

**Course structure**  
**Department of Aeronautical Engineering-MLR 20 (06.11.2020)**

<b>I B.Tech.- I-Semester</b>									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5BS01	Calculus and Applications	BSC	3	1	0	4	30	70	100
A5BS10	Physics of materials engineering & Science	BSC	3	1	0	4	30	70	100
A5AE01	Engineering Mechanics	ESC	3	1	0	4	30	70	100
A5AE02	Engineering Drawing	ESC	1	0	4	3	30	70	100
A5BS11	Engineering Physics Laboratory	BSC	0	0	3	2	30	70	100
A5AE03	Workshop & Manufacturing Practices	ESC	0	0	4	2	30	70	100
<b>Total</b>			10	03	11	19	180	420	600
<b>Mandatory Course (Non-Credit)</b>									
A5MC04	Technical Seminar-I	MC	0	0	2	0	30	70	100

<b>I B.Tech.- II-Semester</b>									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5BS03	Integral Calculus and Numerical Techniques	BSC	3	1	0	4	30	70	100
A5BS13	Engineering Chemistry	BSC	4	0	0	4	30	70	100
A5CS01	Programming for problem solving	ESC	3	0	0	3	30	70	100
A5HS01	Communicative English	HSMC	2	0	0	2	30	70	100
A5CS02	Programming for problem solving Laboratory	ESC	0	0	4	2	30	70	100
A5BS14	Engineering Chemistry Laboratory	BSC	0	0	3	2	30	70	100
A5HS02	English Language and Communication Skills Laboratory	HSMC	0	0	3	2	30	70	100
<b>Total</b>			12	01	10	19	210	490	700
<b>Mandatory Course (Non-Credit)</b>									
A5MC02	Technical Seminar-II	MC	0	0	2	0	30	70	100

**II B.Tech.- III-Semester**

Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5AE04	Introduction to Aerospace Engineering	PCC	3	-	-	3	30	70	100
A5AE05	Mechanics of Solids	PCC	3	-	-	3	30	70	100
A5AE06	Mechanics of Fluids	PCC	3	-	-	3	30	70	100
A5AE07	Engineering Thermodynamics	ESC	3	-	-	3	30	70	100
A5EE01	Basic Electrical and Electronics Engineering	ESC	3	-	-	3	30	70	100
A5AE08	Mechanics of Solids and Fluids Lab	PCC	-	-	3	2	30	70	100
A5EE02	Basic Electrical and Electronics Engineering Lab	ESC	-	-	3	2	30	70	100
A5AE09	Computer Aided Aircraft Modelling	ESC	-	-	3	2	30	70	100
<b>Total</b>			15	-	9	21	240	560	800
<b>Mandatory Course (Non-Credit)</b>									
A5MC03	Environmental Studies	MC	2	-	-	-	30	70	100

**II B.Tech.- IV-Semester**

Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5BS06	Vector calculus and probability statistics	BSC	3	-	-	3	30	70	100
A5IT03	Python Programming	PCC	1	-	2	2	30	70	100
A5AE11	Aerodynamics-I	PCC	3	-	-	3	30	70	100
A5AE12	Aerospace Vehicle Structures - I	PCC	3	-	-	3	30	70	100
A5AE13	Airplane Performance	PCC	3	-	-	3	30	70	100
A5AE14	Aerodynamics Lab	PCC	-	-	3	2	30	70	100
A5EC01	Introduction to IOT	ESC	-	-	3	2	30	70	100
A5AE16	Aircraft Interior Design Lab	PCC	-	-	3	2	30	70	100
<b>Total</b>			13	-	11	20	240	560	800
<b>Mandatory Course (Non-Credit)</b>									
A5HS03	Gender Sensitization	MC	-	-	2	-	30	70	100

III B.Tech.- I-Semester									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5AE17	Aerospace Vehicle Structures-II	PCC	3	-	-	3	30	70	100
A5AE18	Aerodynamics-II	PCC	3	-	-	3	30	70	100
A5AE19	Aircraft Stability and Control	PCC	3	-	-	3	30	70	100
A5AE20	Aerospace Propulsion - I	PCC	3	-	-	3	30	70	100
	OPEN ELECTIVE - I	OEC	3	-	-	3	30	70	100
A5AE21	Propulsion and Flight Simulation Lab	PCC	-	-	3	2	30	70	100
A5AE22	Aerospace Vehicle Structures Lab	PCC	-	-	3	2	30	70	100
A5AE33	Aircraft Design Lab	PCC	-	-	3	2	30	70	100
A5AE34	Internship/Certifications	PWC	-	-	-	2	--	100	100
<b>Total</b>			15	-	9	23	240	660	900

