

21GGE510T - GROUND IMPROVEMENT TECHNIQUES (ELECTIVE)										
Teaching Scheme					Examination Scheme					
L	T	P	C	Hours/Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	0	0	3	3	25	50	25	-	-	100

**Unit I**

**Hours: 10**

Introduction: Compaction method used in the laboratory and the field- lab compaction methods-light- heavy- kneading- vibratory- for soils and with admixtures  
Shallow stabilization with cement- lime-flyash and other chemical admixtures.

**Unit II**

**Hours: 10**

Deep stabilization using vibroflotation- compaction piles- dynamic compaction- blasting- sand drains- stone columns- lime and cement columns- grouting by permeation- displacement and jet methods.

**Unit III**

**Hours: 10**

Functions and Application of Geosynthetics- Geotextiles- Geogrids- geomembranes- soil reinforcement using strips- bars etc.

**Unit IV**

**Hours: 10**

Soil nailing and ground anchors- dewatering techniques- earthmoving machines and earthwork principles-piling and diaphragm wall construction- tunnelling methods in soils etc.

**MAX <40 Hrs>**

**TEXT / REFERENCE BOOKS**

1. Ground improvement Techniques by Purushottam Raj, Penguin Books Ltd, New Delhi, 1999
2. Geotechnical Engineering by Gulhati and Manoj Dutta, Tata Mc-Graw Hills Manfired R. H., 2003.
3. Engineering Principles of Ground Modification, McGraw-Hill Pub.Co.1990
4. Construction and Geotechnical Methods in Foundation Engineering by Koener R M, McGraw Hill Pub Co New York, 1985.
5. Engineering Principles of Ground Modifications by Hausmann M R, McGraw Hill Pub Co New York, 1990.
6. Soil Stabilisation: Principles and practice by Ingles O G and Metcalf J B. (1972), Butterworths, London, 1972. 6. Ell F G.
7. Methods of Treatment of Unstable ground, Newness Butterworths, London,1975.