School of Engineering

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

Programme Curriculum

BACHELOR OF TECHNOLOGY

PATTERN 2021

Electronics & Communication Engineering

Faculty of Engineering

MIT ART DESIGN & TECHNOLOGY UNIVERSITY, PUNE

MIT SCHOOL OF ENGINEERING , PUNE

STRUCTURE & SYLLABUS

FOR

Bachelor of Technology

Electronics and Communication Engineering

UNDER FACULTY OF ENGINEERING

4 Year Undergraduate Program sanctioned by AC & BoS

(w.e.f. 2021-2022)

Department of Electronics and 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

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

Program Educational Objectives (PEOs)

PEO 1

To develop engineering design, problem–solving skills and aptitude for innovations as anindividual and in multi-disciplinary teams and practice the ethics in profession consistently with a sense of social responsibility

PEO 2

Communicate effectively and manage resources competently as members andleaders of the profession

PEO 3

Be receptive to new technologies and attain professional competence through lifelong learning and other professional activities

Program Outcomes (PO) Engineering Graduates will be able TO

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, andanalyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **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. **Conduct investigations of complex problems**: Use research-based knowledge andresearch methods including design of experiments, analysis and interpretation ofdata, and synthesis of the information to provide valid conclusions.
5. **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. **The engineer and society**: Apply reasoning informed by the contextual knowledgeto assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **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. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a memberor leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities withthe 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. **Project management and finance**: Demonstrate knowledge and understanding ofthe 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. **Life-long learning**: Recognize the need for, and have the preparation and ability toengage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1

Apply the fundamental concepts of Electronics and Communication Engineering to design different systems for applications including Signal Processing, Image Processing, Communication, Networking, Embedded Systems, VLSI, Machine Learning, Data Science, Robotics and Control System

PSO2

Select and apply Cutting-Edge Engineering Hardware and Software Tools to solve complex Electronicsand Communication Engineering problems

SEMESTER III

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTMT301	Integral Calculus and Transform Techniques	3	1	0	4	40	60	100
21BTEC302	Electronics Circuit Analysis	3	0	0	3	40	60	100
21BTEC303	Signals & Systems	3	1	0	4	40	60	100
21BTEC304	Digital Logic Design	3	0	0	3	40	60	100
21BTEC305	Network Theory	3	1	0	4	40	60	100
21BTEC311	Electronic Instrumentation Laboratory	0	0	2	1	40	60**	100
21BTEC312	Circuit Analysis & Digital Logic Laboratory	0	0	4	2	40	60**	100
21BTEC321	Mini Project –I	0	0	2	1	100	--	100
Total		**15**	**3**	**8**	**22**	**380**	**420**	**800**

SEMESTER-IV

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTEC401	Data Structures and Algorithms	3	0	0	3	40	60	100
21BTEC402	Control Systems	3	1	0	4	40	60	100
21BTEC403	Analog Communication	4	0	0	4	40	60	100
21BTEC404	Computer Organization	3	1	0	4	40	60	100
21BTEC405	Linear Integrated Circuits	3	0	0	3	40	60	100
21BTEC411	Analog Communication and Linear Integrated Circuits Laboratory	0	0	4	2	40	60**	100
21BTEC412	Data Structures and Algorithms Laboratory	0	0	2	1	40	60**	100
21BTEC421	Mini Project-II	0	0	2	1	100	--	100
Total		**16**	**2**	**8**	**22**	**380**	**420**	**800**

SEMESTER-V

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTEC501	Power Electronics	4	0	0	4	40	60	100
21BTEC502	Digital Communication System	3	0	0	3	40	60	100
21BTEC503	Systems Programming	3	0	0	3	40	60	100
21BTEC504	Microprocessors & Microcontrollers	4	0	0	4	40	60	100
21BTEC505	Electromagnetics Field Theory	3	1	0	4	40	60	100
21BTEC511	Digital Communication&Power Electronics Laboratory	0	0	4	2	40	60**	100
21BTEC512	System Programming & Microprocessor & Microcontrollers Laboratory	0	0	4	2	40	60**	100
21BTEC521	Mini Project –III	0	0	2	1	100	--	100
Total		**17**	**1**	**10**	**23**	**380**	**420**	**800**

SEMESTER-VI

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTEC601	Digital Signal Processing	4	0	0	4	40	60	100
21BTEC602	Embedded Processors	3	0	0	3	40	60	100
21BTEC603	Engineering Economics and Management	4	0	0	4	40	60	100
21BTEC6[31-33]	Elective-I	3	1	0	4	40	60	100
21BTEC6[34-36]	Elective-II	4	0	0	4	40	60	100
21BTEC611	Embedded Processor & Elective-II Laboratory	0	0	4	2	40	60**	100
21BTEC612	Digital Signal Processing Laboratory	0	0	2	1	40	60**	100
21BTEC621	Mini Project-IV	0	0	2	1	100	--	100
Total		**18**	**1**	**8**	**23**	**380**	**420**	**800**

SEMESTER-VII

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTEC701	Computer Networks	3	0	0	3	40	60	100
21BTEC702	VLSI System Design	3	0	0	3	40	60	100
21BTEC703	Soft Computing	3	0	0	3	40	60	100
21BTEC7[31-34]	Elective-III	3	0	0	3	40	60	100
21BTEC7 [35-40]	Elective-IV	3	0	0	3	40	60	100
21BTEC711	Elective – III Laboratory	0	0	2	1	40	60**	100
21BTEC712	Computer Networks& VLSI Laboratory	0	0	4	2	40	60**	100
21BTEC721	Project Phase-I	0	0	2	1	100	--	100
Total		**15**	**0**	**8**	**19**	**380**	**420**	**800**

SEMESTER-VIII

Course Code	Course Name	Hours/week				Maximum Marks		
		Lecture	Tutorial	Practical	Credits	CA	FE	Total
21BTEC821	Project Phase-II	0	0	24	12	100	300	400
21BTEC801	Management Courses using Online Platform	3	0	0	3	40	60	100
21BTCE851	Environmental studies (Audit Course)	2	0	0	0	-	-	-
Total		**3**	**0**	**24**	**15**	**140**	**360**	**500**

List of Electives

Elective	Course Name	
Elective-I	21BTEC631	Mechatronics
	21BTEC632	Machine Learning with Python Programming
	21BTEC633	Open Electives
Elective-II	21BTEC634	Information Theory and Coding
	21BTEC635	Mobile Communication
	21BTEC636	Open Electives
Elective-III	21BTEC731	Digital Image Processing
	21BTEC732	Data science & Applications
	21BTEC733	PLC and Automation
	21BTEC734	Open Electives
Elective-IV	21BTEC735	Audio Video Engineering
	21BTEC736	Internet of Things
	21BTEC737	Software Defined Radio
	21BTEC738	Biomedical Signal Processing
	21BTEC739	Microwave & Satellite Communication
	21BTEC740	Open Electives