

VISION OF THE DEPARTMENT

The Department will be an internationally recognized centre for value based learning, research and consultancy in Civil Engineering and will produce competent Civil Engineers having commitment to national development.

MISSION OF THE DEPARTMENT

1. To impart high quality Civil Engineering education through competent faculty, modern labs and facilities.
2. To engage in R & D activities and to provide state-of-the-art consultancy services addressing Civil Engineering challenges of the society.
3. To nurture social purpose in Civil Engineers through collaborations.

PROGRAMME EDUCATIONAL OBJECTIVES

Civil Engineering graduates are expected to attain the following program educational objectives (PEOs) 3-5 years after Post-Graduation. Our Postgraduates will be professionals who will be able to

- Deliver competent services in the field of Structural Engg., with a knowledge of the principles of engineering and the theories of science that underlie them;
- Continue their professional development, nurture research attitude, and life-long learning with scientific temperament;
- Exercise leadership quality and professional integrity, with a commitment to the societal needs and sustainable development.

PROGRAMME SPECIFIC OUTCOMES

Graduates of the Programme will have:

1. In-depth knowledge in Structural Engineering to evaluate, analyze and design of structures.
2. Inclination towards research of new methods of design and construction using innovative materials.
3. Professional ethics, integrity, teamwork and leadership qualities.

GRADUATES ATTRIBUTES

1. Scholarship of knowledge

Acquire in depth knowledge of specific discipline or professional area, including wider and global perspective, with an ability to discriminate, evaluate, analyse and synthesize existing and new knowledge and integration of the same for enhancement of knowledge.

2. Critical thinking

Analyze complex engineering problems critically; apply independent judgment for synthesizing information to make intellectual and/or creative advances for conducting research in a wider theoretical, practical and policy context.

3. Problem solving

Think laterally and originally, conceptualize and solve engineering problems, evaluate a wide range of potential solutions for those problems and arrive at feasible, optimal solutions after considering public health and safety, cultural, societal and environmental factors in the core areas of expertise.

4. Research skill

Extract information pertinent to unfamiliar problems through literature survey and experiments, apply appropriate research methodologies, techniques and tools, design, conduct experiments, analyze and interpret data, demonstrate higher order skill and view things in a broader perspective, contribute individually/in group to the development of scientific/technological knowledge in one or more domains of engineering.

5. Usage of modern tools

Create, select, learn and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. Collaborative and multidisciplinary work

Possess knowledge and understanding of group dynamic, recognize opportunities and contribute positively to collaborative- multidisciplinary scientific research, demonstrate a capacity for self-management and teamwork, decision making based on open-mindedness, objectivity and rational analysis in order to achieve common goals and further the learning of themselves as well as others.

7. Project management and finance

Demonstrate knowledge and understanding of engineering and management principles and apply the same to one's own work, as a member and leader in a team, manage projects efficiently in respective disciplines and multidisciplinary environments after consideration of economical; and financial factors.

8. Communication

Communicate with the engineering community, and with society at large, regarding complex engineering activities confidently and effectively such as, being able to comprehend and write effective reports and design documentation by adhering to appropriate standards, make effective presentations, and give and receive clear instructions.

9. Life – long learning

Recognize the need for and have the preparation and ability to engage in life – long learning independently, with a high level of enthusiasm and commitment to improve knowledge and competence continuously.

10. Ethical practices and social responsibility

Acquire professional and intellectual integrity, professional code of conduct, ethics of research and scholarship, consideration of the impact of research outcomes on professional practices and an understanding of responsibility to contribute to the community for sustainable development of society.

11. Independent and reflective learning

Observe and examine critically the outcomes of one's actions and make corrective measures subsequently and learn from mistakes without depending on external feedback.

PROGRAMME OUTCOMES**The M.Tech. Graduates from the Department will:**

PO1: An ability to independently carry out research/ investigation and development work to solve practical problem in the field of Structural Engineering

PO2: An ability to write and present a substantial technical report/document

PO3: Students should be able to demonstrate a degree of mastery in the field of Structural Engineering

PO4: An ability to use the modern tools to model and design Structural Engineering systems.

PO5: Ability to apply the principles of engineering, management and finance to execute/implement/accomplish structural engineering and multidisciplinary projects in the context of rapid technological advances.

