

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 Mechanical 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	MVJ21MME31	Mathematics - III	MA	3	2	-	-	3	50	50	100	4
2	PCC	MVJ21ME32	Engineering Thermodynamics	ME	4	-	-	-	3	50	50	100	4
3	PCC	MVJ21ME33	Mechanics of Materials	ME	2	2	-	-	3	50	50	100	3
4	IPCC	MVJ21ME34	Materials Engineering – Theory and Practice	ME	3	-	2	-	3	100	100	200	4
5	IPCC	MVJ21ME35	Manufacturing Technology – Theory and Practice	ME	3	-	2	Y	3	100	100	200	4
6	HSMC	MVJ21ME36	Kannada/ Constitution of India and Professional Ethics and Cyber law	Humanities	1				2	50	50	100	1
7	AEC	MVJ21MEA37	Spread Sheet for Engineers	ME	1		2		2	50	50	100	2
8	BSC	MVJ21MATDIP-I	Additional Mathematics	MA	1	2			3	50	50	100	-
Total						17/18	4/6	6		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	MVJ21MME41	Mathematics - IV	MA	2	2	-	-	3	50	50	100	3
2	PCC	MVJ21ME42	Theory of Machines	ME	3		-	-	3	50	50	100	3
3	PCC	MVJ21ME43	Advanced Manufacturing Technology	ME	3		-	-	3	50	50	100	3
4	IPCC	MVJ21ME44	Metrology and Measurements – Theory and Practice	ME	3		2	-	3	100	100	200	4
5	IPCC	MVJ21ME45	Machine Drawing and Operations – Theory and Practice	ME	3		2	Y	3	100	100	200	4
6	HSMC	MVJ21ME46	Kannada/ Constitution of India and Professional Ethics and Cyber law	Humanities	1	-			2	50	50	100	1
7	AEC	MVJ21MEA47	GD&T	ME	1	-	2		2	50	50	100	2
8	INT	MVJ21INT48	Summer Internship I	ME	-	-	-						2
9	BSC	MVJ21MATDIP-II	Additional Mathematics – II	MA	1	2	-	-	3	50	50	100	-
Total					16/17	2/4	6			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	MVJ21ME51	Technical Management and Entrepreneurship	ME	3	-	-	-	3	50	50	100	3
2	PCC	MVJ21ME52	Mechanical Vibrations	ME	3	-	-	-	3	50	50	100	3
3	IPCC	MVJ21ME53	Fluid Mechanics & Machinery – Theory and Practice	ME	3	-	2	-	3	100	100	200	4
4	IPCC	MVJ21ME54	Design of Machine Elements – Theory and Practice	ME	3	-	2	Y	3	100	100	200	4
5	PEC	MVJ21ME55X	PEC 1	ME	3	-	-	-	3	50	50	100	3
6	HSMC	MVJ21ME56	Environmental Studies	CV	1	-	-	-	2	50	50	100	1
7	AEC	MVJ21MEA57	Research Methodology & IPR/Life Science AEC5		1	2	-		2	50	50	100	2
8	UHV	MVJ21UHV58	Universal Human Values		2	-			3	50	50	100	2
Total					19	2	4			500	500	1000	22

Course Code	Professional Elective-I
MVJ21ME551	Computer Integrated Manufacturing
MVJ21ME552	Industrial Internet of Things
MVJ21ME553	Supply Chain Management
MVJ21ME554	Smart Materials and Structures
MVJ21ME555	Theory of Elasticity

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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	MVJ21ME61	Program specific course on problem solving –Operations Research	ME	2	2	-	-	3	50	50	100	3
2	IPCC	MVJ21ME63	Heat Transfer – Theory and Practice	ME	3	-	2	-	3	100	100	200	4
3	IPCC	MVJ21ME64	Energy Conversion Technology – Theory and Practice	ME	3	-	2	Y	3	100	100	200	4
4	OEC	MVJ21ME62X	OEC I	ME	3	-	-	-	3	50	50	100	3
5	OEC	MVJ21ME65	MOOC Courser (OEC 2)		3	-	-	-	3	50	50	100	3
6	AEC	MVJ21MEA66	Design Thinking, AI and ML for Mechanical Engineers	ME	2	-	-	-	2	50	50	100	1
7	PRJ	MVJ21MEM67	Mini project	ME	-	-	4	-	3	50	50	100	2
8	INT	MVJ21INT68	Summer Internship II	ME	-	-	-	-	3	50	50	100	2
Total					16	2	8			500	500	1000	22

Research /Industrial Internship- shall be carried out during VI and VII-semester for 24 weeks duration. The **Research /Industrial Internship** 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 /Industrial Internship** 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
MVJ21ME621	Automotive Engineering
MVJ21ME622	Operations Management
MVJ21ME623	Engineering Economics
MVJ21ME624	Non-Conventional Energy Sources
MVJ21ME625	Total Quality Management

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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	MVJ21ME71	Finite Element Methods – Theory and Practice	ME	3	-	2	-	3	100	100	200	4
2	PEC	MVJ21ME72X	Professional Elective II	ME	3	-	-	-	3	50	50	100	3
3	PEC	MVJ21ME73X	Professional Elective III	ME	3	-	-	-	3	50	50	100	3
4	OEC	MVJ21ME74X	OEC 3		3	-	-	-	3	50	50	100	3
5	PRJ	MVJ21MEP76	Project Phase I	ME	-	-	4		3	50	50	100	2
6	AEC	MVJ21ME77	AEC (online minimum of 4 weeks duration)	ME	1	-	-	-	2	50	50	100	1
Total						13	-	6		350	350	700	16

Course Code	Professional Elective-II	Course Code	Professional Elective-III	Course Code	Open Elective – III
MVJ21ME721	Non Destructive Testing	MVJ21ME731	Design of Experiments	MVJ21ME741	Composite Materials
MVJ21ME722	Mechatronic System Design	MVJ21ME732	Noise, Vibration, and Harshness	MVJ21ME742	Product Design and Ergonomics
MVJ21ME723	Electric and Hybrid Vehicles Technology	MVJ21ME733	Theory of Plasticity	MVJ21ME743	Additive Manufacturing
MVJ21ME724	Computational Mechanics	MVJ21ME734	Solar Energy	MVJ21ME744	Nano Technology
MVJ21ME725	Tribology	MVJ21ME735	Refrigeration and Air conditioning	MVJ21ME745	Supply Chain Management

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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	MVJ21MEP81	Project Phase II	ME	-	-	-	-	3	50	50	100	10
2	INT	MVJ21INT82	Research / Industrial Internship	ME	-	-	-	-	3	50	50	100	05
3	Seminar	MVJ21MES83	Seminar	ME	-	-	-	-	3	50	50	100	01
Total					-	-		-		150	150	300	16

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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
Project	-	-	-	-	-	2	2	10	14
AEC	1	1	2	2	2	1	1	-	10
UHV	-	-	-	-	2	-	-	-	2
Seminar	-	-	-	-	-	-	-	1	1
Total	20	20	22	22	22	22	16	16	160