

B.E. AERO
R-2023
CURRICULUM
(CHOICE BASED CREDIT SYSTEM)

CBCS CURRICULUM AND SYLLABUS
B.E. AERONAUTICAL ENGINEERING
REGULATION 2023
CURRICULUM

SEMESTER I

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	HS 23111	Technical Communication - I	HS	2	2	0	0	2
2	MA23112	Algebra and Calculus	BS	4	3	1	0	4
3	PH23131	Physics of Materials	BS	5	3	0	2	4
4	GE 23111	Engineering Graphics	ES	4	2	2	0	4
5	GE23117	தமிழர் மரபு / Heritage of Tamils	HS	1	1	0	0	1
6	EE23133	Basic Electrical and Electronics Engineering	BE	5	3	0	2	4
7	MC23112	Environmental Science and Engineering	MC	3	3	0	0	0
8	GE 23121	Engineering Practices Lab (Civil and Mechanical)	ES	2	0	0	2	1
TOTAL				26	17	3	6	20

SEMESTER II

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	HS23221/ HS23222	Technical English – II / English for Professional Competencies	HS	2	2	0	0	1
2	MA23212	Differential Equation and Analytical Complex Functions	BS	4	3	1	0	4
3	CY23223	Engineering Chemistry	BS	5	3	0	2	4
4	GE 23211	Engineering Mechanics	BE	3	2	1	0	3
5	AE23211	Fundamentals of Aerospace Engineering	PC	3	3	0	0	3
6	GE23233	Problem Solving and Python Programming	BE	6	2	0	4	4
7	GE23217	தமிழ்நூல் தொழில்நுட்பம் / Tamils and Technology	HS	1	1	0	0	1
8	MC23111	Indian Constitution and Freedom Movement	MC	3	3	0	0	0
9	GE23122	Engineering Practices Lab (Electrical and Electronics)	ES	2	0	0	2	1
TOTAL				29	19	2	8	21

SEMESTER III

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	MA23311	Transforms and Applied Partial Differential Equations	BS	4	3	1	0	4
2	AE23331	Solid Mechanics	PC	5	2	1	2	4
3	AE23332	Fluid Mechanics and Fluid Machinery	PC	5	2	1	2	4
4	AE23333	Aero Engineering Thermodynamics	PC	5	2	1	2	4
5	CS23422	Python Programming for Machine Learning	BE	4	0	0	4	2
6		Open elective - I	OE	3	3	0	0	3
7	AE23321	Computer Aided Modelling Laboratory	PC	4	0	0	4	2
TOTAL				30	12	4	14	23

SEMESTER IV

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	MA23432	Statistics and Numerical Methods	BS	5	3	0	2	4
2	AE23411	Aircraft Structures - I	PC	3	2	1	0	3
3	AE23412	Control Engineering	PC	3	3	0	0	3
4	AE23431	Incompressible Aerodynamics	PC	5	2	1	2	4
5	AE23432	Aircraft Materials and Processes	PC	5	3	0	2	4
6	AE23433	Aircraft Systems and Instruments	PC	4	2	0	2	3
7	GE23327	Soft Skills – 1	EEC	2	0	0	2	1
8		Value Added Program – I [#]	EEC	2	0	0	2	1 [#]
TOTAL				27	15	2	12	22

[#]credit not to consider for CGPA

SEMESTER V

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	AE23511	Aircraft Propulsion	PC	3	2	1	0	3
2	AE23512	Compressible Aerodynamics	PC	3	2	1	0	3
3	AE23513	Flight Dynamics	PC	3	2	1	0	3
4	AE23531	Aircraft Structures - II	PC	5	2	1	2	4
5		Professional Elective – I	PE	3	3	0	0	3
6		Open Elective – II	OE	3	3	0	0	3
7	GE23427	Soft Skills – II	EEC	2	0	0	2	1
8	AE23521	Airframe and Aero Engine Laboratory	PC	4	0	0	4	2
9	AE23621	Summer Internship	II	-	-	-	-	1
TOTAL				26	14	4	8	23

SEMESTER VI

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	AE23611	Rocket Propulsion	PC	3	2	1	0	3
	AE23612	Composite Materials and Structures	PC	3	3	0	0	3
2	AE23631	Flight Vehicle Design	PC	5	3	0	2	4
3	AE23632	Innovation and Design Thinking for Engineers	EEC	3	1	0	2	2
4		Professional Elective – II	PE	3	3	0	0	3
5	AE23621	Artificial Intelligence and Machine Learning for Aeronautical Engineering	BE	4	0	0	4	2
6	AE23622	Jet propulsion Laboratory	PC	4	0	0	4	2
7	AE23623	Computational Simulation Laboratory	PC	4	0	0	4	2
8	GE23627	Problem Solving Techniques	EEC	2	0	0	2	1
TOTAL				31	12	1	18	22

SEMESTER VII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1	AE23731	Avionics	PC	5	3	0	2	4
2	GE23711	Fundamentals of Management for Engineers	HS	3	3	0	0	3
3		Professional Elective – III	PE	3	3	0	0	3
4		Professional Elective – IV	PE	3	3	0	0	3
5		Professional Elective – V	PE	3	3	0	0	3
6	AE23721	Project Work Phase-1	EEC	4	0	0	4	2
7		Value Added Program – II [#]	EEC	2	0	0	2	1
TOTAL				21	15	0	6	18