SUGGESTED PLAN OF STUDY

Semester → Sl. No	I	II	III	IV
1	AEM1C01	MSE2C01	MSE3MOXX	MSE4C01
2	MSE1C01	MSE2C02	MSE3MXX	-
3	MSE1C02	MSE2C03	MSE3C02	-
4	MSE1C03	MSE2C04	MSE3C03	-
5	MSE1E1XX	MSE2E3XX	MSE3C04	-
6	MSE1E2XX	MSE2E4XX	-	-
7	MSE1CRM	MSE2IXX	-	-
8	MSE1L01	MSE2L01	-	-
Total Credits	27	27	19	15

Table of total credits to be earned by a student**Degree Requirements:**

Category of courses	Minimum credits to be earned by regular students
Core Courses	38
Credits for Departmental Elective	12
Credits for Industry Driven Elective	2
Credits for Open Elective	2
Credits for Research Methodology	2
Credits for Engg. Management, Engg. Economics, Financial Management & Ethics	3
Credits for Seminar/Paper presentation	1
Credits for Internship	5
Credits for Project	23
Total Credits	88

LIST OF COURSES OFFERED AS PER CATEGORY

Core - Theory

AEM1C01 Applied Engineering Mathematics	(4-0-0)	4
MSE1C01 Structural Dynamics and Earthquake Engineering	(4-2-0)	5
MSE1C02 Advanced Design of RC Structures	(4-2-0)	5
MSE1C03 Theory of Elasticity	(3-2-0)	4
MSE1CRM Research Methodology	(2-0-0)	2
MSE2C01 Safety of Structures	(4-2-0)	5
MSE2C02 Design of Steel Structures	(4-2-0)	5
MSE2C03 Finite Element Analysis	(4-0-0)	4
MSE2C04 Fire Resistance of Structures	(3-2-0)	4

Core - Lab

MSE1L01 Structural Engineering Laboratory	(0-0-2)	1
MSE2L01 Computational laboratory	(0-0-2)	1

Electives

MSE1E1XX Department Elective-1	(3-0-0)	3
MSE1E2XX Department Elective-2	(3-0-0)	3
MSE2E3XX Department Elective-3	(3-0-0)	3
MSE2E4XX Department Elective-4	(3-0-0)	3
MSE2IXX Industry Driven Elective	(2-0-0)	2
MSE3MOXX Open Elective	(2-0-0)	2
MSE3MXX Engineering Management	(3-0-0)	3

Project, Seminar, etc.,

MSE3C02 Seminar/Paper Presentation	(0-0-0)	1
MSE3C03 Internship	(0-0-0)	5
MSE3C04 Project Phase-I	(0-0-0)	8
MSE4C01 Project Phase-II	(0-0-0)	15

Course Numbering Scheme

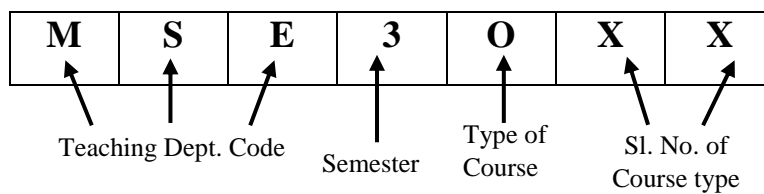
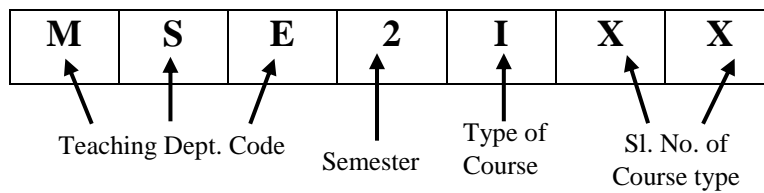
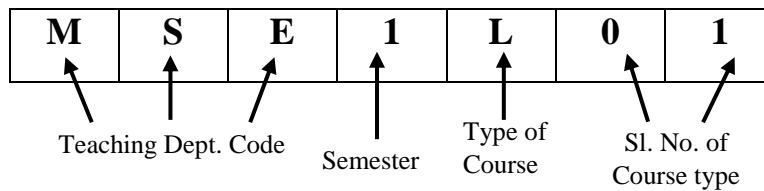
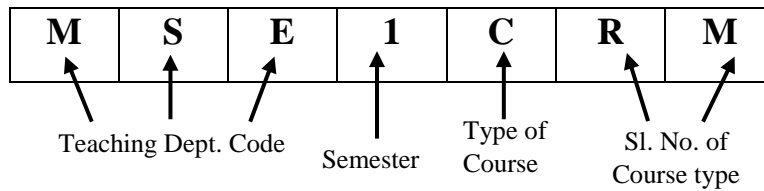
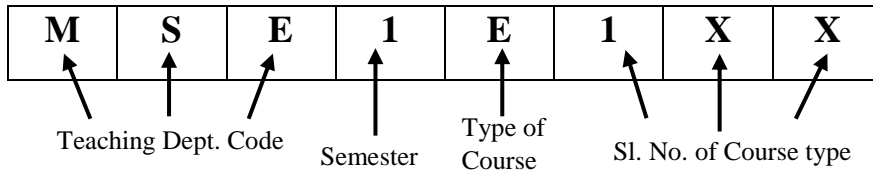
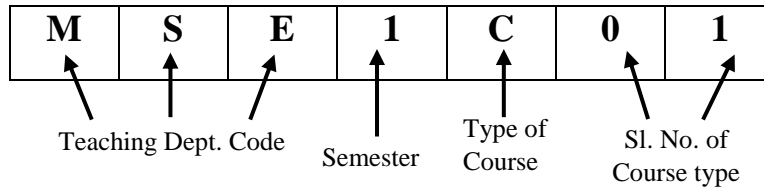