III B.Tech.- II-Semester									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5AE24	Aircraft Production Technology	ESC	3	-	-	3	30	70	100
A5AE25	Aerospace Propulsion - II	PCC	3	-	-	3	30	70	100
	OPEN ELECTIVE-II	OEC	3	-	-	3	30	70	100
	PROFESSIONAL ELECTIVE - I	PEC	3	-	-	3	30	70	100
	PROFESSIONALELECTIVE - II	PEC	3	-	-	3	30	70	100
A5AE26	Aircraft Production Technology Lab	ESC	-	-	3	2	30	70	100
A5AE27	Computational Structural Analysis Lab	PCC	-	-	3	2	30	70	100
A5HS07	Advanced English Communication Skills Lab	HSMC	-	-	3	2	30	70	100
A5AE28	Comprehensive viva	PWC	-	-	-	1	--	100	100
<b>Total</b>			15	-	9	22	240	660	900

IV B.Tech.- I-Semester									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
A5AE29	Composite Materials and Structures	PCC	3	-	-	3	30	70	100
A5AE30	Computational Fluid dynamics	PCC	3	-	-	3	30	70	100
	OPEN ELECTIVE-III	OEC	3	-	-	3	30	70	100
	PROFESSIONAL ELECTIVE - III	PEC	3	-	-	3	30	70	100
	PROFESSIONAL ELECTIVE - IV	PEC	3	-	-	3	30	70	100
A5AE31	Computational Analysis of Composite and Structures Lab	PCC	-	-	3	2	30	70	100
A5AE32	Computational Fluid dynamics Lab	PCC	-	-	3	2	30	70	100
A5AE35	Project Phase-I	PWC	-	-	8	4	100	--	100
<b>Total</b>			15	-	14	25	310	490	800

IV B.Tech.- II-Semester									
Course Code	Course Title	Course Area	Hours per Week			Credits	Scheme of Examination Maximum Marks		
			L	T	P		Internal (CIE)	External (SEE)	Total
	OPEN ELECTIVE-IV	OEC	3	-	-	3	30	70	100
	PROFESSIONAL ELECTIVE – V	PEC	3	-	-	3	30	70	100
	PROFESSIONAL ELECTIVE – VI	PEC	3	-	-	3	30	70	100
A5AE36	Project Phase-II	PWC	-	-	16	8	50	150	200
<b>Total</b>			9		16	17	140	360	500

PROFESSIONAL ELECTIVES			
PE-I		PE-II	
A5AE37	Vibration and Structural Dynamics	A5AE41	Finite Element Analysis
A5AE38	Wind Tunnel Techniques	A5AE42	Aircraft systems and Instruments
A5AE39	Helicopter Engineering	A5AE43	Aero Elasticity
A5AE40	Flight Scheduling and Operations	A5AE44	Design of UAV Systems
PE-III		PE-IV	
A5AE45	Heat Transfer	A5AE49	Fundamentals of Combustion
A5AE46	Experimental Stress Analysis	A5AE50	Industrial Aerodynamics
A5AE47	Control Theory	A5AE51	Space Mechanics
A5AE48	Airframe Maintenance and Repair	A5AE52	Additive Manufacturing
PE-V		PE-VI	
A5AE53	Non Destructive Testing	A5ME57	Avionics
A5AE54	Aero Engine Repair and Maintenance	A5AE58	Fatigue and Fracture Mechanics
A5AE55	Wind Power Engineering	A5AE59	Corrosion of Aerospace Materials
A5AE56	Air Traffic Control and Aerodrome Design	A5AE60	Rocket and Missiles

