School of Engineering & Sciences

MIT-ADT UNIVERSITY
PUNE, INDIA
A Leap Towards World Class Education

Programme Curriculum

BACHELOR OF TECHNOLOGY

PATTERN 2023

Civil Engineering

Faculty of Engineering & Sciences

MIT-ADT UNIVERSITY
PUNE, INDIA
A Leap Towards World Class Education

SCHOOL OF ENGINEERING & SCIENCES, PUNE

STRUCTURE & SYLLABUS

FOR

Bachelor of Technology

Civil Engineering

(S.Y.B. Tech)

UNDER FACULTY OF ENGINEERING AND SCIENCES

4 Year Undergraduate Course sanctioned by AC & BoS

(pattern 2023 w.e.f. 2023-2024)

Department of Civil Engineering

MIT- Art Design & Technology University

School of Engineering & Sciences

Department of Civil Engineering

VISION

Strive to build industry ready engineers having proficient and leadership qualities with capacity to undertake professional and research assignments in civil engineering with an interdisciplinary approach, for Sustainable Development.

MISSION

- To foster intellectual curiosity, build community empowered lives committed to purpose service, and leadership.
- To promote and undertake research as a step towards sustainability development.
- To Strengthen Societal Association with all stakeholders for holistic development of humanity.
- To Mentor students for innovative thinking with relevance to Entrepreneurship.

Program Educational Objectives (PEO's) – Civil Engineering

The program is expected to enable the students:

1. **PEO1:** Have a successful profession in the varied sectors of the engineering Industry and/or higher studies by acquiring knowledge in mathematical, scientific, and engineering fundamentals.

2. **PEO2:** Evaluate and design Civil engineering structures with social perception and responsibility.

3. **PEO3:** Exhibit expertise, moral approach, communication skills, collaboration in their career and modify modern techniques by engaging oneself in constant learning.

Graduate Attributes (GA)

1. Engineering Knowledge
2. Problem Analysis
3. Design/ Development of Solutions:
4. Conduct investigations of complex problems
5. Modern Tool Usage
6. The Engineer and Society
7. Environment and Sustainability
8. Ethics
9. Individual and Team Work
10. Communication
11. Project Management and Finance
12. Life-long Learning

Program Outcomes as defined by NBA (PO)

Engineering Graduates will be able to:

1. **PO1 - Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **PO2 - Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **PO3 - Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **PO4 - Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **PO5 - Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
6. **PO6 - The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **PO7 - Environment and sustainability:** Understand the impact of the professional

engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **PO8 - Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **PO9 - Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **PO10 - Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **PO11 - Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **PO12 - Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSO) – Civil Engineering

The program is expected to be delivered at the time of graduation:

1. **PSO's 1:** Enhance employability and/or entrepreneur skills through in-house and onsite training.

2. **PSO's 2:** Provide solutions/procedures to societal and rural development problems through research and innovative practices.

3. **PSO's 3:** To contribute to sustainable infrastructure development by incorporating environment friendly practices, optimizing resource utilization, and addressing resilience

Index - Sem I

SN	SEM	YR	BOS	LEV	CODE	REV	CATE	COURSE NAME	CR	L	T	P	HRS	CA	FE	TOTAL (T)	CA	FE	TOTAL (P)	GRAND TOTAL	REMARKS
1	1	23	ASH	1	101	0	BSC	APPLIED SCIENCE	5	4	0	1	60	50	50	100	50	0	50	150	Common for all depts. of SOES Sem I or II
2	1	23	ASH	1	111	0	BSC	LINEAR ALGEBRA AND CALCULUS	4	3	0	1	45	50	50	100	0	0	0	100	Common for all depts. of SOES
3	1	23	CIV	1	101	0	ESC	BASICS OF CIVIL ENGINEERING AND SURVEYING	4	3	0	2	5	50	50	100	50	0	50	150	Branch Specific
4	1	23	MEC	1	101	0	ESC	BASICS OF MECHANICAL ENGINEERING	4	3	0	2	45	50	50	100	50	0	50	150	Branch Specific
5	1	23	ECE	1	103	0	ESC	ELECTRONICS INSTRUMENTATION AND MEASUREMENTS	3	2	0	2	60	50	50	100	50	0	50	150	Branch Specific
6	1	23	MEC	1	103	0	ESC	ENGINEERING GRAPHICS & DESIGN	3	1	0	4	60	0	0	0	50	50	100	100	Common for all depts. of SOES Sem I or II
7	1	23	MEC	1	102	0	ESC	ENGINEERING WORKSHOP (MANUFACTURING PRACTICE)	2	0	0	4	60	0	0	0	100	0	100	100	Common for all depts. of SOES Sem I or II
8	2	23	ECE	1	101	0	ESC	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	4	3	0	2	T:45 P:30	50	50	100	50	0	50	150	Common for all depts. of SOES Sem I or II
9	1	23	ECE	0	102	0	ESC	PROGRAMMING FOR PROBLEM SOLVING (LAB)	3	1	0	4	T:15 P:60	0	0	0	50	50	100	100	Common for all depts. of SOES
10	1	23	CIV	1	102	0	VEC	ENVIRONMENT SCIENCE	0	2	0	0	30	0	0	0	0	0	0	0	Common for all depts. of SOES
11	1	23	SHD	1	107	0	AEC	ENGLISH COMMUNICATION FOR ENGINEERS	2	1	0	2	30	50	0	50	100	0	0	100	Common for all depts. of SOES
12	1	23	SHD	1	108	-	IKS	HEALTH & WELL BEING - 1	1	0	0	2	30	0	0	0	50	0	50	50	Common for all depts. of SOES
13	1	23	AER	1	101	0	HSMC-MC	THERMODYNAMICS	3	3	0	0	45	50	50	100	0	0	0	100	Branch Specific

