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**PERIYAR
MANIAMMAI**
INSTITUTE OF SCIENCE & TECHNOLOGY
(Deemed to be University)
Established Under Sec. 3 of UGC Act, 1956 • NAAC Accredited
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Faculty of Engineering and Technology

Department of Aerospace Engineering

B.Tech. Aerospace Engineering

Curriculum Regulations 2024

**PERIYAR MANIAMMAI INSTITUTE OF
SCIENCE & TECHNOLOGY
Vallam, Thanjavur – 613 403.**

PERIYAR MANIAMMAI INSTITUTE OF SCIENCE & TECHNOLOGY
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF AEROSPACE ENGINEERING
B.Tech. Aerospace Engineering with Specialization in
Unmanned Aerial Vehicle
CURRICULUM – REGULATIONS 2024

Category of courses and minimum credit requirement for B.Tech. Aerospace Engineering with Specialization in Unmanned Aerial Vehicle programme as per Regulations 2024 are outlined below:

Sl. No.	Category of Courses	Credits
1.	Foundation Courses (Humanities and Social Sciences including Management Courses, Basic Science and Engineering Science Courses)	60
2.	Professional Core Courses	60
3.	Professional Elective Courses	18
4.	Open Elective Courses	09
5.	Online Courses	06
6.	Employability Enhancement Courses (Value-added, Community Engagement and Social Responsibility, Skill Development Courses, Soft and Managerial Skills, Internship, Mini-projects, and Capstone project)	27
7.	Audit Courses *	---
8.	Courses Lead to Specialization / Minor / Honours	20
	Total Credits	200

***Note:** Audit Courses such as Life Science, Environmental Science, Indian History etc., shall be introduced as they mandate the requirement of Outcome Based Education.

SEMESTER I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24EN101	Technical English	3	0	0	3
2	U24MA101	Matrices and Differential Calculus	3	1	0	4
3	U24CH151	Engineering Chemistry	3	0	0	3
4	U24GE101	Principles of Engineering	3	0	0	3
5	U24GE152	Engineering Graphics	2	1	0	3
6	U24EM101	Coding Techniques	3	0	0	3
Practical						
7	U24MA102	Mathematics Laboratory	0	0	2	1
8	U24CH152	Engineering Chemistry Laboratory	0	0	2	1
9	U24EM102	Coding Techniques Laboratory	0	0	2	1
Total			17	2	6	22

SEMESTER II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24EN151	Technical Communication Skill Development	2	0	2	3
2	U24MA151	Vector Calculus and Laplace Transforms	3	1	0	4
3	U24PH101	Engineering Physics	3	0	0	3
4	U24GE151	Design Thinking	3	0	0	3
5	U24GE102	Biology for Engineers	3	0	0	3
6	U24EM151	Programming in Practice	3	0	0	3
Practical						
7	U24PH102	Engineering Physics Laboratory	0	0	2	1
8	U24GE153	Design Thinking Laboratory	0	0	4	2
9	U24GE154	Engineering Practices	0	0	2	1
10	U24EM152	Programming in Practice Laboratory	0	0	2	1
Total			17	1	12	24

SEMESTER III

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24MA202	Fourier Transforms and Partial Differential Equations	3	1	0	4
2	U24SH201	Universal Human Values	2	1	0	3
3	U24GE201	Engineering Mechanics	3	0	0	3
4	U24AS201	Strength of Materials	3	0	0	3
5	U24AS202	Fluid Mechanics	3	0	0	3
6	U24AS203	Aero Engineering Thermodynamics	3	0	0	3
7	U24AS204	Principles of Aeromodelling	1	0	2	2
Practical						
8	U24AS205	Strength of Materials Laboratory	0	0	2	1
9	U24AS206	Fluid Mechanics Laboratory	0	0	4	2
Audit Course						
10	U24AU001	Disaster Management	--	--	--	--
Courses Lead to Specialization / Minor / Honours						
11	U24AS601	Fundamental Elements of Unmanned Aerial Vehicle	3	1	0	4
Total			21	3	8	28

