

**Department: Civil & Environmental Engineering**  
**Level and Major: Graduate - Geotechnical Engineering**

**Division: Civil engineering**

**Course Title:** soil improvement

**Number of Credits: 3**

**Prerequisite (Corequisite):** Structural analysis (I), Concrete Technology **Lecturer: -**

---

**Course Topic**

- Introduction and generalities ,the need for soil improvement ,geotechnical studies ,soil harvesting
- Light embankments, mechanical compaction (surface improvement)
- Dynamic compaction ,consolidation of physical ,chemical, plant improvement mixing in place of soil in depth
- Types of injection methods, high pressure injection (jet grouting)
- Improvement vibrating in depth, stone and limestone columns ,explosion
- Rinsing ,vertical drainages ,vacuum systems ,preload
- Thermal and freezing methods ,electrical methods
- External and internal structuralal elements geosynthetics
- Improvement quality control
- Environmental considerations ,selection of improvement methods(technical ,executive, economic considerations

Course Description:

Reading Sources:

Course Goals and objectives:

Evaluation:

Course topics:

The course aims to: