

**Sardar Patel College of Engineering Andheri (West), Mumbai 400 058**  
**Year: 2023-24**



**Bharatiya Vidya Bhavan's**  
**SARDAR PATEL COLLEGE OF ENGINEERING**  
(Government Aided Autonomous Institute under Mumbai University)  
Andheri (W), Mumbai - 400058



**M.Tech. in Civil Engineering with**  
**Structural Engineering Courses**  
**Academic Evaluation Scheme/Credit System**  
**Year: 2023-2024**  
**Regulation 23 (R23)**

**Sardar Patel College of Engineering Andheri (West), Mumbai 400 058**  
**Year: 2023-24**

Scheme for F.Y.M.Tech. in Civil Engineering with Structural Engineering Courses, (Semester - I) R23 Academic Year 2023-24														
Sr No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T1	T2	IE	Points	Time (Hrs)			
<b>Core Courses</b>														
1	Structural Dynamics	PC-MTSE101	3	--	1	4	15	15	20	100	3	50%	25	125
2	Advanced Theory of structures	PC-MTSE102	3	--	0	3	15	15	20	100	3	50%	--	100
3	Research Methodology and IPR	PC-MTSE103	2	--	1	3	15	15	20	100	3	50%	25	125
<b>Program Elective Courses</b>														
4	Program Elective-I	PE-MTSE111-114	3	--	0	3	15	15	20	100	3	50%	--	100
5	Program Elective-II	PE-MTSE121-124	3	--	0	3	15	15	20	100	3	50%	--	100
6	Program Elective-III	PE-MTSE131-134	3	--	0	3	15	15	20	100	3	50%	--	100
<b>Laboratory Courses</b>														
7	Advanced Concrete Lab	PC-MTSE151	--	2	--	1	--	--	--	--	--	--	50	50
<b>Vocational and Skill Enhancement</b>														
8	Numerical Analysis Lab	SE-MTSE152	--	4	--	2	--	--	--	--	--	--	50	50
<b>Indian Knowledge System Course</b>														
9	Indian Knowledge System Course	IK-MTSE101-102	2	--	--	2	15	15	20	50	2	100%	0	100
	<b>TOTAL</b>					<b>24</b>								

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Program Elective-I Courses

<b>Sr. No.</b>	<b>Code</b>	<b>Elective</b>
1.	PE-MTSE111	Analysis of Composite Structures
2.	PE-MTSE112	Advanced Foundation Engineering
3.	PE-MTSE113	Design of Pre-stressed Concrete Structures
4.	PE-MTSE114	Advanced Concrete Technology

Program Elective-II Courses

<b>Sr. No.</b>	<b>Code</b>	<b>Elective</b>
1	PE-MTSE121	Non Linear Analysis
2	PE-MTSE122	Numerical Methods
3.	PE-MTSE123	Structural Optimization
4.	PE-MTSE124	Advanced Design of Steel Structures

Program Elective-III Courses

<b>Sr. No.</b>	<b>Code</b>	<b>Elective</b>
1.	PE-MTSE131	Advanced Solid Mechanics
2	PE-MTSE132	Analysis of Laminated Composite Plates
3	PE-MTSE133	Fracture Mechanics Of Concrete Structures
4	PE-MTSE134	Design Of Plates And Shells

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Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T1	T2	IE	Points	Time (Hrs)			
<b>Core Courses</b>														
1	Finite Element Analysis	PC-MTSE201	3	0	1	4	15	15	20	100	3	50%	25	125
2	Earthquake Engineering	PC-MTSE202	3	0	1	4	15	15	20	100	3	50%	25	125
3	Seminar/ Mini Project	PC-MTSE203	--	4	--	2	15	15	--	--	--	--	100*	100*
<b>Program Elective Course</b>														
4	Program Elective-IV	PE-MTSE211-213	3	--	--	3	15	15	20	100	3	50%	0	100
5	Program Elective-V	PE-MTSE221-224	3	--	--	3	15	15	20	100	3	50%	0	100
<b>Open Elective Course</b>														
6	Open Elective	OE-MTSE201-202	3	--	--	3	15	15	20	100	3	50%	0	100
<b>Vocational and Skill Enhancement</b>														
7	Earthquake Engineering and Model Testing Lab	SE-MTSE201	--	4	--	2	-	-	-	-	--	--	50	50
<b>Laboratory Course</b>														
8	Structural Design Lab	PC-MTSE202	--	4	--	2	-	-	-	--	--	--	50	50
9	Ability Enhancement Course	AE-MTSE201-202	2			2	15	15	20	100	3	50%	0	100
	<b>TOTAL</b>					<b>25</b>								

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Program Elective – IV Courses

<b>Sr. No.</b>	<b>Code</b>	<b>Elective</b>
1.	PE-MTSE211	Bridge Engineering
2	PE-MTSE212	Analysis of Offshore Structures
3	PE-MTSE213	Deterioration, Instrumentation and Rehabilitation of Structures

Program Elective –V Courses

<b>Sr. No.</b>	<b>Code</b>	<b>Elective</b>
1.	PE-MTSE221	Advanced Design of Concrete Structures
2	PE-MTSE222	Theory of Plates
3	PE-MTSE223	Reliability of structures
4	PE-MTSE224	Theory of Shells
5	PE-MTSE225	NPTEL course

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Scheme for S.Y.M.Tech. in Civil Engineering with Structural Engineering Courses, (Semester - III) R23 Academic Year 2023-24														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T1	T2	IE	Points	Time (Hrs)			
Value Education Course														
1	Value Education Course	VE-MTSE301-302	2	-	-	2	15	15	20	100	3	50%	0	100
Field or Community Engagement Project														
2	Field or Community Engagement Project	CEP-MTSE301				2	\$\$\$\$Continuos evaluation shall be defined by course instructor or activity evaluator							100
Internship or Project														
							Report 1		Report 2		Seminar 1	Seminar 2		
3	Internship /Dissertation	DS-MTSE 301	4+24 <sup>\$</sup>			14	50*		100*		50*	100*		300
	TOTAL		06	--	24	18								500

\* Examined by supervisor and at least one internal examiner.

\$ - Contact hours with supervisor/mentor/guide = 4, Self learning hours = 24

Report 1 and Seminar 1 shall be based on Literature Survey on selected topic.

Report 2 and Seminar 2 shall be based on research gap, problem definition and methodology.

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Scheme for S.Y.M.Tech. in Civil Engineering with Structural Engineering Courses, (Semester - IV) R23 Academic Year 2023-24														
Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Term work / Practical	Total Points
			L	P	T		T1	T2	IE	Points	Time (Hrs)			
Cocurricular Activity														
1	Co curricular course/activity/ Stress Management by Yoga	CC-MTSE401	-	-	1	1	\$\$\$\$Continuos evaluation shall be defined by course instructor or activity evaluator							100
Internship or Project														
							Report 1		Report 2		Seminar 1	Seminar 2		
2	Dissertation	DS-MTSE401	4+24\$			14	50*		100*		50*	100**	300	
	TOTAL		04	-	25	15							400	

Final Dissertation Viva-Voce will be conducted only if candidate has passed all lower semester examinations.

\* Examined by supervisor and at least one internal examiner

\*\* Examined by supervisor and one approved external examiner.

\$ -Contact hours with mentor/supervisor/guide=4, -Self learning hours=24

Report 1 and Seminar 1 shall be based on pre synopsis

Report 2 and Seminar 2 shall be based on Final presentation and dissertation viva voce

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**List of Ability Enhancement Courses**

Sr. No.	Code	Courses
1	AE-MTSE201	English for research paper writing
2	AE-MTSE202	Project Planning and Management

**List of Indian Knowledge System**

Sr. No.	Code	Courses	Sr. No.	Code	Audit Courses
1	IK-MTSE101	Constitution of India	2	IK-MTSE102	Related NPTEL/SWAYAM Courses

**List of Value Education Course**

Sr. No.	Code	Courses	Sr. No.	Code	Courses
1	VE-MTSE301	Disaster Management	2	VE-MTSE302	Related NPTEL/SWAYAM Courses

**Open Elective**

Sr. No.	Code	Elective
1	OE-MTSE201	Operations Research
2	OE-MTSE202	Legal Aspects in Construction



**Evaluation for R23**

1. For passing, student must secure minimum 50% marks in each course with all heads of passing taken together and minimum 50% marks in the end semester examination.
2. Department will offer online course as Program Elective or Open Elective courses subject to availability of a course on <https://swayam.gov.in/>, and NPTEL and availability of internal resources. The assessment criteria for these courses will be as per swayam / NPTEL. After evaluation grades will be awarded as per institute criteria. 2, 3 Credits will be assigned for online courses of 8 and 12 weeks respectively.
3. Student must choose three program elective courses from those offered by the department in the semester.
4. Assessment criteria for Laboratory/Tutorial work i.e. weightage for assessment shall be as follows: (i) Attendance in Laboratory/Tutorial = 20% (ii) Journal/Drawing sheet/Sketch book = 40% (iii) MCQ/oral/test = 40% (5) L – Lecture P – Lab T - Tutorial
  - \* 50 Marks for seminar / mini project evaluation and 50 for presentation. The seminar / mini project report should be evaluated by supervisor and at least one internal examiner.
  - \* Note 1: 50 Marks for seminar / mini project evaluation and 50 for presentation. Note 2: The seminar report should be evaluated by supervisor and at least one internal examiner.
5. T1, T2: The courses under the category “Theory courses (PC, PE, OE)” and “Ability Enhancement Courses(AE)”. the evaluation is based on Test of 15 points each for one hour duration. Tentatively the first two modules of the course content will be covered in T1 and third and fourth modules of the course content will be covered in T2. Any change in the same will be informed by the course instructor.

The courses under the category “Skill Enhancement”, “Value Education” and Indian Knowledge system”, the evaluation is based on activity (Presentation, Test, Mini project, Field project, Practical Examination) of 15 points each. This evaluation shall be conducted by course instructor.
6. IE: Internal Evaluation will be carried out by course instructor for 20 points. It is the continuous evaluation through out the semester.

The evaluation will be based on minimum three of the following activities decided by course instructor. The maximum points that can be assigned to one activity will be 07. The course instructor needs to inform the students and head of the department about the activities those will be considered for IE and the points assigned to them in first week of semester. The course instructor will submit the internal evaluation points (out of 20 with activity wise break up) to examination section before the beginning of End Semester examination.

List of Activities: 1. Class Involvement 2. Assignments 3. Problem Solving 4. Mini project 5. Quizzes 6. Presentation 7. Oral
7. End semester evaluation: The courses under the category “Theory courses” and “Ability Enhancement Courses”. the evaluation is based on End semester examination of 100 points. **The end semester examination will cover all the modules of the course content.**

The courses under the category “Skill Enhancement”, “Value Education” and “Indian knowledge system”, the evaluation is based on activity (Presentation, Test, Mini project, Field project, Practical Examination).
8. \$\$\$\$ The evaluation for Co curricular course/ activity shall be defined by course instructor or activity evaluator. The evaluation of points shall be carried out through out the semester and the grade Pass/ No pass will be awarded which will not be considered for CPI calculation.

**Note: Refer Academic and Examination rules and regulations for further details.**