#credit not to consider for CGPA

SEMESTER VIII

Sl. No	COURSE CODE	COURSE TITLE	CATEGORY	CONTACT PERIODS	L	T	P	C
1		Professional Elective VI	PE	3	3	0	0	3
2	AE23821	Project Work Phase II	EEC	16	0	0	16	8
TOTAL				19	3	0	16	11

CREDIT DISTRIBUTION – SEMESTER WISE

SEMESTER	NO. OF CREDITS
I	20
II	21
III	23
IV	22
V	23
VI	22
VII	18
VIII	11
TOTAL	160

VERTICALS for PROFESSIONAL ELECTIVES and HONOURS

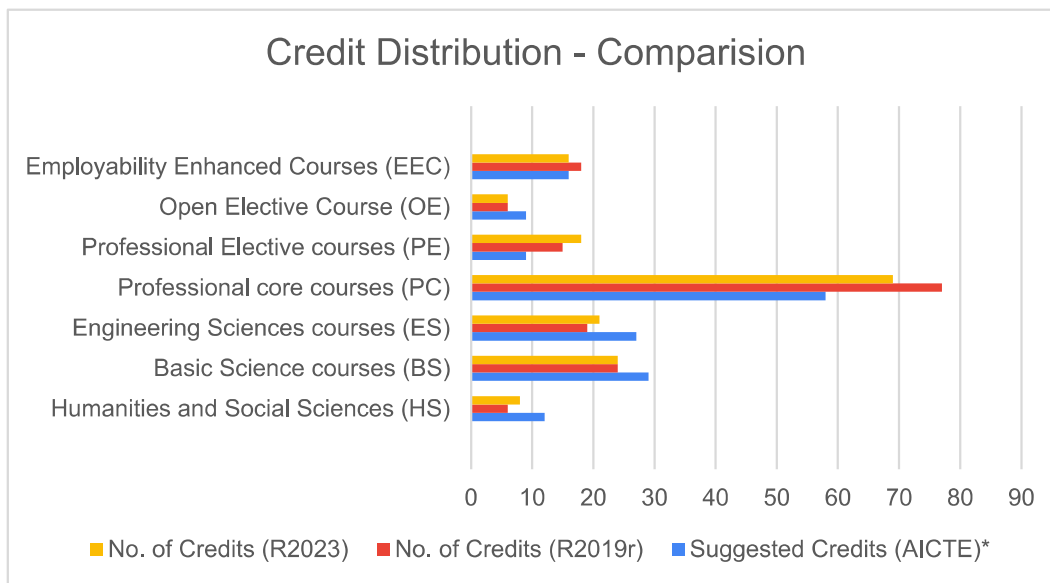
Semester	VERTICAL 1	VERTICAL 2	VERTICAL 3	VERTICAL 4	DIVERSIFIED COURSES
	Aerodynamics	Propulsion	Structures And Materials	Avionics and Drone Technology	
V	Applied Aerodynamics	Heat Transfer	Theory of Elasticity	Introduction to UAV Systems	Space Mechanics
	Launch Vehicle Aerodynamics	Design of Gas Turbine Engine components	Finite Element Methods	Communication systems	Civil Aviation Requirements
VI	Computational Aerodynamics	Advanced Propulsion Systems	Introduction to Vibrations	Embedded Systems in UAV	Astrophysics
	Experimental Aerodynamics	Spray Theory	Experimental stress Analysis	Navigation Systems	Aero Engine Maintenance and Repair
VII	Missile Aerodynamics	Combustion in Aerospace Vehicles	Fatigue and Fracture	Image Processing Techniques for UAV	Aircraft General Engineering and Maintenance Practices
	Hypersonic Aerodynamics	Numerical Heat transfer	Aeroelasticity	Aerospace Guidance and Control	Air Traffic Control and Planning
	Helicopter Theory	Turbo Machines	Dynamic Behaviour of Materials	Drone Computing Systems	Total Quality Management
	Introduction to Aeroacoustics	Combustion and Flames	Failure Analysis and NDT Techniques	Payloads and Sensors	Airframe Repair and Maintenance
VIII	Turbulence modeling in Fluid Flows	High-temperature Gas Dynamics	Theory of Plates and Shells	Drone Safety rules & Regulations	Entrepreneurship Development
	Boundary Layer Theory	Refrigeration and Cryogenics	Modern Manufacturing Processes	Robotics and Control	Mechanics of Machines

Note: The highlighted courses can't be opted for honours degree.

STRUCTURE OF UNDERGRADUATE ENGINEERING PROGRAM

Sl. No	Category	Suggested Credits (AICTE)*	No. of Credits (R2019r)	No. of Credits (R2023)	% Distribution (R2023)
1	Humanities and Social Sciences including Management courses (HS)	12	6	8	4.9
2	Basic Science courses (BS)	29	24	24	14.8
3	Engineering Sciences courses including 3 programming subjects (ES)	27	19	21	12.9
4	Professional core courses (PC)	58	77	69	42.6
5	Professional Elective courses (PE)	9	15	18	11.1
6	Open Elective Course (OE)	9	6	6	3.8
7	Employability Enhanced Courses (EEC)	16	18	16	9.9
8	Mandatory Courses (MC) [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge]	0	0	0	0

*AICTE model curriculum (aicte-india.org)



TENTATIVE LIST OF VAP COURSES

S. No	Semester	Title of VAP (tentative)
1	IV	Aircraft Component Drawing
2	VII	RC Plane Modeling