

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. (Civil – Geotechnical Engineering)

Semester: I

Subject Name: **Geotechnical Engineering Software Lab-1**
Subject Code: **714308**

Students are required to carry out following in laboratory hours,

1. Programming: Analysis of structures using C++

Application: Excel spread sheets for the design of

(1) Structural elements like slabs, beams, columns, isolated, combined and raft footings, steel connections and members

(2) Structures like water tank, retaining walls, Fundamentals of Geotechnical analysis and design. Design of pile foundations. Design of Diaphragm walls. Design of prestressed ground anchors.etc

(3) Software Usage: Modeling, analysis and design using professional software like STAAD, STRAP, STRUDS, RISA 3D, FEAPpv, TALREN, Sage – CRISP, SIGMA/W, GEO 4 and GEOFEM: Line Nonlinear analysis.

Drafting: Application of drafting software like AutoCAD, CadLAB, Microstation

Reference Books:

1. Programming in C++ - E. Balaguruswamy
2. Teach yourself C++ - Herbert Schildt
3. Object oriented programming in Turbo C++ - Robert Lafore
4. Introduction to Computer Aided Drafting - Voisinet
5. Mastering AutoCAD - George Omura
6. Computer programming and engineering analysis - Syal & Gupta