

Major II

DM-IG 112: Introduction to Geology

Cr. H. 3

Course Description:

This course introduces students to the basic concepts and fundamental principles of geology, Identification and description of geological processes and phenomena
Apply geological concepts to real-world problems

Course Outline:

Introduction to Geology

- Definition and scope of geology
- Branches of geology
- Geological time scale

Earth Materials

- Minerals: properties, classification, and identification
- Rocks: types, classification, and formation processes
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Plate Tectonics

- Introduction to plate tectonics
- Plate boundaries and interactions
- Geological consequences of plate tectonics

Earth Processes

- Weathering, erosion, and deposition
- Water and wind processes
- Glaciers and ice ages

Geological Hazards

- Earthquakes and seismicity

Volcanic activity and hazards

- Landslides and subsidence

Earth's History

- Geological time scale
- Fossils and fossilization
- Ancient environments and life forms

Earth Resources

- Water resources
- Mineral resources
- Energy resources

Assessment:

1st Term (25%) Assignments/Quizzes and Presentations

Mid Term (35%) Written (Long Questions, Short Questions, MCQs)

Final Term (40%) Written (Long Questions, Short Questions, MCQs)

Lab Materials:

Rock and mineral samples
Geological maps and tools
Online resources and software

Textbook

1. "Principles of Geology" by Charles Lyell (Reprint Edition, 2023)
- Lyell, C. (2023). *Principles of Geology*. Reprint Edition. Penguin Classics.
2. "Geology: A Complete Introduction" by David A. Rothery (2023)
- Rothery, D. A. (2023). *Geology: A Complete Introduction*. Teach Yourself.
3. "Earth Materials: Introduction to Mineralogy and Petrology" by Cornelis Klein and Anthony R. Philpotts (2nd Edition, 2023)
- Klein, C., & Philpotts, A. R. (2023). *Earth Materials: Introduction to Mineralogy and Petrology* (2nd ed.). Cambridge University Press.
4. "Engineering Geology for a Habitable Earth: IAEG XIV Congress 2023 Proceedings, Chengdu, China: Volume 6: Marine and Deep Earth Engineering Geology"
- Wang, S., Huang, R., Azzam, R., & Marinos, V. P. (Eds.). (2023). *Engineering Geology for a Habitable Earth: IAEG XIV Congress 2023 Proceedings, Chengdu, China: Volume 6: Marine and Deep Earth Engineering Geology*. Springer.
5. "The Lithosphere: An Interdisciplinary Approach" by John A. Dewey (2023)
Dewey, J. A. (2023). *The Lithosphere: An Interdisciplinary Approach*. Oxford University Press.