GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Civil (Geotechnical Engineering)

Semester: I

Subject Name: **Soil Stabilization and Grouting Technology (Major Elective - I)**
Subject Code: **714305**

Sr. No	Course Content
1	Classification of stabilizing agents and stabilization processes, nature and surface characteristics of soil particles, concepts of surface area and contact points.
2	Drainage and compaction, principles of mechanical stabilization, inorganic stabilizing agents and their characteristics - lime, cement, lime-flyash, hydroxides, carbonates etc., inorganic stabilizers, reaction mechanism in relation to strength improvement, characteristics under various conditions of soil properties, time, temperature and stress.
3	Deleterious effects of organic substance and sulphates on inorganic stabilization, organic stabilizers, binding and water-proofing agents-bituminous materials, lignings, large organic cations, aniline furferols, resins, rosins and derivatives and other organic wastes, bituminous stabilization, electrical and thermal stabilization.
4	Definition of grouting, Grout materials, physical and chemical properties, strength, Rheological aspects of coarse and fine grouts, penetrability and performance aspect of coarse and fine grouts, Various application of grouting.

Reference Books:

1. Proceedings of the Conference on Soil Stabilization, Massachusetts Institute of Technology, June 18-30, 1959.
2. K.B. Woods, D.S. Berry and W.H. Goetz, Highway Engineering Handbook, 1960.
3. A.C. Houlsby, Grouting Manual, Water Resources Commission, Australia-1977.
4. R.H. Karol, Chemical Grouting, Applied Science Publishers-1986.
5. A. Shroff & D. Shah, Grouting technology for dam construction and tunneling, Oxford & IBH Publishers, 2nd addition, 1999.