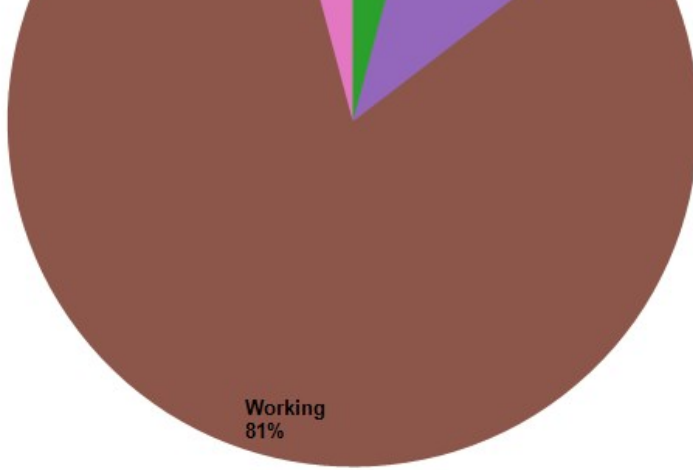
### Destinations of Leavers from Higher Education (DLHE) 2011/12 (postgraduate taught graduates)

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](#) for further information.

### Professional accreditation

The MSc version of this degree is accredited as meeting the requirements for Further Learning for a Chartered Engineer (CEng) for candidates who have already acquired an Accredited CEng (Partial) BEng(Hons) or an Accredited IEng (Full) BEng/BSc (Hons) undergraduate first degree.

See [www.jbm.org.uk](http://www.jbm.org.uk) for further information