HINDUSTAN
INSTITUTE OF TECHNOLOGY & SCIENCE
(DEEMED TO BE UNIVERSITY)

CURRICULUM FRAME WORK- 2026-2027

B. TECH. AERONAUTICAL ENGINEERING

Choice Based Credit System

B.TECH- AERONAUTICAL ENGINEERING - CURRICULUM FRAME WORK- 2026-2027											
Semester-I											
SL. NO	**Sem**	**Course Category**	**Course Type**	**Course Code**	**Name of The Course**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	I	BS	TP	EMA61001	Computational Matrices and Calculus	3	0	2	4	2	5
2	I	BS	TP	**Any one course to be opted**		3	0	2	4	2	5
				EPH61001	Physics for Advanced Engineering						
				ECT61001	Engineering Materials						
3	I	HS	TH	GLS61001	Technical English	1	0	0	1	1	3
4	I	PC	TH	EAE61001	Principles of Flight	3	0	0	3	2	3
5	I	ES	TP	EGE61001	Design Thinking	2	0	2	3	2	4
6	I	ES	PR	EGE61401	FAB Lab for Engineering	0	0	4	2	2	4
7	I	HS	TH	**Any one course to be opted**		1	0	0	1	1	2
				Indian Language							
				GLS61006	Malayalam						
				GLS61007	Tamil						
				GLS61008	Hindi						
				GLS61009	Telugu						
				GLS61010	Advanced Tamil						
				OR							
				Foreign Language							
				GLS61011	French						
				GLS61012	German						
				GLS61013	Spanish						
				GLS61014	Korean						
				GLS61015	Mandarin						
				GLS61016	Japanese						
8	I	MC	PR	GGE61401	Outreach (NSS,Y's Men, Rotaract)	0	0	2	*	4	2
9	I	OE	TP	EAE61700	Open Elective-1	1	0	2	2	2	3
					Total	**14**	**0**	**14**	**20**	**18**	**31**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours *-Non-credit Course

Semester-II											
SL. NO	**Sem**	**Course Category**	**Course Type**	**Course Code**	**Name of The Course**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	II	BS	TP	EMA61002	Vector analysis and transform methods	3	0	2	4	2	5
2	II	BS	TP	**Any one course to be opted**		3	0	2	4	2	5
				EPH61001	Physics for Advanced Engineering						
				ECT61001	Engineering Materials						
3	II	HS	TP	GLS61002	Functional English for Professionals	1	0	2	2	1	3
4	II	PC	TH	EAE61002	Engineering Mechanics for Aeronautical and Aerospace Engineers	3	0	0	3	2	3
5	II	ES	TP	EME61001	Engineering Graphics and Computer Aided Design	2	0	2	3	2	4
6	II	ES	TP	EEE61001	Fundamentals of Electrical & Electronics Engineering	1	0	2	2	2	4
7	II	HS	TH	**Any one course to be opted**		1	0	0	1	1	2
				Indian Language							
				GLS61006	Malayalam						
				GLS61007	Tamil						
				GLS61008	Hindi						
				GLS61009	Telugu						
				GLS61010	Advanced Tamil						
				OR							
				Foreign Language							
				GLS61011	French						
				GLS61012	German						
				GLS61013	Spanish						
				GLS61014	Korean						
				GLS61015	Mandarin						
				GLS61016	Japanese						
8	II	HS	TH	GGE61001	Universal Human Values	2	0	0	2	2	2
9	II	OE	TP	EAE61701	Open Elective-2	1	0	2	2	2	3
					Total	**17**	**0**	**12**	**23**	**16**	**31**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

***-Non-credit Course**

Semester-III											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	III	BS	TH	EMA61003	Applied PDEs and Transform Techniques	3	1	0	4	2	4
2	III	PC	TP	EAE61003	Solid Mechanics	2	0	2	3	2	4
3	III	PC	TP	EAE61004	Fluid Mechanics and Machinery	2	0	2	3	2	4
4	III	PC	TH	EAE61005	Applied Thermodynamics	2	0	2	3	2	4
5	III	PC	TH	EAE61006	Aircraft System and Instruments (Industry Collaborated Course)	2	0	0	2	2	2
6	III	ES	TP	ECS61020	Programming In Python	2	0	2	3	2	4
7	III	ES	TH	GGE61003	Environmental Science and Sustainable Development	2	0	0	2	2	2
8	III	OE	TP	EAE61702	Open Elective-3	1	0	2	2	2	3
9	III	MC	TH	XXXX	Mandatory Course- II (Non-credit course-Self study)	3	0	0	*	2	3
					Total	**19**	**1**	**10**	**22**	**18**	**30**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours *-Non-credit Course

