



GUJARAT TECHNOLOGICAL UNIVERSITY
Master of Engineering
Subject Code: 3722023
SUBJECT NAME: Structural Design Project
2nd Semester

Type of course: Core course

Prerequisite: Analysis and Design of Steel and Concrete structures, Concrete Technology

Rationale: The project work aims to develop the work practice in students to apply theoretical and Practical tools and techniques to solve real-life problems of industry. It is also aims to explore alternate structural forms and deriving cost effective solution for any project.

Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical Marks		
				ESE (E)	PA (M)	ESE (V)	PA (I)	
0	0	4	2	0	0	80	20	100

Content:

Sr. No.	Content	Total Hrs	% Weightage
1	<p>The project work has to be a design projects from the following;</p> <ol style="list-style-type: none">1. Multistoried RC or steel structure2. Industrial Structure3. Water storage structures4. Bulk storage structures5. Concrete Bridges <ul style="list-style-type: none">➤ The project work is chosen/allotted individually on different topics.➤ It is mandatory to design minimum two full projects (from concept to detailed design & drawing) from above topics along with cost estimation.➤ Use of computational tools is essential.➤ Work of each student shall be supervised by one or more faculty members of the department. The students may do their project work in the parent institute or some structural design organization as per requirement.➤ Students are encouraged to take up industry problems in consultation with the respective supervisors. At the end of the term student has to present a report which consists of at least:<ul style="list-style-type: none">• Site visit reports of minimum three site visits, exploring the field aspects for various subjects• Report must covers Design note, Modeling, Analysis and design with the latest IS codes and preparation of drawing in CAD software.• For validation, calculation of at least one member in each category should be done manually and compared with software results. Computer results must be checked and compared with conventional methods.	56	100



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Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
0	20	35	25	15	5

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Books:

1. Structural Design of Multi-storeyed Buildings, Varyani U. H., 2nd Ed., SouthAsian Publishers, New Delhi.
2. Structural Analysis and Design of Tall Buildings, Taranath B. S., Mc Graw Hill, 1988
3. Advanced Design of Concrete Structures – Krishana Raju N., Tata Mc-Graw Hill, Delhi
4. Design of Multi Storeyed Buildings, Vol. 1 & 2, CPWD Publications.
5. Tall Building Structures, Smith Byran S. and Coull Alex, Wiley India
6. High Rise Building Structures, Wolfgang Schueller, Wiley
7. Tall Building Structures on Elastic Subgrade and Research of Semi-Analytical method by Gong Yaoqing. Beijing: Tsinghua University
8. Tall Chimneys, Manohar S. N., Tata Mc Graw Hill Publishing Company, New Delhi
9. Advanced Reinforced Concrete, Varghese A. V., Prentice Hall of India.
10. Advanced Reinforced Concrete Design, Varghese P. C., Prentice Hall of India, New Delhi.
11. Unified Theory of Concrete Structures, Hsu T. T. C. and Mo Y. L., John Wiley & Sons, 2010.
12. IS Codes : IS:456, IS:875, IS:1893, IS:4326, IS:13920, IS: 3370, IS: 4995 (I & II), SP:16, SP:34, IS:800, IS:226, SP:6(1), SP:6(6)
13. Design of Steel Structures – N. Subrhamanyan, Oxford.
14. Steel Structure -Design and Behaviour, Salmon, C.G., and Johnson, J.E. Harper and Row
15. Design of Steel Structure - Duggal, Tata Mc Graw Hill.
16. Steel Structures, William McGuire, Prentice Hall, Inc., Englewood Cliffs, N.J.1986

Course Outcomes: At the end of the course, students will be able to

1. Use computational tool for modelling, analysing & designing structures using relevant codes.
2. Prepare site visit reports.
3. Prepare detailed design report.

Sr. No.	CO statement	Marks % weightage
CO-1	Use of computational software for modelling, analysing & designing structures using relevant codes.	40
CO-2	Prepare structural drawings which may be Good for construction.	30
CO-3	Prepare detailed estimates & cost of project.	20
CO-4	Develop design basis report	10



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List of Experiments/Tutorials:

At least two designs suitably selected from topics of the course. The report shall consist of full analytical treatment, design procedure, references and all necessary drawings in the form of neat dimensioned sketches.

List of Open Source Software/learning website:

<http://nptel.ac.in/>