



SILVER OAK UNIVERSITY

Engineering and Technology (B.Tech.)

Department of ME/ Civil/ Aero. / Chem.

Subject Name: Basics of Civil Engineering

Semester: 1st Year

Prerequisite: N.A

Objective: To Provide the Knowledge of Basics of Civil Engineering

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Evaluation Scheme				Total Marks
L	T	P		Internal		External		
				Th	Pr	Th	Pr	
3	0	2	4	40	50	60	--	150

Content:

Unit No.	Course Contents	Teaching Hours	Weightage %
1	Introduction of civil engineering: Branches & Functions of Civil Engineering, impact of infrastructural development on the Economy of a Country.	5	5%
2	Building components: Foundations: Types, Bearing capacity, Requirement of good foundations. Superstructure: Brick masonry, stone masonry , beams, columns, lintels, roofing, flooring, plastering	10	15%
3	Civil engineering materials: Bricks, ACC, lightweight and Fly ash bricks, stones, sand, cement, concrete, reinforcement, steel Sections 12	5	10%
4	Surveying: Objects, types, classification, principles of surveying, measurements of distances, angles, leveling, determination of area. Compass surveying, introduction to theodolite, Total station and global positioning system, Remote sensing and geographic information system.	10	20%
5	Elements of Building Construction: Planning: General Requirement of Building, Elementary principles and basic requirements of a building. Importance of Planning, Layout of residential & industrial buildings, Introduction to Plan, Elevation & Section of Residential	10	20%

	Building. Construction: Classification of buildings based upon occupancy, Types of Structures, Introduction to building byelaws.		
6	Water Resources Engineering: Sources of water, Water requirements and Conservation of water (Necessity, objective, benefits & measures), Basic Introduction of Hydraulic Structures of Storage (Gravity Dam)	5	15%
7	Transportation Engineering: Role of Transportation in National development- Transportation Ways- Surface-Transportation and Aviation- Elements of Traffic Engineering and Traffic Control Devices.	5	15

Course Outcome:

Sr. No.	CO statement	Unit No
CO-1	Understand the basics of civil engineering, Know the various building components, method of constructions and services	1
CO-2	Illustrate the use of different materials in Civil Engineering	2&3
CO-3	Understand the different principles of surveying and levelling and use different equipment's for angular and linear measurements	4
CO-4	Simplify various aspect of the building and town planning	5
CO-5	Study water conservation methods, water -waste water quality and advances in civil engineering	6
CO-6	Study various public transportation system	7

Teaching & Learning Methodology:

1. The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
2. Lectures with live practical example using Projector and Computer and case studies for the same.
3. Experiments shall be performed on the field related to course contents

List of Experiments:

1. Chain survey
2. Compass survey
3. Leveling

Project :

Based on practical students shall perform following projects.

1. Chain and compass survey project
2. Profile leveling and contouring

Major Equipment:

1. Prismatic compass
2. Level
3. Leveling staff
4. Metric chain
5. Prism square
6. Planimeter
7. Line ranger

Books Recommended:

1. Title: Surveying Vol. I Author: Dr. B. C. Punmia, Ashokkumar Jain, Arunkumar Jain 16th Edition
Publisher: Laxmi Publication Delhi
2. Title: Surveying Vol. I Author: S. K. Duggal Publisher: Tata McGraw Hill Publication New Delhi
3. Title: Civil Engg. Drawing Author: S. C. Rangwala Publisher: Charotar Pub. House Anand
4. Title: Building Construction Author: Dr. B. C. Punmia, Ashokkumar Jain, Arunkumar Jain Publisher:
Laxmi Pub. Delhi
5. Title: Elements of Civil Engineering Author: Dr. R.K. Jain and Dr. P.P. Lodha Publisher: McGraw
Hill Education, India Pvt. Ltd.

List of Open Source Software/learning website:

1. Auto Cad Civil 3D. Easily the most used program in the industry, Civil 3D is a civil engineering drafting software with a multitude of design, analysis and simulation tools for civil engineering design.
2. Microsoft Project