MVJ College of Engineering, Whitefield, Bangalore

An Autonomous Institution, Affiliated to VTU, Belagavi

Scheme of Teaching and Examination 2020-2021

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

Effective from the academic year 2020-2021

I SEMESTER B.E. (CHEMISTRY GROUP) Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAT11	Calculus and Linear Algebra	Mathematics	3	2	0	3	50	50	100	4
2	BSC	MVJ20CHE12	Engineering Chemistry	Chemistry	3	2	0	3	50	50	100	4
3	ESC	MVJ20CS13	C Programming for Problem Solving	Computer Science & Engineering	2	2	0	3	50	50	100	3
4	ESC	MVJ20EC14	Basic Electronics	Electronics & Communication Engineering	2	2	0	3	50	50	100	3
5	ESC	MVJ20ME15	Elements of Mechanical Engineering	Mechanical Engineering	2	2	0	3	50	50	100	3
6	BSC	MVJ20CHEL16	Engineering Chemistry Lab	Chemistry	0	0	2	3	50	50	100	1
7	ESC	MVJ20CSL17	C Programming Lab	Computer Science & Engineering	0	0	2	3	50	50	100	1
8	HSMC	MVJ20EGH18	Technical English-I	Humanities	0	2	0	3	50	50	100	1
				Total	12	12	4	24	400	400	800	20
Note: BSC: Basic Science, ESC: Engineering Science, HSMC: Humanity and Social Science												

I SEMESTER B.E. (PHYSICS GROUP) Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAT11	Calculus and Linear Algebra	Mathematics	3	2	0	3	50	50	100	4
2	BSC	MVJ20PHY12	Engineering Physics	Physics	3	2	0	3	50	50	100	4
3	ESC	MVJ20EE13	Basic Electrical Engineering	Electrical & Electronics Engineering	2	2	0	3	50	50	100	3
4	ESC	MVJ20CV14	Elements of Civil Engineering &Mechanics	Civil Engineering	2	2	0	3	50	50	100	3
5	ESC	MVJ20ME15	Engineering Graphics	Mechanical Engineering	2	0	2	3	50	50	100	3
6	BSC	MVJ20PHYL16	Engineering Physics Lab	Physics	0	0	2	3	50	50	100	1
7	ESC	MVJ20EEL17	Basic Electrical Engineering Lab	Electrical & Electronics Engineering	0	0	2	3	50	50	100	1
8	HSMC	MVJ20EGH18	Technical English-I	Humanities	0	2	0	3	50	50	100	1
				Total	12	10	6	24	400	400	800	20
Note: BSC: Basic Science, ESC: Engineering Science, HSMC: Humanity and Social Science												

II SEMESTER B.E. (CHEMISTRY GROUP) Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAT21	Calculus and Linear Algebra	Mathematics	3	2	0	3	50	50	100	4
2	BSC	MVJ20CHE22	Engineering Chemistry	Chemistry	3	2	0	3	50	50	100	4
3	ESC	MVJ20CS23	C Programming for Problem Solving	Computer Science & Engineering	2	2	0	3	50	50	100	3
4	ESC	MVJ20EC24	Basic Electronics	Electronics & Communication Engineering	2	2	0	3	50	50	100	3
5	ESC	MVJ20ME25	Elements of Mechanical Engineering	Mechanical Engineering	2	2	0	3	50	50	100	3
6	BSC	MVJ20CHEL26	Engineering Chemistry Lab	Chemistry	0	0	2	3	50	50	100	1
7	ESC	MVJ20CSL27	C Programming Lab	Computer Science & Engineering	0	0	2	3	50	50	100	1
8	HSMC	MVJ20EGH28	Technical English-II	Humanities	0	2	0	3	50	50	100	1
				Total	12	12	4	24	400	400	800	20
Note: BSC: Basic Science, ESC: Engineering Science, HSMC: Humanity and Social Science												

II SEMESTER B.E. (PHYSICS GROUP) Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAT21	Calculus and Linear Algebra	Mathematics	3	2	0	3	50	50	100	4
2	BSC	MVJ20PHE22	Engineering Physics	Physics	3	2	0	3	50	50	100	4
3	ESC	MVJ20EE23	Basic Electrical Engineering	Electrical & Electronics Engineering	2	2	0	3	50	50	100	3
4	ESC	MVJ20CV24	Elements of Civil Engineering &Mechanics	Civil Engineering	2	2	0	3	50	50	100	3
5	ESC	MVJ20ME25	Engineering Graphics	Mechanical Engineering	2	0	2	3	50	50	100	3
6	BSC	MVJ20PHEL26	Engineering Physics Lab	Physics	0	0	2	3	50	50	100	1
7	ESC	MVJ20EEL27	Basic Electrical Engineering Lab	Electrical & Electronics Engineering	0	0	2	3	50	50	100	1
8	HSMC	MVJ20EGH28	Technical English-II	Humanities	0	2	0	3	50	50	100	1
				Total	12	10	6	24	400	400	800	20
Note: BSC: Basic Science, ESC: Engineering Science, HSMC: Humanity and Social Science												

III SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical /Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAS31/ MAE31	Transforms & Statistical Methods	Mathematics	3	1	-	3	50	50	100	3
2	PCC	MVJ20AS32/ AE32	Aerothermodynamics	AS	3	2	-	3	50	50	100	4
3	PCC	MVJ20AS33	Elements of Aerospace Technology	AS	3	1	-	3	50	50	100	3
4	PCC	MVJ20AS34/ AE34	Mechanics of Materials	AS	3	1	-	3	50	50	100	3
5	PCC	MVJ20AS35/ AE35	Mechanics of Fluids	AS	3	1	-	3	50	50	100	3
6	PCC	MVJ20AS36/AE36	Aerospace Materials	AS	3	1	-	3	50	50	100	3
7	PCC	MVJ20ASL37A/ ASL37B	Measurement and Metrology Lab/ Material Testing Lab	AS	-	-	3	3	50	50	100	2
8	PCC	MVJ20ASL38	Machine Shop	AS	-	-	3	3	50	50	100	2
9	HSMC	MVJ20KAN39	Kannada	Humanities	1	-	-	3	50	50	100	1
		MVJ20CPH39	CPH		1	-	-	3	50	50		
10	BSC	MVJ20MASDIP301 /MAEDIP301	Diploma Mathematics-I	Mathematics	3	1	-	3	50	50	100	-
11	HSMC	MVJ20UHN310	Universal Human Values	Humanities	1	-	-	3	50	50	100	1
				Total	24	8	6	30	500	500	1000	25

Note: BSC: Basic Science, PCC: Professional Core Course , HSMC: Humanity and Social Science, MVJ20MASDIP301- Mandatory non-credit course

IV SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical /Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	BSC	MVJ20MAS41/ MAE41	Complex Variables & Numerical Methods	Mathematics	3	1	-	3	50	50	100	3
2	PCC	MVJ20AS42/AE42	Incompressible Aerodynamics	AS	3	2	-	3	50	50	100	4
3	PCC	MVJ20AS43	Fundamentals of Aerospace Structures	AS	3	1	-	3	50	50	100	3
4	PCC	MVJ20AS44	Aerospace Propulsion	AS	3	1	-	3	50	50	100	3
5	PCC	MVJ20AS45/AE45	Turbomachines	AS	3	1	-	3	50	50	100	3
6	PCC	MVJ20AS46/ AE46	Mechanism and Machine Theory	AS	3	1	-	3	50	50	100	3
7	PCC	MVJ20ASL47A/ ASL47B	Material Testing Lab/ Measurement and Metrology Lab	AS	-	-	3	3	50	50	100	2
8	PCC	MVJ20ASL48	Computer Aided Aircraft Drawing	AS	-	-	3	3	50	50	100	2
9	HSMC	MVJ20KAN49	Kannada	Humanities	1	-	-	3	50	50	100	1
		MVJ20CPH49	CPH		1	-	-	3	50	50		
10	BSC	MVJ20MASDIP401/ MAEDIP401	Diploma Mathematics-II	Mathematics	3	1	-	3	50	50	100	-
				Total	23	8	6	30	500	500	1000	24

Note: BSC: Basic Science, PCC: Professional Core Course , HSMC: Humanity and Social Science
MVJ20MASDIP401- Mandatory non-credit course

V SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	HSMC	MVJ20TEM51	Technical Management & Entrepreneurship	AS	3	1	-	3	50	50	100	3
2	PCC	MVJ20AS52	Compressible Aerodynamics	AS	3	2	-	3	50	50	100	4
3	PCC	MVJ20AS53	Aerospace Structural Analysis	AS	3	2	-	3	50	50	100	4
4	PCC	MVJ20AS54/ AE54	Theory of Vibration	AS	3	1	-	3	50	50	100	3
5	PE	MVJ20AS55X	Professional Elective-I	AS	3	1	-	3	50	50	100	3
6	PCC	MVJ20ASL56	Aerodynamic Lab	AS	-	-	3	3	50	50	100	2
7	PCC	MVJ20ASL57	Energy Conversion & Fluid Mechanics Lab	AS	-	-	3	3	50	50	100	2
8	PCC	MVJ20ASL58	Aerospace Propulsion Lab	AS	-	-	3	3	50	50	100	2
9	HSMC	MVJ20ENV59	Environmental Studies	Humanities	1	-	-	3	50	50	100	1
10	HSMC	MVJ20UHN510	Universal Human Values-II	Humanities	2	-	-	3	50	50	100	2
				Total	18	7	9	30	500	500	100	26
Note: PCC: Professional Core Course , PE: Professional Elective, HSMC: Humanity and Social Science												

