

MVJ College of Engineering, Whitefield, Bangalore 560067

*An Autonomous Institution, Affiliated to VTU, Belagavi*

**Scheme of Teaching and Examination**

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

Effective from the academic year 2021-22

Department of Aeronautical Engineering

Semester III

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination				Credits
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks	Total Marks	
1	BSC	MVJ21MAE31X/ MAS31/MME31	Transforms and Statistical Methods	Math	3	2	-	-	3	50	50	100	4
2	PCC	MVJ21AE32/ MVJ21AS32	Thermodynamics	AE	3	2	-	-	3	50	50	100	4
3	PCC	MVJ21AE33	Elements of Aeronautics	AE	3	-	-	-	3	50	50	100	3
4	IPCC	MVJ21AE34/ MVJ21AS34	Mechanics of Materials (+Material Testing Lab)	AE	3	-	2	-	3	100	100	200	4
5	IPCC	MVJ21AE35/ MVJ21AS35	Mechanics of Fluids (+Fluid Mechanics Lab)	AE	3	-	2	-	3	100	100	200	4
6	HSMC	MVJ21XX36	Kannada/ Constitution of India and Professional Ethics and Cyber law	Humanities	1				2	50	50	100	1
7	AEC	MVJ21AE37/ MVJ21AS37	Aerospace Materials	AE	1		-		2	50	50	100	2
8	BSC	MVJ21MATDIP-1	Diploma Mathematics-1	Math	1	2			3	50	50	100	-
Total					17/17	4/6	4			450/500	450/500	1000	22

**Kannada will be taught by the following departments- AE,AS,CH,CS,CV,AI&ML**

**Constitution of India and Professional Ethics will be taught by the following departments-CG,DS,EE,EE,IS,ME**

Summer Internship I Viva Voce will be conducted for the 03 weeks inter/intra institutional summer internship activities carried out during the intervening period of II and III semester. The internship will be considered as a head of passing and will be considered for the award of the degree. Those who do not take up / complete the internship will be declared fail and will have to complete during the subsequent examination after satisfying the internship requirements.

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Semester IV

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination				Credits
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks	Total Marks	
1	BSC	MVJ21MAE41X/ MAS41/MME41	Complex Variables and Numerical Methods	Math	2	2	-	-	3	50	50	100	3
2	PCC	MVJ21AE42/ MVJ21AS42	Incompressible Aerodynamics	AE	3	-	-	-	3	50	50	100	3
3	PCC	MVJ21AE43/ MVJ21AS43	Finite Element Methods	AE	2	2	-	-	3	50	50	100	3
4	IPCC	MVJ21AE44/ MVJ21AS44	Mechanism and Machine Theory(+Machine Shop and MMM Lab)	AE	3		2	-	3	100	100	200	4
5	IPCC	MVJ21AE45	Fundamentals of Aircraft Structures(+CAAD Lab)	AE	3		2	-	3	100	100	200	4
6	HSMC	MVJ21XX46	Kannada/ Constitution of India and Professional Ethics and Cyber law	Humanities	1	-			2	50	50	100	1
7	AEC	MVJ21AE47/ MVJ21AS47	Turbomachines	AE	1	-	-		2	50	50	100	2
8	INT	MVJ21INT48	Summer Internship I	AE	-	-	-						2
9	BSC	MVJ21MATDIP-II	Diploma Mathematics-II	Math	1	2	-	-	3	50	50	100	-
Total						16/17	4/4	4		450/500	450/500	1000	22

**Kannada will be taught by the following departments-CG, DS, EE, EE, IS, ME**

**Constitution of India and Professional Ethics will be taught by the following departments-AE, AS, CH, CS, CV, AI&ML**

Summer Internship II Viva Voce will be conducted for the 04 weeks industrial/ Govt./NGO/MSME/rural internship/Innovation/ Entrepreneurship summer internship activities carried out during the intervening period of IV and V semester. The internship will be considered as a head of passing and will be considered for the award of the degree. Those who do not take up / complete the internship will be declared fail and will have to complete during the subsequent examination after satisfying the internship requirements.

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Semester V

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination			Credits	
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks		Total Marks
1	HSMC	MVJ21AE51/ MVJ21AS51	Aviation Management	AE	3	-	-	-	3	50	50	100	3
2	PCC	MVJ21AE52	Aircraft Performance	AE	3	-	-	-	3	50	50	100	3
3	IPCC	MVJ21AE53/ MVJ21AS53	Compressible Aerodynamics (+Aerodynamic Lab)	AE	3	-	2	-	3	100	100	200	4
4	IPCC	MVJ21AE54	Aircraft Propulsion (+Aircraft Propulsion Lab)	AE	3	-	2	-	3	100	100	200	4
5	PEC	MVJ21AE55X	PEC 1	AE	3	-	-	-	3	50	50	100	3
6	HSMC	MVJ21XX56	Environmental Studies	CV	1	-	-	-	2	50	50	100	1
7	AEC	MVJ21XX57	Research Methodology & IPR/Life Science AEC5	AE	1	2	-	-	2	50	50	100	2
8	UHV	MVJ21UHVI58	Universal Human Values	AE	2	-	-	-	3	50	50	100	2
Total					19	2	4	-		500	500	1000	22

Course Code	Professional Elective-I
MVJ21AE551	Aircraft Systems and Instrumentation
MVJ21AE552/ MVJ21AS552	Theory of Vibration
MVJ21AE553	Gas Turbine Technology
MVJ21AE554/ MVJ21AS554	Optimisation Techniques and Probability Theory

