

Sankalchand Patel University
Faculty of Engineering and Technology
First Year Master of Technology in Civil Engineering
(Computer Aided Structural Analysis and Design)
In Effect from Academic Year 2023-24

Branch Name:	Civil Engineering (Computer Aided Structural Analysis & Design)
Semester/Year:	Semester II / First Year
Subject Title:	Structure Design Project– II (Steel)
Subject Code:	2ET2100203P
Pre-requisite:	Mechanics of Solids, Structural Analysis, Steel Structure Design,

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
2	0	0	4	4	00	00	00	00	20	50	20	50	100

Course Objective:

1. 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.
2. It is also aims to explore alternate structural forms and deriving cost effective solution for any project.
3. Use of computational tools to solve the problem.

Subject Contents			
Sr. No	Topic	Total Hours	Weightage (%)
1	➤ The project work is chosen / allotted individually on Various Steel structures. ➤ 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: 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.	48	100

Term-Work:

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.

Course Outcome:

After learning the course, the students should be able to:

1. Use computational tool for modeling, analyzing & designing structures using relevant codes. Skill Development
2. Prepare site visit reports. Employability
3. Prepare detailed design report. Employability

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

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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. Subramanyan, 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

E-Resources (If any):

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

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Use a computational tool for modeling, analyzing & designing structures using relevant codes.	L-1 and L-2
CLO2	Prepare site visit reports.	L-3 L-4 and L-5
CLO3	Prepare detailed design report.	L-5

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with POs & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CLO1	M	M	H	M	M	M	M	M	M			M	M		M
CLO2	M	M	M	M		M		M	M			M	M		
CLO3	M	M	M	M	H	M		M	M			H	M	H	M

H: High, M: Medium, L: Low