School of Engineering & Sciences

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

Programme Curriculum

BACHELOR OF TECHNOLOGY

PATTERN 2023

Electronics & Computer 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

Electronics & Computer Engineering

(S.Y.B. Tech)

UNDER FACULTY OF ENGINEERING AND SCIENCES

4 Year Under Graduate Course sanctioned by AC & BoS

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

Department of Electronics & Communication Engineering

MIT Art Design & Technology University School of Engineering &Sciences

Department of Electronics & Communication Engineering

VISION

To be global leaders in the field of Electronics & Communication Engineering by offering quality education through industry collaboration, innovation, research and development to cater the needs of society with holistic approach.

MISSION

1 To provide quality education in the field of Electronics & Communication Engineering.
2 To inculcate research and innovation culture among the stake holders.
3 To enhance technical and inter personal skills among the students to make them employable and successful entrepreneur.
4 To provide ethical, spiritual and value-based education addressing the social needs.

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. **O10 - 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 Educational Objectives (PEO's) – Electronics & Computer Engineering

The program is expected to enable the students:

1. **PEO-1:** Graduates should demonstrate a strong foundation in the principles of electronics and computer engineering, including competence in the design, analysis, and implementation of electronic systems and computer-based solutions.

2. **PEO-2**: Graduates should be prepared for successful careers in electronics and computer engineering on the basis of professional skills, ethical conduct, and an understanding of contemporary issues in the field.

3. **PEO-3:** Graduates should be capable of expressing technical ideas clearly and concisely, both in written and oral formats.

4. **PEO-4:** Graduates should be adept at working collaboratively in multidisciplinary teams, recognizing and respecting diverse perspectives, and contributing effectively to achieve common goals.

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 Specific Outcomes (PSO) – Electronics & Computer Engineering

The program is expected to deliver at the time of graduation:

1. **PSO-1:** Identify, formulate, and analyze engineering problems related to electronics and computer engineering domains such as Digital Systems Design, Computer Architecture, Signal Processing, Embedded Systems, Computer Networks, Computer Vision, Software Engineering using appropriate methods and tools.

2. **PSO-2**: Design solutions for complex engineering problems in electronics and computer engineering, considering realistic constraints such as economic, environmental, ethical, health and safety, manufacturability, and sustainability.

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.

Syllabus Structure
B.Tech. Electronics & Computer Engineering

SEMESl'ER-III

SN	COURSE CODE					CATE GORY	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	131	-	BSC	INTEGRAL CALCULUS AND TRANSFORM TECHNIQUES (ECE)	3	2	1	-	3	50	50	100	-	-	-	100
2.	23	ECE	2	321	-	PCC	DATA STRUCTURE & ALGORITHMS	3	3	-	-	3	50	50	100	-	-	-	100
3.	23	ECE	2	322	-	PCC	SIGNALS & SYSTEMS	4	3	1	-	4	50	50	100	-	-	-	100
4.	23	ECE	2	323	-	PCC	DIGITAL LOGIC DESIGN	3	3	-	-	3	50	50	100	-	-	-	100
5.	23	ECE	2	324	-	PCC	COMPUTER ORGANIZATION	3	3			3	50	50	100	-	-	-	100
6.	23	ECE	2	331	-	PCC	DATA STRUCTURE & ALGORITHM & DIGITAL LOGIC DESIGN LAB	2	-	-	4	4	-	-	-	50	50	100	100
7	23	MEC	2	902	-	SEC	INNOVATION, ENTREPRENEURSHIP & IDEA LAB	3	2	-	2	4	-	-	-	50	50	100	100
8	23	SHD	1	0X X	*	CC-LL	CREATIVE AND PERFORMANCE ARTS	1	-		2	2	-	-	-	100	-	100	100
9	23	ECE	2	315	-	PRJ-FP	MINI PROJECT-I	1	-	-	2	-	-	-	-	50	50	100	100
	TOTAL							**23**	**16**	**2**	**10**	**26**	**250**	**250**	**500**	**250**	**150**	**400**	**900**

Syllabus Structure
B.Tech. Electronics & Computer Engineering
SEMESTER-IV

SN	COURSE CODE					CATEGORY	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	ECE	2	421	-	PCC	SYSTEM PROGRAMMING & OPERATING SYSTEM	3	3	-	-	3	50	50	100	-	-	-	100
2.	23	ECE	2	422	-	PCC	COMPUTER GRAPHICS	3	3	-	-	3	50	50	100	-	-	-	100
3.	23	ECE	2	423	-	PCC	MICROPROCESSOR & MICROCONTROLLERS	3	3	-	-	3	50	50	100	-	-	-	100
4.	23	ECE	2	424	-	PCC	DATA BASE MANAGEMENT SYSTEM	3	3	-	-	3	50	50	100	-	-	-	100
5.	23	ECE	2	425	-	PCC	ANALOG & DIGITAL COMMUNICATION	3	3	-	-	3	50	50	100	-	-	-	100
6.	23	ECE	2	431	-	PCC	SYSTEM PROGRAMMING & OPERATING SYSTEM & DBMS LAB	2	-	-	4	4	-	-	-	50	50	100	100
7.	23	ECE	2	432	-	PCC	MICROPROCESSOR & MICROCONTROLLERS LAB	1	-	-	2	2	-	-	-	50	50	100	100
8.	23	ECE	2	433	-	PCC	ANALOG & DIGITAL COMMUNICATION LAB	1	-	-	2	2	-	-	-	50	50	100	100
9.	23		2		-	MDM-OE	UNIVERSITY / OTHER INSTITUTE -OPEN ELECTIVE	3	3	-	-	3	50	50	100	-	-	-	100
10.	23	ECE	2	435	-	PRJ-FP	MINI PROJECT-2	1	-	-	2	2	-	-	-	50	50	100	100
11.	23	SCL	2	001	-	SEC	APTITUDE AND PROFESSIONAL SKILL - FOUNDATION	2	1	-	2	3	-	-	-	50	50	100	100
12	23	SHD	1	0XX	*	CC-LL	CREATIVE AND PERFORMANCE ARTS	1	-		2	2	-	-	-	100	-	100	100
	TOTAL							**26**	**19**	**0**	**17**	**33**	**300**	**300**	**600**	**350**	**250**	**600**	**1,200**