Semester-IV											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	IV	BS	TH	EMA61007	Numerical scientific computing	3	1	0	4	2	4
2	IV	PC	TP	EAE61007	Applied Structural Mechanics	2	0	2	3	2	4
3	IV	PC	TP	EAE61008	Aircraft Propulsion	2	0	2	3	2	4
4	IV	PC	TP	EAE61009	Low speed Aerodynamics	2	0	2	3	2	4
5	IV	PC	TP	EAE61010	Aircraft General Engineering and Maintenance Practices	2	0	2	3	2	4
6	IV	EEC	DP	EAE61801	Design Project – 1	0	0	4	2	6	4
7	IV	OE	TP	EAE61703	Open Elective-4	1	0	2	2	2	3
8	IV	HS	TH	GLS61003	Academic writing & Editing	1	0	0	1	1	2
9	IV	EEC	IN	EAE61802	Internship -1#(to be evaluated in 5th semester. To be carried out in summer after 4th semester)	#			1	0	0
					Total	**13**	**1**	**14**	**22**	**19**	**29**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours
***-Non-credit Course # 15 days minimum**

Semester-V											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	V	PC	TP	EAE61011	Compressible Aerodynamics	2	0	2	3	2	4
2	V	PC	TP	EAE61012	Rocket and Advanced Propulsion	2	0	2	3	2	4
3	V	PC	TP	EAE61013	Advanced Aircraft Structural Analysis	2	0	2	3	2	4
4	V	PC	TH	EAE61014	Finite Element Method	3	0	2	4	2	3
5	V	PE	TP	EAX615XX	Professional Elective-1	3	0	0	3	2	3
6	V	OE	TP	EAE61704	Open Elective-5	1	0	2	2	2	3
7	V	EEC	PR	ETP51853	Personality Development and Soft Skills Techniques	0	0	3	2	2	3
					Total	**13**	**0**	**13**	**20**	**14**	**24**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

Semester-VI											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VI	PC	TP	EAE61015	Computational Fluid Dynamics	2	0	2	3	2	4
2	VI	PC	TP	EAE61016	Flight Control Theory	2	0	2	3	2	4
3	VI	PC	TP	EAS61010	Composite Materials and Structures	2	0	2	3	2	4
4	VI	PE	TP	EAX615XX	Professional Elective-2	3	0	0	3	2	3
5	VI	PE	TP	EAX615XX	Professional Elective-3	3	0	0	3	2	3
6	VI	OE	TP	EAE61705	Open Elective-6	1	0	2	2	2	3
7	VI	EEC	DP	EAE61803	Design Project – 2	0	0	4	2	6	4
8	VI	EEC	IN	EAE61804	Internship -2#(to be evaluated in 6th semester. To be carried out in vacation after 5th semester)	#			1	0	0
9	VI	ES	TH		Entrepreneurship	2	0	0	2	2	2
					Total	**15**	**0**	**12**	**22**	**20**	**27**

L – Lecture T – Tutorial P – Practical C – Credit Hours S – Self Study TCH – Total Contact

Semester-VII											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VII	PC	TP	EAE61017	Avionics	2	0	2	3	2	4
2	VII	PC	TP	EAE61018	Aircraft Performance, Stability and Control	2	0	2	3	2	4
3	VII	PC	TP	EAE61019	Civil Aviation Requirements	3	0	0	3	2	3
4	VII	PE	TP	EAX615XX	Professional Elective-4	3	0	0	3	2	3
5	VII	PE	TP	EAX615XX	Professional Elective-5	3	0	0	3	2	3
6	VII	ES	TH		Research Methodology & IPR	2	0	0	2	2	2
7	VII	EEC	PJ	EAE61805	Project Phase 1	0	0	6	3	6	6
					Total	**15**	**0**	**10**	**20**	**18**	**25**

L – Lecture T – Tutorial P – Practical C – Credit S – Self Study TCH – Total Contact Hours

Semester-VIII											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VIII	EEC	PJ	EAE61806	Project Phase - 2	0	0	24	12	10	24
					Total	**0**	**0**	**24**	**12**	**10**	**24**

L – Lecture T – Tutorial P – Practical C – Credit Hours S – Self Study TCH – Total Contact

Mandatory Course-I											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	II	MC	TH	GGE61003	Introduction to Women and Gender Studies	3	0	0	*	2	3
2	II	MC	TH	GGE61004	Public and Personal Administration	3	0	0	*	2	3
3	II	MC	TH	GGE61005	Constitution of India	3	0	0	*	2	3
4	II	MC	TH	EGE61004	Law for Engineers	3	0	0	*	2	3
	II	MC	TH	GGE61006	Indian Knowledge System (IKS)	3	0	0	*	2	3
5	II	MC	TH	GGE61007	Logical Reasoning and Verbal Ability	3	0	0	*	2	3
L – Lecture T – Tutorial P – Practical C – Credit Hours S – Self Study TCH – Total Contact											

