CVLE 231 Engineering Geology

Course Syllabus – Fall 2015-2016

Curricular Area		Civil Engineering – Structural Sequence
Type of Course		Compulsory - Major
Catalogue Description		- Introduction and Overview: engineering geology vs. geology, engineering geology and civil engineering. - The Earth Origin and Materials: earth materials and processes, history of the earth- geologic time and eras. - Plate Tectonics: continental drift and plate boundaries - Minerals properties. - Rocks: major rock groups Igneous, sedimentary and metamorphic rocks and their characteristics, the rock cycle, weathering and erosion - Geologic Hazards: Earthquakes and volcanoes, Slope Failure and Subsidence - Geological structure: Strike and dip, Folds, Faults: types and structures, Joints. - Geologic Maps: construct a geologic cross-section; construct a contour map. - Geology of Lebanon: History and Major Formations - Engineering Applications: Groundwater
Prerequisites by Courses		none
Prerequisites by Topics		none
Instructors		Eng. Lina Jaber
Office Hours		Monday 9:00-11:00; 13:00-14:00
Load		2 credits; 2Lectures/week –50 min per lecture
Textbook		Geology for Engineers and Environmental Scientists third edition, Prentice Hall
Reference Books		Engineering Geology –Goodman, R.
Topics		Week [1] Introduction and Overview: engineering geology vs. geology, engineering geology and civil engineering. Week [2] The Earth Origin and Materials: earth materials and processes, history of the earth- geologic time and eras. Week [3] Plate Tectonics: continental drift and plate boundaries Week [4] Minerals: Minerals physical properties and mineral rock formation Week [5-6-7] Rocks: major rock groups Igneous, sedimentary and metamorphic rocks and their characteristics, the rock cycle, weathering and erosion

		Week [8] Earthquakes: Magnitude, depth and intensity. Elastic rebound theory Earthquake prediction and protection against damages
		Week [9] Mass Movement: Types of slope failure, Rock slide, control of mass movements.
		Week [10-11] Geological structure: Strike and dip, Folds, Faults: types and structures, Joints. Week [12] Geologic Maps : construct a geologic cross-section; construct a contour map …
		Week [13-14] Geology of Lebanon: History and Major Formations Week [15] Engineering Applications: Geological investigations, Dam engineering, hydrogeology and groundwater, Tunneling.