



THE FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE

Department of Applied Geology

AGY 209 – Geology for Engineers I

COURSE PARTICULARS

Course Code: AGY 209

Course Title: Geology for Engineers I

No. of Units: 2

Course Duration: One hour of theory and three hours of practicals per week for 15 weeks.

Status: Compulsory

Course Email Address: agy209_2013@gmail.com

Course Webpage: <http://www.agy.futa.edu.ng/courseschedule.php?coursecode=AGY%20209>

Prerequisite: NIL

COURSE INSTRUCTORS

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COURSE DESCRIPTION

The focus is to expose the civil engineering students to basic and applied geological principles for solving earthwork problems often encountered while executing civil engineering projects.

Topics to be covered include: Summary of the structure of the planet earth. Minerals and rocks; the common rock-forming minerals- origin, distribution, identification and classification.

External earth processes: weathering; principles, processes and agents. Erosion and evolution of landforms. Sedimentation; principles and processes. Sedimentary rocks. Basic principles of stratigraphy; the geologic time scale; the importance of fossils. Internal earth processes; igneous processes - plutonic & volcanic; metamorphic processes, metamorphism types; deformation processes, faults and folds. Fundamentals of plate tectonics; earthquakes. Distribution of rocks, minerals and principal geologic features (structures) in Nigeria.

COURSE OBJECTIVES

The objectives of this course are to:

- introduce students to the application of geological knowledge to solve earthwork (civil engineering projects) problems encountered on the field; and
- intimate students with knowledge of the distribution of rocks, minerals and principal geologic features (structures) in Nigeria.

COURSE LEARNING OUTCOMES / COMPETENCIES

Upon successful completion of this course, the student will be able to:

(Knowledge based)

- explain some basic geological concepts especially on earth processes (internal and external), plate tectonics, rock-forming minerals and the geologic time scale;
- understand various deformation processes and principal geologic features (structures) in Nigeria.

(Skills)

- identify some basic geological structures in field occurrences;

GRADING SYSTEM FOR THE COURSE

This course will be graded as follows:

Assignments	20%
Test(s)	20%
<u>Final Examination</u>	<u>60%</u>
<u>TOTAL</u>	<u>100%</u>

GENERAL INSTRUCTIONS

Attendance: It is expected that every student will be in class for lectures and also participate in all practical exercises. Attendance records will be kept and used to determine each person's qualification (65% minimum attendance) to sit for the final examination. In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with any of the instructors, indicating the reason for the absence.

Academic Integrity: Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited. You are not allowed to make copies of another person's work and submit it as your own; that is plagiarism. All cases of academic dishonesty will be reported to the University Management for appropriate sanctions in accordance with the guidelines for handling students' misconduct as spelt out in the Students' Handbook.

Assignments and Group Work: Students are expected to submit assignments as scheduled. Failure to submit an assignment as at when due will earn you zero for that assignment. Only

under extenuating circumstances, for which a student has notified any of the instructors in advance, will late submission of assignments be permitted.

Code of Conduct in Lecture Rooms and Laboratories: Students should turn off their cell phones during lectures. Students are prohibited from engaging in other activities (such as texting, watching videos, *etc.*) during lectures. Food and drinks are not permitted in the laboratories.

READING LIST

¹Bell, F.G. (2007). Engineering Geology. 2nd Edition. Published by Elsevier Ltd, USA. 593p.

²Blyth, F.G.B. and De Freitas, M.H. (2005). A geology for Engineers. Published by Elsevier Butterworth-Heinemann, USA. 348p.

Legend

1- Available on the Internet

2- Available in the University Library; Also available on the Internet.

COURSE OUTLINE

Week	Topic	Remarks
1	Introduction and Course Overview Summary of the structure of the planet earth.	During this first class, the expectation of the students from the course will also be documented.
2 & 3	Minerals and rocks; the common rock-forming minerals: <ul style="list-style-type: none"> • origin • distribution • identification and • classification. 	Practical exercise will involve identification of some common minerals and rocks.
4 & 5	External earth processes: weathering; <ul style="list-style-type: none"> • principles • processes and • agents. 	Students' will be given a reading assignment to prepare them for the next class.
6	Erosion and evolution of landforms.	Field photographs will be projected on screen for better understanding

		while teaching this topic.
7 & 8	Sedimentation; <ul style="list-style-type: none"> • principles and processes. Sedimentary rocks. Basic principles of stratigraphy; The geologic time scale; The importance of fossils.	Field photographs will be projected on screen for better understanding while teaching this topic
		MID-SEMESTER TEST
9 & 10	Internal earth processes; igneous processes - plutonic & volcanic processes, metamorphism types; deformation processes, faults and folds.	Sufficient illustrative diagrams and field photographs will be shown by projection on screen to aid students' understanding of the topic.
11 & 12	Fundamentals of plate tectonics; earthquakes	Illustrative diagrams and computer aided animations will be employed to teach the topic for quick understanding and to aid retentive memory.
13 & 14	Distribution of rocks, minerals and principal geologic features (structures) in Nigeria.	Maps and field photographs will be used to illustrate the structures.
15	REVISION	This is the week preceding the final examination. At this time, evaluation will be done to assess how far the students' expectations for the course have been met.