Mandatory Course-II											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	III	MC	TH		Traditional Indian Systems of Medicine and Therapies	3	0	0	*	2	3
2	III	MC	TH		History of Science and Technology in India	3	0	0	*	2	3
3	III	MC	TH		Political and Economic Thought for a Humane Society	3	0	0	*	2	3
4	III	MC	TH		State, Nation-Building and Politics in India	3	0	0	*	2	3
5	III	MC	TH		Industrial Safety	3	0	0	*	2	3
L – Lecture T – Tutorial P – Practical C – Credit Hours S – Self Study TCH – Total Contact											

Professional Elective-1											
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	V	PE	TH	EAE61501	Fatigue and Fracture Mechanics	3	0	0	3	2	3
2	V	PE	TH	EAE61502	Experimental Stress Analysis	3	0	0	3	2	3
3	V	PE	TH	EAE61503	Boundary Layer Theory	3	0	0	3	2	3
4	V	PE	TH	EAS61501	Missile and Launch Vehicle Aerodynamics	3	0	0	3	2	3
5	V	PE	TH	EAS61502	Theory of Flames	3	0	0	3	2	3
6	V	PE	TH	EAE61504	Aircraft Maintenance Practices	3	0	0	3	2	3
7	V	PE	TH	EAE61505	Aircraft Systems Testing	3	0	0	3	2	3
8	V	PE	TH	EAE61506	AI, ML for Aeronautical Appliations	3	0	0	3	2	3

Professional Elective-2											
SL. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	VI	PE	TH	EAE61507	Cryogenic Propulsion	3	0	0	3	2	3
2	VI	PE	TH	EAE61508	Non Destructive Testing & Evaluation	3	0	0	3	2	3
3	VI	PE	TH	EAE61509	Experimental Aerodynamics	3	0	0	3	2	3
4	VI	PE	TH	EAE61510	Wind Tunnel Design and its Application	3	0	0	3	2	3
5	VI	PE	TH	EAS61507	Fuel and Combustion	3	0	0	3	2	3
6	VI	PE	TH	EAE61511	Propulsion Techniques for UAVs	3	0	0	3	2	3
7	VI	PE	TH	EAE61512	Aviation Safety Management	3	0	0	3	2	3
8	VI	PE	TH	EAE61513	Aircraft Surveillance system	3	0	0	3	2	3

Professional Elective-3											
S. NO	SEM	COURSE CATEGORY	COURSE TYPE	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	VI	PE	TH	EAE61514	Vibration and Aeroelasticity	3	0	0	3	2	3
2	VI	PE	TH	EAE61515	Additive Manufacturing	3	0	0	3	2	3
3	VI	PE	TH	EAE61516	Airplane Structural Design	3	0	0	3	2	3
4	VI	PE	TH	EAE61517	Laminar Flow Theory	3	0	0	3	2	3
5	VI	PE	TH	EAE61518	Rockets & Missiles	3	0	0	3	2	3
6	VI	PE	TH	EAE61519	Electric Propulsion Systems	3	0	0	3	2	3
7	VI	PE	TH	EAE61520	Structural Maintenance and Repair Practices	3	0	0	3	2	3
8	VI	PE	TH	EAE61521	Air Transportation and Aircraft Maintenance	3	0	0	3	2	3

Professional Elective-4											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VII	PE	TH	EAE61522	Rotary Wing Maintenance Practices	3	0	0	3	2	3
2	VII	PE	TH	EAE61523	Structural Health Monitoring	3	0	0	3	2	3
3	VII	PE	TH	EAE61524	Hypersonic Aerodynamics	3	0	0	3	2	3
4	VII	PE	TH	EAE61525	AI for Drone Navigation	3	0	0	3	2	3
5	VII	PE	TH	EAE61526	Renewable Energy Systems	3	0	0	3	2	3
6	VII	PE	TH	EAE61527	Compressors and Turbines	3	0	0	3	2	3
7	VII	PE	TH	EAE61528	IOT for Aeronautics	3	0	0	3	2	3
8	VII	PE	TH	EAE61529	Aircraft Powerplant Maintenance and Repair	3	0	0	3	2	3

Professional Elective-5											
SL. NO	**SEM**	**COURSE CATEGORY**	**COURSE TYPE**	**COURSE CODE**	**NAME OF THE COURSE**	**L**	**T**	**P**	**C**	**S**	**TCH**
1	VII	PE	TH	EAE61530	Smart Materials & Structures	3	0	0	3	2	3
2	VII	PE	TH	EAS61520	Theory of Elasticity	3	0	0	3	2	3
3	VII	PE	TH	EAE61531	AI-Assisted Wind Tunnel Data Analytics	3	0	0	3	2	3
4	VII	PE	TH	EAS61532	High Temperature Gas Dynamics	3	0	0	3	2	3
5	VII	PE	TH	EAE61533	Non-Conventional Propulsion	3	0	0	3	2	3
6	VII	PE	TH	EAE61534	Drone Photogrammetry	3	0	0	3	2	3
7	VII	PE	TH	EAE61535	Satellite Communication	3	0	0	3	2	3
8	VII	PE	TH	EAE61536	Machine Learning in Aviation Safety	3	0	0	3	2	3

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