SEMESTER IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24MA252	Numerical Methods	3	1	0	4
2	U24AS251	Incompressible Aerodynamics	3	0	0	3
3	U24AS252	Aircraft Structures	3	0	0	3
4	U24AS253	Air-Breathing Propulsion	3	0	0	3
5	U24AS254	Aerospace Materials	3	0	0	3
6	U24AS751	Introduction to Aerospace Engineering	3	0	0	3
Practical						
7	U24AS255	Thermal and Propulsion Laboratory	0	0	4	2
8	U24AS256	Aerodynamics Laboratory	0	0	2	1
9	U24EM2XX	Internship / Practical Training / Value Added Course	2	0	2	3
Audit Course						
10	U24AU007	Environmental Studies	--	--	--	--
Courses Lead to Specialization / Minor / Honours						
11	U24AS651	Unmanned Aircraft Design, Assembly and Testing	3	0	2	4
Total			23	1	10	29

SEMESTER V

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24SH301	Economics for Engineers	3	0	0	3
2	U24AS301	Compressible Aerodynamics	3	0	0	3
3	U24AS302	Advanced Aircraft Structures	3	0	0	3
4	U24AS7XX	Open Elective – I	3	0	0	3
5	U24AS9XX	Professional Elective – I	3	0	0	3
6	U24AS9XX	Professional Elective – II	3	0	0	3
Practical						
7	U24AS303	Aero CAD Laboratory	0	0	2	1
8	U24AS304	Aircraft Structures and Repair Laboratory	0	0	4	2
9	U24EM301	Value Added Course – Community Engagement and Social Responsibility	1	0	2	2
Audit Course						
10	U24AUXXX	Audit Course – III	--	--	--	--
Courses Lead to Specialization / Minor / Honours						
11	U24AS602	Payload and Sensors Systems in Unmanned Aerial Vehicle	3	1	0	4
Total			22	1	8	27

SEMESTER VI

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24AS351	Flight Dynamics	3	0	0	3
2	U24AS352	Aerospace Propulsion	3	0	0	3
3	U24AS353	Elements of Satellite Technology	3	0	0	3
4	U24AS7XX	Open Elective – II	3	0	0	3
5	U24AS8XX	Online Course – I	3	0	0	3
6	U24AS9XX	Professional Elective – III	3	0	0	3
7	U24AS9XX	Professional Elective – IV	3	0	0	3
8	U24MA354	Computational Statistics	1	0	2	2
Practical						
9	U24EM3XX	Skill Development / Value Added Course(s)	1	0	2	2
Audit Course						
10	U24AUXXX	Audit Course – IV	--	--	--	--
Courses Lead to Specialization / Minor / Honours						
11	U24AS652	Artificial Intelligence in Unmanned Aerial Vehicle	3	0	2	4
Total			26	0	6	29

SEMESTER VII

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24GE401	Professional Ethics	3	0	0	3
2	U24AS401	Computational Fluid Dynamics	3	0	0	3
3	U24AS402	Avionics	3	0	0	3
4	U24AS403	Rockets and Missiles	3	0	0	3
5	U24AS9XX	Professional Elective – V	3	0	0	3
6	U24AS9XX	Professional Elective – VI	3	0	0	3
Practical						
7	U24AS404	Computational Fluid Dynamics Laboratory	0	0	4	2
8	U24AS405	Avionics Laboratory	0	0	4	2
9	U24EM401	Project Phase – I	0	0	8	4
Courses Lead to Specialization / Minor / Honours						
10	U24AS603	Remote Pilot Training Program and Automations in Drone Operations	3	0	2	4
Total			21	0	18	30

SEMESTER VIII

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
Theory						
1	U24AS8XX	Online Course – II	3	0	0	3
Practical						
2	U24EM451	Project Phase – II	0	0	16	8
Total			3	0	16	11

