School of Engineering & Sciences

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

Programme Curriculum

BACHELOR OF TECHNOLOGY

PATTERN 2023

Aerospace 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

Aerospace 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 Aerospace Engineering

MIT- Art Design & Technology University

School of Engineering & Sciences

Department of Aerospace Engineering

VISION

To be a premier center of excellence in Aerospace Engineering education that generates professionals for successful careers at national and international levels in the aerospace industry and research organizations.

MISSION

To create dynamic Aerospace Engineering professionals to meet global technological challenges through research and innovation for the benefit of society.

Program Educational Objectives (PEO'S) for Aerospace Engineering:

A graduate of MIT ADT University in Aerospace Engineering discipline should have a successful career in Aerospace Engineering or a related field, and within three to five years should attain the following:

PEO – I: Preparation & Learning Environment:

To prepare and provide students with an academic environment for students to excel in postgraduate programs or to succeed in industry / technical profession and the life-long learning needed for a successful professional career in Aerospace Engineering and related fields.

PEO – II: Core Competence:

To provide students with a solid foundation in mathematical, scientific and engineering fundamentals required to solve engineering problems and also to pursue higher studies.

PEO – III: Breadth:

To train students with good scientific and engineering breadth so as to comprehend, analyze, design, and create novel products and solutions for real- life problems.

PEO – IV: Professionalism

To inculcate in students professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach, and an ability to relate engineering issues to broader social context.

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 (PO's) of UG in Engineering:

PO1	**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem Analysis:** Identity, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.
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 public health and safety, and cultural, societal, and environmental considerations.
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.
PO5	Modern tool usage: Create, select, 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.
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.

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.
PO8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
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.
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.
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's) for B. Tech in Aerospace Engineering

PSO1: Able to identify, formulate and solve engineering problems with the potential to design an Aerospace system, component, or process to meet desired needs within socio- economic and ethical values.

PSO2: Able to use the techniques, skills, and modern engineering tools necessary for Aerospace engineering practices.

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	YY	AAA	LEV	SRN	R	CATEGORY	COURSE NAME	CREDIT DISTRIBUTION					Theory			Practical			Total
								CR	L	T	P	HRS	CA	FE	Total	CA	FE	Total	
1	23	MEC	1	201	-	PCC	COMPUTATIONAL METHODS AND DATA ANALYTICS	4	3	-	2	4	50	50	100	-	-	-	100
2	23	AER	1	301	-	PCC	INTRODUCTION TO AEROSPACE ENGINEERING	3	3	-	-	3	50	50	100	-	-	-	100
3	23	AER	2	302	-	PCC	FLUID MECHANICS	3	3	-	-	3	50	50	100	-	-	-	100
4	23	AER	1	134	-	PCC	LINEAR DIFFERENTIAL EQUATIONS AND COMPLEX VARIABLES	3	2	1	-	3	50	50	100	-	-	-	100
5	23	AER	2	303	-	PCC	STRENGTH OF MATERIALS	4	3	-	2	4	50	50	100	-	-	-	100
6	23	AER	2	304	-	PCC	FLUID MECHANICS LABORATORY	1	-	-	2	2	-	-	-	50	50	100	100
7	23	AER	2	305	-	PCC	CADD LABORATORY	1	-	-	2	2	-	-	-	50	50	100	100
8	23	MEC	2	902	-	SEC	INNOVATION, ENTREPRENEURSHIP & IDEA LABORATORY	3	2	-	2	4	-	-	-	50	50	100	100
9	23	SHD	1	0XX	-	CC-LL	SHD | CREATIVE AND PERFORMANCE ARTS-1	1	-	-	2	2	-	-	-	100	-	100	100
10	23	SHD	1	107	-	AEC	SHD | SOCIETAL IMMERSION, SPIRITUALITY AND MORALITY - I	--	-	-	2	2	-	-	-	100	-	100	100
11	23	AER	2	306	-	PRJ-FP	MINI PROJECT-I	1	-	-	2	-	-	-	-	50	50	100	100
TOTAL								24	16	1	16	29	250	250	500	400	200	600	1100

*One subject to be chosen for "CREATIVE AND PERFORMING ARTS" basket from SHD.