



School of Engineering and Technology

Department of Aero Engineering

CURRICULUM STRUCTURE

B.Tech PROGRAM

In

AERONAUTICAL ENGINEERING

(Sem III To VIII)

Batch 2025-2026



Course Structure-B.Tech Aeronautical Engineering Semester – III

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE301	Thermodynamics	3	1	0	4	50	-	100	-	150
2	PCC	NYAE302	Fluid Dynamics	3	0	0	3	50	-	100	-	150
3	PCC	NYAE311	Computational Thermodynamics Laboratory	0	0	2	1	-	50	-	50*	100
4	PCC	NYAE312	Fluid Dynamics Laboratory	0	0	2	1	-	50	-	50*	100
5	OE	-	Open Elective-I #	3	0	0	3	50	-	100	-	150
6	MDM	-	Minor course 1 #	3	0	0	3	50	-	100	-	150
7	VEC	NLWV01	The Constitution & Human Rights	2	0	0	2	50	-	100	-	150
8	AEC	NHSA11	Key Competencies for Career Growth	0	0	4	2	-	50	-	50	100
9	CEP/FP	NYAE314	Community Engagement Project*/Field Project*	--	--	4	2		50		50	100
TOTAL				14	01	12	21	250	200	500	200	1150
Value Added Course												
12	VAC	-	Microsoft office	-	-	2	-	-	-	-	-	-

		Formative Assessment		
CIA: Continuous Internal Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	*: Oral Examination PCC: Program Core course OE: Open Elective VAC: Value Added Courses AEC : Ability Enhancement courses CEP/FP: Community encouragement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course	CIA	Weightage	Description
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Seminar Presentation
		CIA 4	10%	<ul style="list-style-type: none"> Behavioural Attitude + General Discipline (5%) Theory + practical attendance 5%)
		TOTAL	50%	



Course Structure-B.Tech Aeronautical Engineering Semester – IV

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE401	Solid Mechanics	3	-	-	3	50	-	100	-	150
2	PCC	NYAE402	Aircraft Propulsion-I	3	-	-	3	50	-	100	-	150
3	PCC	NYAE403	Low Speed Aerodynamics	3	-	-	3	50	-	100	-	150
4	PCC	NYAE411	Aircraft Propulsion Laboratory	-	-	2	1	-	50	-	50*	100
5	OE	-	Open Elective-II #	3	-	-	3	50	-	100	-	150
6	MDM	-	Minor course 2 #	3	0	0	3	50	-	100	-	150
7	VSEC	NYAE412	Solid Mechanics - Laboratory	-	-	2	1	-	50	-	50*	100
8	VSEC	NYAE413	Aerodynamics- Laboratory	-	-	2	1	-	50	-	50*	100
9	VEC	NHSA12	Strategic Communication for professionals	0	0	4	2	-	50	-	50	100
TOTAL				15	0	10	20	250	200	500	200	1150

				Formative Assessment		
CIA: Continuous Internal Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	PC: Program Core course PEC: Programme elective Core OE: Open Elective VAC: Value Added Courses AEC: Ability Enhancement courses CEP/FP: Community encouragement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course	CI: Oral Examination		CIA	Weightage	Description
				CIA 1	10%	Home Assignment
				CIA 2	20%	Written Exam
				CIA 3	10%	Seminar Presentation
				CIA 4	10%	<ul style="list-style-type: none"> Behavioural Attitude + General Discipline (5%) Theory + practical attendance 5%)
				TOTAL	50%	



**Course Structure-B.Tech Aeronautical Engineering
Semester – V**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE501	Aircraft Structure-I	3	1	0	4	50	-	100	-	150
2	PCC	NYAE502	Aircraft Propulsion-II	3	1	0	4	50	-	100	-	150
3	PCC	NYAE511	Aircraft Structure-I Lab	0	0	2	1	-	50	-	50*	100
4	PCC	NYAE512	Aircraft Propulsion- II Laboratory	0	0	2	1	-	50	-	50*	100
5	PEC	NYAEE_	Program Elective 1	3	1	0	4	50	-	100	-	150
6	OE	-	Open Elective-III	2	-	-	2	50	-	100	-	150
7	MDM	-	Minor course 3 #	4	0	0	4	50	-	100	-	150
8	AEC	NHSA13	Essential Aptitude Skills	0	0	4	2	-	50	-	50	100
Total				15	3	08	22	250	150	500	150	1050

				Formative Assessment		
CIA: Continuous Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	Internal	#: Internship for 30 days. *: Oral Examination PC: Program Core course PEC: Programme elective Core OE: Open Elective VAC: Value Added Courses AEC :Ability Enhancement courses CEP/FP: Community encouragement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course		CIA	Weightage	Description
				CIA 1	10%	Home Assignment
				CIA 2	20%	Written Exam
				CIA 3	10%	Seminar Presentation
				CIA 4	10%	<ul style="list-style-type: none"> Behavioural Attitude + General Discipline (5%) Theory + practical attendance 5%)
				TOTAL	50%	



