

**GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT
COURSE CURRICULUM**

**Course Title: Basic of Civil Engineering
(Code: 3320004)**

Diploma Programmes in which this course is offered	Semester in which offered
Electrical Engineering ,Mechanical Engineering	Second Semester

1. RATIONALE:

In the era of technology integration, it has become unavoidable to possess the basic knowledge of various engineering disciplines. The advancement in technology is the best on multi technology integration and hence in performance too. The motive of this subject is to enhance the knowledge & skill level in the inter disciplinary area to strengthen the present practices.

This course is specially designed with a view to impart basic knowledge of other conventional disciplines (other than his/her own discipline).

This course mainly encompasses the major and general areas of civil engineering which are being used by common man to large industrial sectors. A technician has to know many times the implications and knowledge of other disciplines so as to conclude the solution of his/her own branch tasks.

2. LIST OF COMPETENCIES:

- To use the general know-how of civil engineering in dissolving the own branches integrated tasks.
- To perform the very general and fundamental small scale tasks of civil engineering so as to reduce the dependency and to achieve the reliability and quality of own branches tasks.

3. TEACHING AND EXAMINATION SCHEME:

Teaching Scheme (In Hours)			Total Credits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	ESE	PA	ESE	PA	
0	1	2	3	0	0	20	30	

Legends: L-Lecture; T ó Tutorial/Teacher Guided Student Activity; P -Practical; C ó Credit; ESE -End Semester Examination; PA - Progressive Assessment.

4. DETAILED COURSE CONTENTS:

Unit	Major Learning Outcomes	Sub Topics
Unit –1 SURVEYING&LEVELLING	1.1 Understand the basic terms related to surveying &leveling	Define surveying &leveling Importance of surveying Types of surveying Necessary for leveling Instrument use fro survey and level Principle of surveying List of instruments required Various methods of finding the field survey measurements Chain and compass survey Preparations of sheets using survey details Procedure of leveling by different methods
Unit – 2 INTERPRETATION OF CIVIL ENGINNERING DRAWING	2.1 Interpret the building drawing	Define building plan & map Study of plan and map scale and types Methods of projection Abbreviation, conventions & symbols Building byelaws for planning of residential building and industrial building List of drawing require for construction of industrial shed Planning of industrial building
UNIT –3 CONSTRUCTION MATERIALS	3.1 Identify the different types of construction materials	Type of common construction materials Properties of each materials & their acceptable standards Estimated market cost of above referred construction materials
Unit –4 MACHINE FOUNDATIONS	4.1 Analytical assessment of industrial building and its design considerations for foundations.	Procedure of design considerations in machine foundations. - its purpose -Factors to be considered while designing machine foundations like - Shear settlement - Vibrations, resonance - Operating frequency - Dead load etc. - Various types of failures of machine foundations - Design foundations for simple machine like lathe, compression press, universal testing machine (20 T capacities), electric power hammer etc. - Provision made by I.S. specifications for machine foundations * Provisions made in I.S.- 2974 - Part 6 II - Provision made by I.S. specifications for machine foundations * Provisions made in I.S.- 2974 - Part - II * Prepare proper foundation plan for IS specifications for thegiven sample machine.

Unit	Major Learning Outcomes	Sub Topics
		* Precautions to be taken while selecting a design when vibration forces are predominant. - Selection of appropriate types of machine foundation identifying governing factor causing failure - Types of dynamic loads & their effects on foundations - Selections of appropriate foundation design for withstanding dynamic loads referring IS-2974-Part I and II etc.

5. SUGGESTED SPECIFICATION TABLE WITH HOURS & MARKS (THEORY):

Unit No.	Unit Title	Tutorial Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total
1.	Surveying & leveling	04	00	00	00	00
2.	Interpretation of civil engineering drawing	04	00	00	00	00
3.	Construction materials	02	00	00	00	00
4.	Machine foundations	04	00	00	00	00
Total		14	00	00	00	00

Legends:

R = Remembrance; U = Understanding; A = Application and above levels.

6. SUGGESTED LIST OF EXPERIMENTS:

The experiments should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency.

This is the list of minimum experiments to be performed.

Ex. No.	Unit No.	Experiment	Hours
1	1	Practice for ranging, chaining, offsetting, recording field book etc.	04
2	1	Practice for working on prismatic compass, Bearing of lines, recording/computing included angles using bearings etc.	04
3	1	Conduct chain & compass survey (Max. 4 stations)	04
4	1	Practice with levelling instrument	04
5	2	Visit to an industrial factory building and all details may be taken on paper & Prepare a layout plan of the visited industrial building (not to scale)	04
6	3	Market survey of construction materials	04
7	4	Shear and compressive test for foundation	04
Total			28

7. SUGGESTED LEARNING RESOURCES:**A. List of Books.**

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

B. List of Major Equipment/ Instrument.

- 1.Chain (10m, 20m, 30m, etc.)
- 2.Measure Tape, Ranging rods
- 3.Prismatic compass, Surveyor compass
- 4.Dumpy level, Tilting level
- 5.Compressive Testing Machine

C. List of Software/Learning Websites: NIL**9. COURSE CURRICULUM DEVELOPMENT COMMITTEE****Faculty Members from Polytechnics**

- 1) Prof. BhaveshModi Principal B V P I T (DS) UmraKh Ta. Bardoli
- 2) Mr. Krishnaraj A. Khatri L C E B V P I T (DS) UmraKh Ta. Bardoli
- 3) Mrs. A. N. PamnaniL C E B B I T , V V Nagar
- 4) Mrs. RinaChokshi L C E P I E T (DS) Limda Vadodara

Co-ordinator and Faculty Member from NITTTR Bhopal

- 1) Dr. J.P.Tegar, ProfessorDept of Civil and Environmental Engg, NITTTR, Bhopal.