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Geotechnical Engineering

Area of Practice / Area of Engineering

Geotechnical engineering deals with the mechanics of soil and rock and its applications to engineering elements. It deals with the analysis, design and construction of man-made structures or systems that are made of or are supported by soil or rock.

Geotechnical engineers identify, design and implement practical solutions to engineering problems concerning soil, rock and groundwater. They apply scientific and engineering techniques to predict and manage the behaviour of the ground where it interacts with or responds to human activity.

Some of the indicative activities that may be undertaken when practising geotechnical engineering are:

- construction
- consultancy
- design
- development
- project management
- research.

These activities could take place in any of the following geotechnical engineering domains:

- airports
- embankments and dams
- environmental
- transport infrastructure
- deep basement and retaining walls
- foundations & piling
- mining
- ports
- rock slope engineering
- site reclamation and formation
- soft ground engineering
- specialist testing and instrumentation
- subdivisional geotechnics
- retaining walls
- roads and rails
- tunnelling.



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- underground services
- urban development
- waste facilities and landfills

To find out more about geotechnical engineering visit our [Engineering communities](#) page.

How to apply

This area of practice is available to those who want to become Chartered and is available to all occupational categories. Learn more about becoming [Chartered](#) and how to apply.

If you want to add geotechnical engineering as an additional area of practice, [email](#) us to enquire about the process.

Registration eligibility

Geotechnical engineers may need to hold statutory registration in an Area of Engineering in accordance with relevant legislation. Check the [State registration](#) page for more information.