Course Structure-B.Tech Aeronautical Engineering
Semester – VI

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE601	Aircraft Structure-II	3	1	0	4	50	-	100	-	150
2	PCC	NYAE602	Flight Mechanics	3	0	0	3	50	-	100	-	150
4	PCC	NYAE611	Aircraft Structure-II Laboratory	0	0	2	1		50	-	50*	100
5	PEC	NYAEE_	Program Elective 2	3	1	0	4	50	-	100	-	150
6	PEC	NYAEE_	Program Elective- 3	3	1	0	4	50	-	100	-	150
7	MDM	-	Minor course 4 #	2	0	0	2	50	-	100	-	150
11	VSEC	NYAE612	Basics of MATLAB	1	-	2	2		50	-	50*	100
12	AEC	NHSA14	Employability Skills and Career Advancement	0	0	4	2	-	50	-	50	100
TOTAL				15	3	8	22	250	150	500	150	1050

		Formative Assessment		
CIA: Continuous Internal Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	#: Internship for 45 days. *: Oral Examination PC: Program Core course PEC: Programme elective Core OE: Open Elective VAC: Value Added Courses AEC : AbilityEnhancement curses CEP/FP: Communityencougement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course	CIA	Weightage	Description
		CIA 1	10%	Home Assignment
		CIA 2	20%	Written Exam
		CIA 3	10%	Seminar Presentation
		CIA 4	10%	<ul style="list-style-type: none"> Behavioural Attitude + General Discipline (5%) Theory + practical attendance 5%)
		TOTAL	50%	



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**Course Structure-B.Tech Aeronautical Engineering
Semester – VII**

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE701	Aircraft Design	3	0	0	3	50	-	100	-	150
2	PCC	NYAE711	Aircraft Design Laboratory	0	0	2	1	-	50	-	50*	100
3	PEC	NYAEE_	Program Elective 4	3	-	-	3	50	-	100	-	150
4	MDM	-	Minor course 5 #	2	0	0	2	50	-	100	-	150
6	INT/OJ T	NYAE712	INTERNSHIP/OJT*	-	-	-	12	-	50	-	50*	100
7	AEC	NHSA15	Corporate Readiness and Entrepreneurial Excellence	0	0	4	2	-	50	-	50	100
TOTAL				8	0	6	23	150	150	300	150	750

				Formative Assessment		
CIA: Continuous Internal Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	PC: Program Core course PEC: Programme elective Core OE: Open Elective VAC: Value Added Courses AEC: Ability Enhancement courses CEP/FP: Community encouragement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course	CI: Oral Examination		CIA	Weightage	Description
				CIA 1	10%	Home Assignment
				CIA 2	20%	Written Exam
				CIA 3	10%	Seminar Presentation
				CIA 4	10%	<ul style="list-style-type: none"> Behavioural Attitude + General Discipline (5%) Theory + practical attendance 5%)
				TOTAL	50%	

Course Structure-B.Tech Aeronautical Engineering
Semester – VIII

Sr. No.	Core	Course Code	Course Name	Teaching Scheme (Hrs./Week)				Examination Scheme				Total Marks
				L	T	P	C	Formative Assessment CIA		Summative Assessment ESE		
								Course	Lab	Course	Lab	
1	PCC	NYAE801	Aeronautical Computational Analysis	3	0	0	3	50	-	100	-	150
2	PCC	NYAE811	Aeronautical Computational Analysis Laboratory	0	0	2	1	-	50	-	50	100
3	PEC	NYAEE_	Program Elective-5	4	-	-	4	50	-	100	-	150
4	PEC	NYAEE_	Program Elective-6	4	-	-	4	50	-	100	-	150
5	MDM	-	Minor course 6 #	2	0	0	2	50	-	100	-	150
6	ELC	NRDP107	Research Methodology	4	-	-	4	50	-	100	-	150
7	CEP/FP	NYAE812	Project	-	-	8	4	-	50	-	100	150
TOTAL				18	-	8	22	250	100	500	150	1000

				Formative Assessment		
CIA: Continuous Internal Assessment L: Theory Lecture T: Tutorial P: Practical ESE: End Semester Exam	*: Oral Examination PC: Program Core course PEC: Programme elective Core OE: Open Elective VAC: Value Added Courses AEC : AbilityEnhancement courses CEP/FP: Communityencougement project/Field project VSEC: Vocational and Skill Enhancement Course MDM: Multidisciplinary minor course		CIA	Weightage	Description	
			CIA 1	10%	Home Assignment	
			CIA 2	20%	Written Exam	
			CIA 3	10%	Seminar Presentation	
			CIA 4	10%	<ul style="list-style-type: none">Behavioural Attitude + General Discipline (5%)Theory + practical attendance 5%)	
			TOTAL	50%		

Programme Elective Core Basket

Sr No	Course Code	PEC-I
1	NYAEE01	Aircraft System and Instrumentation
2	NYAEE02	Aircraft Design
3	NYAEE03	Modern Machining Methods
4	NYAEE04	Aircraft Materials

