GUJARAT TECHNOLOGICAL UNIVERSITY

(Civil) Structural Engineering

M.E. Semester: IV

Subject Name: **Soil Structure Interaction**

Sr. No.	Course Content
1.	Basic concept of soil structure interaction, factors affecting contact pressures; sub grade modulus-determination and factors; contact pressure by theory of elasticity, contact pressure by modulus of sub grade reaction
2.	**Beam on Elastic Foundation:** flexible analysis of a combined footing by finite difference method and by finite element method
3.	**Earthquake response of soils and foundations;** measurement of dynamic soil properties; strength of cyclically loaded soils; **Liquefaction:** effects, types and factors; evaluation of liquefaction potential; mitigation methods viz. vibro techniques, dynamic compaction, blasting compaction grouting, stone columns, compaction piles, grouting and mixing techniques, drainage methods etc,
4.	**Geogrid And Geosynthetics:** Types, functions, applications, Various methods for Reinforced Earth designs, installation and applications.
5.	**Flexible Retaining Structures:** analysis by free earth support method

Reference Book:

1. Swami Saran, Gopal Ranjan, “Analysis & Design of Foundations & Retaining Structures”, Sarita Prakashan.
2. Nainan P Kurian, “Design of Foundation Systems”, Narose Pub. House.
3. J. E. Bowles, “Foundation Analysis and Design”, McGraw Hill
4. Koerner R M, “Designing with Geosynthetics”, Prentice Hall.
5. S. L. Kramer, “Geotechnical Earthquake Engineering”’ PEARSON Education, Prentice Hall.