

Subject Code: 1ET4000212	Subject Title: Basic Civil Engineering
Pre-Requisite	----

RATIONALE:

A mechanical or electrical technician is expected to look after many activities at work place, which may be interdisciplinary, for example if he/she has to mount a heavy machine, he should be able to supervise the preparation of foundation for it, which requires the knowledge of Civil Engineering. Therefore he/she is supposed to be exposed to very basics of civil engineering. This course mainly encompasses the major and general areas of civil engineering, knowledge of which may be required by mechanical and electrical engineers/technicians.

COURSE OBJECTIVE:

Become competent and engaged engineering professionals, applying their technical and managerial skills in the planning, design, construction, operation or maintenance of the built environment and global infrastructure, and utilizing their skills to analyze and design systems, specify project methods and materials, perform cost estimates and analyses, and manage technical activities in support of civil engineering projects.

TEACHING AND EVALUATION SCHEME:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				Total (Marks)
Lecture	Tutorial	Practical	Credit	Theory		Practical		
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment	
-	-	2	1	-	-	-	50	50

DETAILS OF COURSE CONTENTS:

S. NO.	TOPIC	Total Hrs.
1	Civil Engineering Surveying 1.1 Surveying & leveling (its importance and types) 1.2 Necessity for leveling 1.3 Principals of surveying 1.4 Instrument/ tools used for survey, level and Procedure of leveling 1.5 Various methods of finding the field survey measurements 1.6 Chain and Compass Survey and Preparations of contour sheets/ plan using survey data	04
2	Civil Engineering Drawing 2.1 Types of building drawings 2.2 Abbreviation, conventions & symbols in civil drawing	04

	2.3 Building byelaws for planning of residential building and industrial building 2.4 Planning of simple residential and industrial building	
3	Construction Materials 3.1 Common construction materials such as cement, Brick, Stone, Timber, Steel and Concrete. 3.2 Properties of each materials & their acceptable standards 3.3 Quality parameters of materials 3.4 Estimations and costing for simple structure (only the material cost)	02
4	Machine Foundations 4.1 Criteria for machine foundation and Provisions for foundation design considerations in machine foundations. 4.2 Factors to be considered while designing machine foundations such as type of soil 4.3 Design foundations for simple machine like lathe, compression press, universal testing machine, electric power hammer etc. 4.4 BIS CODE of practice for machine foundations I.S.- 2974 - Part –I& II	04

COURSE OUTCOME:

After learning the course the students should be able to:

1. Knowledge about Use surveying tools and equipments for field survey, levelling and Measurements.
2. Learn to calculate different levels and angles
3. Drawing skill of Read and Interpret the building drawing
4. Select different types of construction materials as per requirements
5. Assess the typical requirements of foundations for medium sized electrical and Mechanical Machines
6. Test given construction materials for quality control

LIST OF PRACTICAL:

The experiments should be properly designed and implemented with an attempt to develop different types of skills so that students are able to acquire above mentioned competency. This is the list of minimum experiments to be performed.

SR. No.	Experiment
1	Practice for linear measurements through ranging, chaining, taping offsetting, recording field book etc.
2	Practice for working on prismatic compass, dumpy Levels, for taking measurements and , recording length and angles.
3	Prepare surveying drawings using surveyed data
4	Test few construction materials such as cement, brick etc in laboratory
5	Visit of industry to observe the machine foundation and study of foundation design
6	Observe and draw machine foundation for some heavy machines.

LIST OF REFERENCES:

Sr. No.	Title of Books	Author
1	Text book on Surveying & leveling	T.P. Kanitkar
2	Text hook on Surveying & leveling	B.C. Punmia
3	Civil Engineering Drawing	Shah Kalel & Patkil
4	Engineering Material	S.C. Rangwala
5	Properties of concrete	A.M.Neville