Note: Some courses are common for all departments of SOES which are in sem I or II. These courses are shown in index of sem I.

SEMESTER-III

SN	COURSE CODE					CATG	COURSE NAME	CREDIT DISTRIBUTION					THEORY			PRACTICAL			GRAND TOTAL
	YR	BOS	LEV	SR	REV			CR	L	T	P	HRS	CA	FE	TOTAL	CA	FE	TOTAL	
1.	23	ASH	1	133	0	BSC	CALCULUS AND NUMERICAL TECHNIQUES	3	3	-	-	3	50	50	100	-	-	-	100
2.	23	CIV	1	301	0	PCC	BUILDING CONSTRUCTION TECHNOLOGY	3	3	-	-	3	50	50	100	-	-	-	100
3.	23	CIV	2	302	0	PCC	MECHANICS OF SOLIDS	4	3	1	-	3	50	50	100	-	-	-	100
4.	23	CIV	1	303	0	PCC	CONCRETE TECHNOLOGY	3	3	-	-	3	50	50	100	-	-	-	100
5.	23	CIV	1	331	0	PCC	CONCRETE TECHNOLOGY LAB	1	-	-	2	2	-	-	-	50	50	100	100
6.	23	MID	2	102	0	SEC	INNOVATION, ENTREPRENUERSHIP & IDEA LABORATORY	3	2	-	2	4	-	-	-	50	50	100	100
7.	23	SHD	1	xxx	0	CC-LL	CREATIVE AND PERFORMING ARTS	1	-	-	2	2	-	-	-	100	-	100	100
8.	23	CIV	2	341	0	PRJ-FP	MINI PROJECT-I	1	-	-	2	2	-	-	-	50	50	100	100
TOTAL								**19**	**14**	**1**	**8**	**22**	**200**	**200**	**400**	**250**	**150**	**400**	**800**

SEMESTER-IV

SN	COURSE CODE					CATG	COURSE NAME	CREDIT DISTRIBUTION					THEORY			PRACTICAL			GRAND TOTAL
	YR	BOS	LEV	SR	REV			CR	L	T	P	HRS	CA	FE	TOTAL	CA	FE	TOTAL	
1	23	CIV	2	401	0	PCC	BUILDING PLANNING AND DRAWING	4	2	-	4	6	50	50	100	50	-	50	150
2	23	CIV	1	402	0	PCC	FLUID MECHANICS	4	3	-	2	5	50	50	100	50	-	50	150
3	23	CIV	2	403	0	PCC	THEORY OF STRUCTURES I	3	3	-	-	3	50	50	100	-	-	-	100
4	23	CIV	1	404	0	PCC	GEOTECHNICAL ENGINEERING	3	3	-	-	3	50	50	100	-	-	-	100
5	23	CIV	2	405	0	PCC	ADVANCE SURVEYING AND GEOMATICS	3	3	-	-	3	50	50	100	-	-	-	100
6	23	CIV	3	421	0	MDM OE	UNIVERSITY /VOC-4 / SWAYAM, NPTEL SUBJECTS	3	3	-	2	5	50	50	100	-	-	-	100
7	23	CIV	1	431	0	PCC	GEOTECHNICAL ENGINEERING LAB	1	-	-	2	2	-	-	-	50	50	100	100
8	23	CIV	2	432	0	PCC	ADVANCE SURVEYING AND GEOMATICS LAB	1	-	-	2	2	-	-	-	50	50	100	100
9	23	SCL	2	001	0	SEC	APTITUDE & PROFESSIONAL SKILLS - FOUNDATION	2	2	-	-	2	-	-	-	50	50	100	100
10	23	SHD	1	xxx	0	CC-LL	CREATIVE AND PERFORMING ARTS	1	-	-	2	2	-	-	-	100	-	100	100
11	23	CIV	2	441	0	PRJ-ENG	MINI PROJECT-II	1	-	-	2	2	-	-	-	50	50	100	100
TOTAL								**26**	**19**	**0**	**16**	**35**	**300**	**300**	**600**	**400**	**200**	**600**	**1200**