FREE UNIVERSITY PEREIRA SECTION

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING

SUBJECT: SOILS II

CODE: ----------

SEMESTER: SEVENTH

HOURS WEEKLY: 4

THEORETICAL: 4

PRACTICES: 0

REQUIREMENTS: SOILS I

AIM :

To train the engineering student in the basic knowledge and techniques of conservation and correct use of soils as well as the techniques for their recovery after human intervention. Also provide elements on the watershed management.

METHODOLOGY:

The professor's master lectures must be accompanied by practical exercises and field trips.

field so that the student has real and practical training on the

Main problems affecting soils in the region for different reasons:

roads, mines, crops, etc.

CONTENT :

1. Physical-chemical properties of soils used in engineering.

2. Stresses and deformations of a soil mass.

3. Filtration theory of groundwater flow.

4. Theory of shear strength

5. Consolidation theory and settlement analysis.

6. Lateral pressure of retaining walls.

7 Stability of slopes and foundations.

8. Subsoil investigation and land improvement methods

8.1 Soil conservation practices by modifying their properties: the influence of the

vegetation cover, the application of chemical fertilizers and correctors, the use of matter

organic and soil tillage.

8.2 Soil conservation practices controlling vegetation: management of

crops, forest use, grassland use, crop rotation, sowing

in contour, plant covers, dead covers, living barriers, strip crops, the

gloomy.

8.3. Soil conservation practices controlling water: natural drainage,

absorption ditches, drainage ditches, hillside ditches, drainage channels.

water discharges, terraces, hydraulic works, transversal works, walls of

containment, and gabions.

9. Soil management in watersheds: Components, elements and limits of the

basins. Types of basins

10. Methods of morphometric analysis of the catchment area and drainage network of a

basin. Descriptive methods of hydrographic systems and classification systems

the basins.

11. Soil erosion: types, forms, water erosion, degrees of erosion, factors

which contribute to erosion, damage and biological degradation of soils.

BIBLIOGRAPHY:

BERRY & REID. Soil Mechanics. ISBN: 958-600-172-5. McGraw Hill, 1993.

TERZAGUI. Soil Mechanics for Engineers.

JUAREZ & RICO. Soil Mechanics. Ed. Limusa, Mexico, 1988

SOWERS. Introduction to soil and foundation mechanics.