

**THE UNIVERSITY OF ZAMBIA**  
**SCHOOL OF MINES**  
**DEPARTMENT OF GEOLOGY**

**GGY3051: ENGINEERING GEOLOGY (FOR ENGINEERS) COURSE OUTLINE**

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- 1 INTRODUCTION:** Why Geology for Engineers at all? Introduction to Earth Science, Earth's Structure and Plate Tectonics (ppts in Topic\_1); Common Rock Forming Minerals – Silicates and Non-Silicates; Rocks – Igneous, Sedimentary & Metamorphic (GEODe Folder).
- 2 GEOLOGIC STRUCTURES** – Bedding/Foliation, Folds, Joints and Faults (GEODe Folder); Interpretation of Geological Maps (horizontal beds/foliation and relative ages of rocks; tilted beds/foliation; three-point problems) (ppts in Map Exercises Folder)
- 3 GEOLOGY IN ENGINEERING:** Factors affecting strength of Rocks in Engineering Practice – Discontinuities and their characteristics; Discontinuities in surface excavations and Dam engineering; Site Investigations; Industrial/Construction materials & Concrete (ppts in Topic\_3).
- 4 Introduction to Water Resources:** Hydrologic cycle – Precipitation, Evapotranspiration; Runoff; Infiltration, Condensation, etc.; Groundwater versus Underground Water; Formation and Occurrence of Groundwater; Parameters governing groundwater flow; Groundwater Supplies and factors affecting Groundwater Quality; Remedial Measures; Case Studies. (ppt and GEODe Folder) .