Professional Elective-1	
MVJ20AS551	Theory of Plates and Shells
MVJ20AS552/AE552	Composite Structures
MVJ20AS553	Heat & Mass Transfer in Aerospace Applications

VI SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	PCC	MVJ20AS61	Space Flight Mechanics	AS	3	2	-	3	50	50	100	4
2	PCC	MVJ20AS62	Finite Element Method	AS	3	2	-	3	50	50	100	4
3	PE	MVJ20AS63X	Professional Elective-II	AS	3	1	-	3	50	50	100	3
4	PE	MVJ20AS64X	Professional Elective -III	AS	3	1	-	3	50	50	100	3
5	OE	MVJ20AS65X	Open Elective-I	AS	3	1	-	3	50	50	100	3
6	PCC	MVJ20ASL66	Aerospace Structures & Vibration Lab	AS	-	-	3	3	50	50	100	2
7	PCC	MVJ20ASL67	Design Modeling and Analysis Lab	AS	-	-	3	3	50	50	100	2
8	Proj	MVJ20ASP68	Mini-Project					3	50	50	100	2
				Total	15	7	6	24	400	400	800	23
Note: PCC: Professional Core Course , PE: Professional Elective, OE: Open Elective, Proj: Project Work												

Professional Elective-II		Professional Elective-III	
MVJ20AS631	Computational Fluid Dynamics	MVJ20AS641	Atmospheric Flight Mechanics
MVJ20AS632/AE632	Experimental Stress Analysis	MVJ20AS642	Fatigue and Fracture Mechanics
MVJ20AS633	Fuels and Combustion	MVJ20AS643	Missiles and Launch Vehicles

Open Elective-I	
MVJ20AS651	Introduction to Spacecraft and Satellite Technologies
MVJ20AS652	Astrophysics and Space Environment
MVJ20AS653	Aerospace Systems

VII SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1	PCC	MVJ20AS71	Aerospace Vehicle Design	AS	3	2	-	3	50	50	100	4
2	PCC	MVJ20AS72	Reusable Launch Vehicles & Space Operations	AS	3	2	-	3	50	50	100	4
3	PE	MVJ20AS73X	Professional Elective -IV	AS	3	1	-	3	50	50	100	3
4	PE	MVJ20AS74X	Professional Elective -V	AS	3	1	-	3	50	50	100	3
5	OE	MVJ20AS75X	Open Elective -II	AS	3	1	-	3	50	50	100	3
6	PCC	MVJ20ASL76	Space Simulation Lab	AS	-	-	3	3	50	50	100	2
7	PCC	MVJ20ASL77	Avionics and Instrumentation Lab	AS	-	-	3	3	50	50	100	2
8	Proj	MVJ20ASP78	Project Phase-1	AS	-	-	-	3	50	-	50	2
				Total	15	7	6	24	400	350	750	23
Note: PCC: Professional Core Course , PE: Professional Elective, OE: Open Elective, Proj: Project Work												

Professional Elective-IV		Professional Elective-V	
MVJ20AS731	Boundary Layer Theory	MVJ20AS741/ AE741	Avionics
MVJ20AS732	Cryogenics	MVJ20AS742	Hypersonic Flows
MVJ20AS733/AE733	Control Engineering	MVJ20AS743	Artificial Intelligence & Robotics

Open Elective-II	
MVJ20AS751	Unmanned Aerial Vehicles
MVJ20AS752	Spacecraft Navigation and Control
MVJ20AS753	Spacecraft Launch Vehicles

VIII SEMESTER B.E. Aerospace Engineering

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	Type	Code			L	T	P					
1.	Proj	MVJ20ASP83	Project Phase-2					3	50	50	100	8
2.	Int	MVJ20ASI84	Internship					3	50	50	100	3
3.	Sem	MVJ20ASS85	Seminar					3	50	50	100	1
4.	CRT	MVJ20ASC86	Certification	Industry/Institute								2
				Total	6	2	-	15	250	250	500	14

Note: PCC: Professional Core Course , PE: Professional Elective, OE: Open Elective, Proj: Project Work, Int.: Internship, Sem : Seminar, CRT: Certification Course (Can be carried out during the program period but same will reflect in the final semester grade card)