## OPEN ELECTIVE COURSES

OPEN ELECTIVE COURSE-I			
S. No.	Course Code	Course Name	Offering Department
1	A5AE61	Fabrication Processes	Aeronautical Engineering
2	A5AE62	Fundamentals of Avionics	
3	A5AE63	Principles of Flight	
4	A5CS37	Core Java Programming	Computer Science and Engineering
5	A5CS26	Software Engineering	
6	A5CS23	Data Analytics	
7	A5EC53	Logic Design	Electronics & Communication Engineering
8	A5EC54	Principles of Communications	
9	A5EC55	Measurements and Instruments	
10	A5EE53	Electrical Wiring and Safety Measures	Electrical & Electronics Engineering
11	A5EE54	Electrical Materials	
12	A5EE55	New trends in Electrical Energy	
13	A5IT20	Fundamentals of Data Structures	Information Technology
14	A5IT27	Software Engineering Principles	
15	A5IT28	Operating System Principles	
16	A5ME71	Elements of Mechanical Engineering	Mechanical Engineering
17	A5ME72	Fundamentals of Engineering Materials	
18	A5HS06	Business Economics and Financial Analysis	HS
19	A5HS07	Basics of Entrepreneurship	
20	A5HS08	Human Values and Professional Ethics	
OPEN ELECTIVE COURSE-II			
S. No.	Course Code	Course Name	Offering Department
1	A5AE64	Introduction to Aircraft Industry	Aeronautical Engineering
2	A5AE65	Non-Destructive Testing Methods	
3	A5AE66	Fundamentals of Finite Element Method	
4	A5CS38	Fundamentals of DBMS	Computer Science and Engineering
5	A5CS35	Introduction to Machine Learning	
6	A5CS09	Design & Analysis of Algorithms	
7	A5EC56	Fundamentals of Integrated Circuits	Electronics & Communication Engineering
8	A5EC57	Introduction of Microprocessors and Microcontrollers	
9	A5EC58	Fundamentals of VLSI Design	
10	A5EE56	Power Plant Engineering	Electrical & Electronics Engineering
11	A5EE57	Analysis of Linear Systems	
12	A5EE58	Neural Networks and Fuzzy Logic	
13	A5IT29	Basics of Python Programming	Information Technology
14	A5IT30	Human Computer Interaction	
15	A5IT31	Software Testing Fundamentals	
16	A5ME73	Fundamentals of Mechatronics	Mechanical Engineering
17	A5ME44	Basics of Thermodynamics	
18	A5HS09	Advanced Entrepreneurship	HS

<b>OPEN ELECTIVE COURSE-III</b>			
<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Offering Department</b>
1	A5AE67	Unmanned Aerial Vehicles	Aeronautical Engineering
2	A5AE68	Fundamentals of Wind Power Technology	
3	A5AE69	Introduction to Wind Tunnel Techniques	
4	A5CS39	Introduction to Cloud Computing	Computer Science and Engineering
5	A5CS40	Computer Organization and Operating Systems	
6	A5CS32	Agile Software Development	
7	A5EC59	Signal Transmission through linear systems	Electronics & Communication Engineering
8	A5EC60	Fundamentals of Image processing	
9	A5EC61	TV Engineering	
10	A5EE59	Illumination Engineering	Electrical & Electronics Engineering
11	A5EE60	Non-Conventional Power Generation	
12	A5EE61	Solar Energy and Applications	
13	A5IT32	Cyber Forensics	Information Technology
14	A5IT33	Discrete Mathematical Structures	
15	A5IT34	Introduction to AI	
16	A5ME75	Basics of Robotics	Mechanical Engineering
17	A5ME76	Fundamentals of Operation Research	
18	A5HS10	Indian Ethos & Business Ethics	HS

<b>OPEN ELECTIVE-IV</b>			
<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Offering Department</b>
1	A5HS15	Management Science	HS
2	A5HS16	Intellectual Property Rights	
3	A5BS15	Number Theory	
4	A5BS16	Physics and Technology of Thin films	
5	A5BS17	Polymer chemistry	
6	A5CS22	Distributed Databases	Computer Science and Engineering
7	A5CS41	Fundamentals of Software Testing	
8	A5CS29	Cryptography and Network Security	
9	A5EC62	Introduction to Computer Vision	Electronics & Communication Engineering
10	A5EC63	Introduction to mobile communication	
11	A5EC64	Basic Embedded systems Design	
12	A5EE62	Instrumentation and Control	Electrical & Electronics Engineering
13	A5EE63	Energy Audit and Management Systems	
14	A5EE64	Energy Storage Systems	
15	A5IT35	Introduction to Mobile Application Development	Information Technology
16	A5IT36	Big Data	
17	A5IT35	Introduction to Mobile Application Development	
18	A5ME77	Introduction to Material Handling	Mechanical Engineering
19	A5ME78	Non Conventional Energy Sources	