TABLE OF SCHEME AND EXAMINATION FROM 1ST TO 4TH SEMESTER**I SEMESTER**

DEPARTMENT OF CIVIL ENGINEERING SCHEME OF TEACHING AND EXAMINATION I SEMESTER M.Tech. Structural Engineering (AUTONOMOUS SCHEME)						
Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	AEM1C01	Applied Engineering Mathematics	4	0	0	4
2	MSE1C01	Structural Dynamics and Earthquake Engineering	4	2	0	5
3	MSE1C02	Advanced Design of RC Structures	4	2	0	5
4	MSE1C03	Theory of Elasticity	3	2	0	4
5	MSE1E1XX	Department Elective-1	3	0	0	3
6	MSE1E2XX	Department Elective-2	3	0	0	3
7	MSE1CRM	Research Methodology	2	0	0	2
8	MSE1L01	Structural Engineering Laboratory	0	0	2	1
Total			31			27

Department Elective -1

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE1E101	Repair, Rehabilitation and Maintenance of Structures	3	0	0	3
2	MSE1E102	Advanced Bridge Engineering	3	0	0	3
3	MSE1E103	Prefabricated Structures	3	0	0	3

Department Elective -2

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE1E201	Analysis and Design of Sub Structures	3	0	0	3
2	MSE1E202	Introduction to Structural Optimization	2	0	1	3
3	MSE1E203	Stability of Structures	3	0	0	3

II SEMESTER

DEPARTMENT OF CIVIL ENGINEERING SCHEME OF TEACHING AND EXAMINATION II SEMESTER M.Tech. Structural Engineering (AUTONOMOUS SCHEME)						
Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE2C01	Safety of Structures	4	2	0	5
2	MSE2C02	Design of Steel Structures	4	2	0	5
3	MSE2C03	Finite Element Analysis	4	0	0	4
4	MSE2C04	Fire Resistance of Structures	3	2	0	4
5	MSE2E3XX	Department Elective-3	3	0	0	3
6	MSE2E4XX	Department Elective-4	3	0	0	3
7	MSE2IXX	Industry Driven Elective	2	0	0	2
8	MSE2L01	Computational laboratory	0	0	2	1
Total			31			27

Department Elective -3

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE2E301	Masonry Structures	3	0	0	3
2	MSE2E302	Theory of Plates and Shells	3	0	0	3
3	MSE2E303	Prestressed Concrete	3	0	0	3

Department Elective - 4

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE2E401	Design of Storage Structures	3	0	0	3
2	MSE2E402	Continuum Mechanics	3	0	0	3
3	MSE2E403	Fracture Mechanics	3	0	0	3

III SEMESTER

DEPARTMENT OF CIVIL ENGINEERING SCHEME OF TEACHING AND EXAMINATION III SEMESTER M.Tech. Structural Engineering (AUTONOMOUS SCHEME)						
Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE3MOXX	Open Elective (MOOC) (8 Weeks) from other department	2	0	0	2
2	MSE3MXX	MOOC Elective (12 Weeks) Management department	3	0	0	3
3	MSE3C02	Seminar/Paper Presentation	0	0	0	1
4	MSE3C03	Internship	0	0	0	5
5	MSE3C04	Project Phase-I	0	0	0	8
Total			5			19

Open Elective (MOOC)

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE3MOXX	Open Elective (MOOC) (8 Weeks) from other department	2	0	0	2

MOOC Elective

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE3MXX	MOOC Elective (12 Weeks) Management department	3	0	0	3

IV SEMESTER

DEPARTMENT OF CIVIL ENGINEERING SCHEME OF TEACHING AND EXAMINATION IV SEMESTER M.Tech. Structural Engineering (AUTONOMOUS SCHEME)						
Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	MSE4C01	Project Phase-II	0	0	0	15
Total						15