

MSC INDUSTRY FUNDED SCHOLARSHIPS

Our Industrial Bursary Scheme (IBS), supported by a group of 14 Companies, enables us to award an IBS-funded scholarship to a number of our MSc students. Funding normally covers home-level fees and makes a contribution towards subsistence costs. All applications are considered for funding and the allocation of IBS awards is based on academic merit and industry experience. Other funding opportunities include a number of Departmental scholarships.

The IBS companies organise recruitment events and do regularly recruit our MSc graduates, contributing to the excellent employability record of our graduates.



MORE INFORMATION

You can find more information on the Soil Mechanics MSc courses online via:

<http://www.imperial.ac.uk/civil-engineering/prospective-students/>

HOW TO APPLY

Apply for the courses online via:

<http://www.imperial.ac.uk/study/pg/apply/how-to-apply/>

As a minimum, applicants should have an Upper Second Class Honours degree in Civil Engineering, Earth Science, Mining or a related discipline, from a UK university or overseas equivalent. It is also beneficial to have industry experience.

CONTACT

Geotechnics Section

<http://www.imperial.ac.uk/geotechnics/>

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Imperial College London

MSc in Soil Mechanics (with specialisations)



*Leading Geotechnical Specialist Education
for seven decades*

Geotechnics Section

<http://www.imperial.ac.uk/geotechnics/>

Scholarship
funding
available

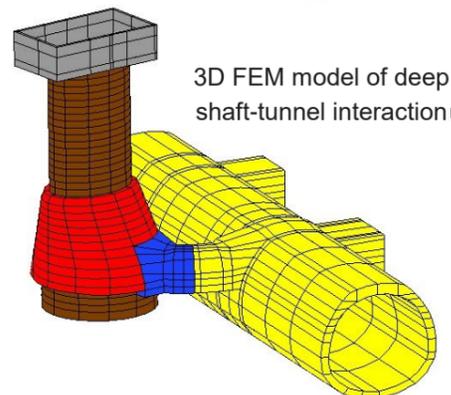
Industrial
support

Field
work



Specialisations available
within the cluster:

- MSc in Soil Mechanics
- MSc in Soil Mechanics with Engineering Seismology
- MSc in Soil Mechanics with Environmental Geotechnics
- MSc in Soil Mechanics with Engineering Geology



MSc in Soil Mechanics

INTRODUCTION

The internationally renowned cluster of MSc courses in Soil Mechanics at Imperial College is running in its eighth decade. The current and emeritus staff include four Rankine and five Géotechnique Lecturers. Graduates from the course hold senior positions around the world. The Geotechnics Section engages closely with the geotechnical engineering industry, ensuring that the course content is up to date and relevant to current professional practice.

AIMS

The course is designed to provide students with a solid technical basis in the key areas of Geotechnical Engineering, through a coherent, coordinated and balanced degree programme, integrating core engineering science and recent research with practical applications.

COURSE THEMES

The four Soil Mechanics MSc courses share approximately 80% of the curriculum, while the remaining 20% allow specialisation in the four areas listed in the left column.

DISTINCTIVE FEATURES OF THE PROGRAMME

- Strong links with industry including:
 - industry funded studentships (see back page)
 - networking with key geotechnical employers
 - guest lectures
 - one-day Offshore Geotechnics Seminar (OGS) organised by Fugro, Shell, Senergy and other industry partners
- Three-month individual research project including hands-on work with state-of-the-art soil testing equipment and numerical analysis tools
- Emphasis on field work

FACILITIES

- **Experimental laboratory:** standard and osmotic oedometers, stress-path triaxial cells, hollow cylinder apparatus, temperature-controlled triaxial, conductivity and oedometer cells.
- **Microscopy & imaging laboratory:** optical microscope, interferometer, QicPic apparatus.
- **Dedicated FEM laboratory:** bespoke FE code ICFEP for 2D and 3D static and dynamic analysis, with thermo-hydro-mechanical coupling for saturated and unsaturated soils.
- **Dedicated DEM laboratory:** PFC code 2D and 3D, and bespoke development of the LAMMPS code.
- **Departmental library:** one of the best Civil Engineering library collection of books and periodicals internationally.
- **Access to transferable skills training:** a range of courses, from academic English to career services, available from the Imperial College Graduate School.

EXTRACTS FROM SELECTED MODULE CONTENTS

Laboratory Soil Testing and Data Interpretation

- Assessment of data from various experiments
- Hands-on laboratory practicals
- Derivation of mechanical parameters

Site Investigation and Engineering Geomorphology

- Remote sensing and earth observation methods
- Logging to BS5930 standards and site investigation techniques
- Geomorphological environments and processes

Advanced Soil Mechanics

- Unsaturated soils
- Anisotropy, creep and ageing
- Particulate soil mechanics

Analysis and Constitutive Modelling

- Finite element method (FEM) formulation
- Soil constitutive modelling
- Contemporary geotechnical applications

Geotechnical Infrastructure

- Infrastructure embankments and earth dams
- Design, construction and maintenance
- Seasonal soil-plant-atmosphere interaction

Design of Foundations & Retaining Structures

- Shallow and deep foundations
- Embedded and propped retaining walls
- Soil-structure interaction

Geotechnical Earthquake Engineering

- Seismic wave propagation and site response
- Dynamic soil properties and liquefaction
- Seismic design of geotechnical structures

Geotechnical Processes & Field Monitoring

- Tunnelling and deep excavations
- Ground Improvement
- Field Monitoring

Rock Engineering

- Intact rock and discontinuities
- Rock mass classification and strength
- Applications: rock slope stability, foundations, tunnels

Hydrogeology & Groundwater

- Groundwater flow and behaviour
- Aquifer properties
- Groundwater quality and management

Offshore Seminar & other offshore lectures

- Seabed sampling and site investigation systems
- Strategy for geohazard assessment and risk analysis
- Foundation design for offshore structures

MSc CORE MODULES

- Consolidation & Seepage
- Strength & Deformation
- Analysis & Constitutive Modelling
- Design of Foundations & Retaining Structures
- Geotechnical Infrastructure: Slopes & Embankments
- Laboratory Testing and Data Interpretation
- Site Investigation and Engineering Geomorphology
- Field Work
- Offshore Geotechnics Seminar (OGS)
- Individual Research Project

MSc SPECIALISATION MODULES INCLUDE

- Advanced Soil Mechanics
- Applied Numerical Analysis
- Geotechnical Processes & Field Monitoring
- Rock Engineering
- Contaminated Land & Groundwater
- Containment Engineering
- Hydrogeology & Groundwater
- Geotechnical Hazards
- Geotechnical Earthquake Engineering

FULL- AND PART-TIME STUDY

The full-time programme is taken over 11 months, with a single entry point per year at the beginning of October. The part-time programme is available on a Term Release basis over 2 years.