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### Semester VI

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination			Credits	
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks		Total Marks
1	HSMC	MVJ21AE61	Computational Fluid Dynamics	AE	2	2	-	-	3	50	50	100	3
2	IPCC	MVJ21AE62	Aircraft Structural Analysis (+Aircraft Structures lab)	AE	3	-	2	-	3	100	100	200	4
3	IPCC	MVJ21AE63	Aircraft Stability and Control (+ Flight Simulation Lab)	AE	3	-	2	-	3	100	100	200	4
4	OEC	MVJ21AE64X	OEC I	AE	3	-	-	-	3	50	50	100	3
5	OEC	MVJ21AE65	MOOC Courser (OEC 2)	AE	3	-	-	-	3	50	50	100	3
6	AEC	MVJ21AE66	Aircraft Maintenance Repair and Overhaul	AE	2	-	-	-	2	50	50	100	1
7	PRJ	MVJ21XXPRJ67	Mini project	AE	-	-	4	-	3	50	50	100	2
8	INT	MVJ21INT68I	Summer Internship II	AE	-	-	-	-	3	50	50	100	2
Total					16	2	8			500	500	1000	22

**Research /IndustrialInternship-** shall be carried out during VI and VII-semester for 24 weeks duration. The **Research /IndustrialInternship** shall be on Industrial/Govt./NGO/MSME/Rural Internship/Innovation/Entrepreneurship. **Research Internship** must be taken up at Centers of Excellence (CoE)/ Study Centers established in the institute/ at the reputed research organizations. The viva-voce examinations for **Research /IndustrialInternship** shall be carried out during VIII semester.

Under open elective ,departments shall offer only one course. Student will have option to select one course from any of the departments.

Course Code	Open Elective-I
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MVJ21AE641	General Introduction to Aeronautics
MVJ21AE642	Introduction to Helicopters
MVJ21AE643	Introduction to Composite Structures

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Semester VII

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination			Credits	
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks		Total Marks
1	IPCC	MVJ21AE71	Aircraft Design (+Design Modelling and Analysis Lab)		3	-	2	-	3	100	100	200	4
2	PEC	MVJ21AE72X	Professional Elective-II		3	-	-	-	3	50	50	100	3
3	PEC	MVJ21AE73X	Professional Elective-III		3	-	-	-	3	50	50	100	3
4	OEC	MVJ21AE74X	OEC 3		3	-	-	-	3	50	50	100	3
5	PRJ	MVJ21AEPR76	Project Phase I		-	-	4		3	50	50	100	2
6	AEC	MVJ21AE77	AEC (online minimum of 4 weeks duration)		1	-	-	-	2	50	50	100	1
Total					13	-	6			350	350	700	16

Course Code	Professional Elective-II	Course Code	Professional Elective-III
MVJ21AE721	Helicopter Aerodynamics	MVJ21AE731	Flight Testing
MVJ21AE722/ MVJ21AS722	Composite Structures	MVJ21AE732	Fatigue and Fracture Mechanics
MVJ21AE723	Rocket and Missiles	MVJ21AE733/ MVJ21AS733	Artificial Intelligence and Robotics
MVJ21AE724	Experimental Stress Analysis	MVJ21AE734	Unmanned Aerial Vehicles
MVJ21AE725/	Control Engineering	MVJ21AE735/	Guidance Navigation and Control

MVJ21AS725		MVJ21AS735	
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Course Code	Open Elective-III
MVJ21AE741	Aircraft Propulsion
MVJ21AE742	Aircraft Transport System
MVJ21AE743	Rocket and Missiles
MVJ21AE744	Aircraft Systems and Instrumentation
MVJ21AE745	Unmanned Aerial Vehicles

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Semester VIII

Sl. No.	Course		Course Title	BoS	Teaching hrs./week				Examination				Credits
	Type	Code			Lecture L	Tutorial T	Practical P	Self-Study S	Duration Hrs.	CIE Marks	SEE Marks	Total Marks	
1	PRJ	MVJ21XXP81	Project Phase II	AE	-	-	-	-	3	50	50	100	10
2	INT	MVJ21XXINT82	Research / Industrial Internship	AE	-	-	-	-	3	50	50	100	05
3	Seminar	MVJ21XXS83	Seminar	AE	-	-	-	-	3	50	50	100	01
Total						-	-	-	-	150	150	300	16

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Scheme of study - 2021 Scheme- Semester VIII

Distribution of Credits

Course Type/Semester	Semester I	Semester II	Semester III	Semester IV	Semester V	Semester VI	Semester VII	Semester VIII	Total
HSMC	2	2	1	1	3+1	3	-	-	13
BSC	7	7	4	3	-	-	-	-	21
ESC	10	10	-	-	-	-	-	-	20
PCC	-	-	7	6	3	-	-	-	16
IPCC	-	-	8	8	8	8	4	-	36
PEC	-	-	-	-	-3		6	-	9
OEC	-	-	-	-		6	3		9
INT	-	-	-	2	-	2	-	5	9

<b>Project</b>	-	-	-	-	-	<b>2</b>	<b>2</b>	<b>10</b>	<b>14</b>
<b>AEC</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	-	<b>10</b>
<b>UHV</b>	-	-	-	-	<b>2</b>	-	-	-	<b>2</b>
<b>Seminar</b>	-	-	-	-	-	-	-	<b>1</b>	<b>1</b>
<b>Total</b>	<b>20</b>	<b>20</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>22</b>	<b>16</b>	<b>16</b>	<b>160</b>