Sr No	Course Code	PEC-II
1	NYAEE05	Theory of Vibration
2	NYAEE06	Aero- Elasticity
3	NYAEE07	Avionics
4	NYAEE08	Mechanisms And Machine Theory

Sr No	Course Code	PEC-III
1	NYAEE09	Aircraft Communication and Navigation system
2	NYAEE10	Hypersonic Aerodynamics
3	NYAEE11	Helicopter Dynamics
4	NYAEE12	Rocket and Missile

Sr No	Course Code	PEC-IV
1	NYAEE13	Vehicle Aerodynamics
2	NYAEE14	Air transportation and Aircraft Maintenance
3	NYAEE15	Aircraft Powerplant maintenance and repair
4	NYAEE16	Rotary Wing Maintenance



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Sr No	Course Code	PEC-V
1	NYAEE17	Aviation Logistics and Supply Chain Management
2	NYAEE18	Orbital Mechanics
3	NYAEE19	Aero Engine Maintenance
4	NYAEE20	Experimental Stress Analysis

Sr No	Course Code	PEC-VI
1	NYAEE21	Introduction to Hybrid Propulsion
2	NYAEE22	Wind Tunnel Technique
3	NYAEE23	Finite Element Method
4	NYAEE24	Bio-Fluid Dynamics

Open Elective Basket offered by the Aeronautical Engineering Programm

Sr No	Course Code	Open Elective offered by the Aeronautical Engineering Department	Semester
1	NYASEO01	Aeronautics in Modern Age	III
2	NYASO02	Evolution of Human Spaceflight	IV
3	NYASO03	Introduction to 3D Printing for UAV	V



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Mutidisciplinary Minor offered by Aeronautical Engineering Programm

Sr. No	Course Name	Code	Scheme	Credit	Semester
1	Introduction to Air Transportation	NYASM01	3-0-0	3	4th
2	Air Operation and Air traffic Control	NYASM02	3-0-0	3	5th
3	Air transportation Management and Route Planning	NYASM03	3-0-0	3	5th
4	Aviation Safety and Logistics	NYASM04	3-0-0	3	6th
5	Airport Planning	NYASM05	3-0-0	3	7th
6	Sustainable Aviation	NYASM06	3-0-0	3	7th
Total				18	

B.Tech (Hons.) Aeronautical Engineering with specialization in Aerodynamics

Sr. No	Course Name	Code	Scheme	Credit	Semester
1	Wind Tunnel Testing	NYASH01	3-0-0	3	4th
3	Industrial Aerodynamics	NYASH01	3-0-0	3	5th
4	Low Reynold's Number Aerodynamics	NYASH01	3-0-0	3	5th
5	Rotary wings Aerodynamics	NYASH01	3-0-0	3	6th
6	Hypersonic Aerodynamics	NYASH01	3-0-0	3	6th
7	Rarefied gas dynamics	NYASH01	3-0-0	3	7th
8	Aeroacoustics	NYASH01	3-0-0	3	7th
Total				24	



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Exit options under B.Tech. in Aeronautical Engineering Program

After 1 st Year (8 credits)			
Certification			
Sr. No.	Courses Name	Courses Code	Credits
1	Unmanned Aerial Vehicles	NYASX01	3
2	Basics of Flight Control Systems	NYASX02	3
3	Internship	NYASX11	2
After 2nd Year (8 Credits)			
UG diploma			
Sr. No.	Courses Name	Courses Code	Credits
1	Aerospace Production Planning and Contro	NYASX03	3
2	3D printing Technology and Additive Manufacturing	NYASX04	3
3	Internship	NYASX21	2
After 3rd Year (8 Credits)			
B. Voc.			
Sr. No.	Courses Name	Courses Code	Credits
1	Aircraft Maintenance Practices	NYASX05	3
2	Aerospace Industry Standards	NYASX06	3
3	Internship	NYASX31	2

Credit distribution

Semester		Total Credits as per GR	Total Credits SUN Aeronautical
Basic Science Course	BSC/ESC	14-18	16
Engineering Science Course		16-12	12
Programme Core Course (PCC)	Program Courses	44-56	47
Programme Elective Course (PEC)		20	23
Multidisciplinary Minor (MD M)	Multidisciplinary Courses	14	16
Open Elective (OE) Other than a particular program		08	8
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	08	10
Ability Enhancement Course (AEC -01, AEC-02)	Humanities Social Science and Management (HSSM)	04	10
Entrepreneurship/ Economics / Management Course		04	
Indian knowledge System (IKS)		02	2
Value Education Course (VEC)		04	4
Research Methodology	Experiential Learning Courses	04	4
Comm. Engg. Project (CEP) / Field Project (FP)		02	2
Project		04	4
Internship/ OJT		12	12
Co-curricular Course (CC)	Liberal Learning Courses	04	4
Total Credits (Major)		160-176	174