Geotechnical and Geology Engineering

**Geotechnical engineering** is the branch of [civil engineering](https://en.wikipedia.org/wiki/Civil_engineering) concerned with the engineering behavior of [earth materials](https://en.wikipedia.org/wiki/Earth_materials). Geotechnical engineering is important in civil engineering, but also has applications in [military](https://en.wikipedia.org/wiki/Military_engineer), [mining](https://en.wikipedia.org/wiki/Mining_engineering), [petroleum](https://en.wikipedia.org/wiki/Petroleum_engineering) and other [engineering disciplines](https://en.wikipedia.org/wiki/Engineering_disciplines) that are concerned with construction occurring on the surface or within the ground. Geotechnical engineering uses principles of [soil mechanics](https://en.wikipedia.org/wiki/Soil_mechanics) and [rock mechanics](https://en.wikipedia.org/wiki/Rock_mechanics) to investigate subsurface conditions and materials; determine the relevant physical/mechanical and chemical properties of these materials; evaluate [stability of natural slopes](https://en.wikipedia.org/wiki/Slope_stability) and man-made soil deposits; assess risks posed by site conditions; design [earthworks](https://en.wikipedia.org/wiki/Earthworks_(engineering)) and structure [foundations](https://en.wikipedia.org/wiki/Foundation_(engineering)); and monitor site conditions, earthwork and foundation construction.[[1]](https://en.wikipedia.org/wiki/Geotechnical_engineering#cite_note-TerzaghiPeckMesri-1)[[2]](https://en.wikipedia.org/wiki/Geotechnical_engineering#cite_note-HoltzKovacs-2)

Several foundation-related engineering problems, such as the [Leaning Tower of Pisa](https://en.wikipedia.org/wiki/Leaning_Tower_of_Pisa), prompted scientists to begin taking a more scientific-based approach to examining the subsurface. The earliest advances occurred in the development of [earth pressure](https://en.wikipedia.org/wiki/Lateral_earth_pressure) theories for the construction of [retaining walls](https://en.wikipedia.org/wiki/Retaining_walls). Henri Gautier, a French Royal Engineer, recognized the "natural slope" of different soils in 1717, an idea later known as the soil's [angle of repose](https://en.wikipedia.org/wiki/Angle_of_repose). A rudimentary soil classification system was also developed based on a material's unit weight, which is no longer considered a good indication of soil type.[[3]](https://en.wikipedia.org/wiki/Geotechnical_engineering#cite_note-das-3)[[4]](https://en.wikipedia.org/wiki/Geotechnical_engineering#cite_note-budhu-4)

Click below for the books related to geotechnical and geology engineering:

1.j.c.harvey

2.mercedes ferrer

3.roy e.hunt

4.khaled sobhan

5.jos lurie