The number of credits in each semester is summarized as follows:

Course	I	II	III	IV	V	VI	VII	VIII
B.Tech. Aerospace Engineering with Specialization in Unmanned Aerial Vehicle	22	24	28	29	27	29	30	11

Semester wise Credit Distribution (in all categories of courses)

Sl. No.	Category of Courses	Credits	I	II	III	IV	V	VI	VII	VIII
1.	Foundation Courses	60	18	20	10	4	3	2	3	-
2.	Professional Core Courses	60	-	-	14	15	9	9	13	-
3.	Professional Elective Courses	18	-	-	-	-	6	6	6	-
4.	Open Elective Courses	9	-	-	-	3	3	3	-	-
5.	Employability Enhancement Courses	27	4	4	-	3	2	2	4	8
6.	Online Courses	6	-	-	-	-	-	3	-	3
7.	Audit Courses	---	-	-	-	-	-	-	-	-
8.	Courses Lead to Specialization / Minor / Honours	20	-	-	4	4	4	4	4	-
	Total	200	22	24	28	29	27	29	30	11

Suggested List of Professional Elective Courses

Professional Elective –I

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS901	Experimental Aerodynamics	3	0	0	3
2	U24AS902	Finite Element Analysis	3	0	0	3
3	U24AS903	Space weapons and Warfare	3	0	0	3
4	U24AS904	Theory of Elasticity	3	0	0	3
5	U24AS905	Automation and Control Engineering	3	0	0	3

Professional Elective –II

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS906	Spacecraft Power systems	3	0	0	3
2	U24AS907	Air Traffic Control and Aerodrome Design	3	0	0	3
3	U24AS908	Aero Engine Maintenance and Repair	3	0	0	3
4	U24AS909	Aeroelasticity	3	0	0	3
5	U24AS910	Mechanics of Machines	3	0	0	3

Professional Elective –III

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS951	Additive Manufacturing	3	0	0	3
2	U24AS952	Heat Transfer	3	0	0	3
3	U24AS953	Hypersonic Aerodynamics	3	0	0	3
4	U24AS954	Disaster Management in Aviation	3	0	0	3
5	U24AS955	Theory of Plates and Shells	3	0	0	3

Professional Elective –IV

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS956	Cryogenics	3	0	0	3
2	U24AS957	Aircraft Rules and Regulations CAR I and II	3	0	0	3
3	U24AS958	Helicopter Maintenance	3	0	0	3
4	U24AS959	Theory of Vibrations	3	0	0	3
5	U24AS960	Generative AI models	3	0	0	3

Professional Elective –V

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS911	Airframe Maintenance and Repair	3	0	0	3
2	U24AS912	Computer Integrated Manufacturing	3	0	0	3
3	U24AS913	Aircraft System and Instruments	3	0	0	3
4	U24AS914	Aircraft Design	3	0	0	3
5	U24AS915	Prompt Engineering	3	0	0	3

Professional Elective –VI

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS916	Space Mechanics	3	0	0	3
2	U24AS917	Navigation System	3	0	0	3
3	U24AS918	Space Communication Systems	3	0	0	3
4	U24AS919	Experimental Stress Analysis	3	0	0	3
5	U24AS920	Missile Guidance and Control	3	0	0	3

Courses Lead to Specialization / Minor / Honors

Sl. No.	Course Code	Course Name	Credits			
			L	T	P	C
1	U24AS601	Fundamental Elements of Unmanned Aerial Vehicle	3	1	0	4
2	U24AS651	Unmanned Aircraft Design, Assembly and Testing	3	0	2	4
3	U24AS602	Payload and Sensors Systems in Unmanned Aerial Vehicle	3	1	0	4
4	U24AS652	Artificial Intelligence in Unmanned Aerial Vehicle	3	0	2	4
5	U24AS603	Remote Pilot Training Program and Automations in Drone Operations	3	0	2	4
Total			15	2	6	20