

MVJ College of Engineering, Whitefield,

An Autonomous Institution, Affiliated to VTU, Belagavi

Scheme of Teaching and Examination 2020-21

Outcome Based Education(OBE) and Choice Based Credit

System(CBCS) Effective from the academic year 2020-21

Department of Artificial Intelligence & Machine Learning

III SEMESTER B.E.(6 Theory,2 Labs,1 Kannada/CPH,1 MATDIP,1 AICTE Activity)

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
	Type	Code			Theory	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
1	BSC	MVJ20MCS31	Discrete Mathematical Structures And Probability	Mathematics	3	0	0	3	50	50	100	3
2	PCC	MVJ20CS32/ MVJ20AM32	Data Structures and Applications	AM	3	2	0	3	50	50	100	4
3	PCC	MVJ20AM33	Software Engineering	AM	3	0	0	3	50	50	100	3
4	PCC	MVJ20CS34/ MVJ20AM34	Operating Systems	AM	3	0	0	3	50	50	100	3
5	PCC	MVJ20CS35/ MVJ20AM35	Computer Organization and Architecture	AM	3	0	0	3	50	50	100	3
6	PCC	MVJ20CS36/ MVJ20AM36	Analog and Digital Electronics	ECE	3	0	0	3	50	50	100	3
7	PCC	MVJ20CSL37/ MVJ20AML37	Data Structures and Applications Laboratory	AM	0	2	2	3	50	50	100	2
8	PCC	MVJ20CSL38/ MVJ20AML38	Analog and Digital Electronics Laboratory	ECE	0	2	2	3	50	50	100	2
9	HSM C	MVJ20KAN42	Kannada	Humanities	1	0	0	3	50	50	100	1
		MVJ20CPH43	CPH					3	50	50		
10	NCMC	MVJ20MDSIP31	Additional Mathematics-1	Mathematics				3	50	50	100	-
11	HSMC	MVJ20UHV302	Universal Human Values I	Humanities	1	0	0					1
12	NCMC	AICTE Activity for 80-90 hours(20 points)		-	-	-	-	-	-	-	-	-
				Total				30	500	500	1000	25

Note: BSC: Basic Science, PCC: Professional Core Course, HSMC: Humanity and Social Science
MVJ20MXXDIP31-Mandatory non-credit course, NCMC: Non-credit mandatory course

IV SEMESTER B.E. (6 Theory, 2 Labs, 1 Kannada/CPH, 1 MATDIP, 1 AICTE Activity)

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
	Type	Code			Theory	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
1	BSC	MVJ20MCS41	Operations Research: Numerical and Statistical Methods	Mathematics	3	0	0	3	50	50	100	3
2	PCC	MVJ20CS42/ MVJ20AM42	Analysis and Design of Algorithms	AM	3	2	0	3	50	50	100	4
3	PCC	MVJ20AM43	Database Management Systems	AM	3	0	0	3	50	50	100	3
4	PCC	MVJ20AM44	Artificial Intelligence	AM	3	0	0	3	50	50	100	3
5	PCC	MVJ20AM45	Embedded Systems	AM	3	0	0	3	50	50	100	3
6	PCC	MVJ20AM46	Object Oriented Concepts	AM	3	0	0	3	50	50	100	3
7	PCC	MVJ20AML47	Analysis and Design of Algorithms Lab	AM	0	2	2	3	50	50	100	2
8	PCC	MVJ20AML48	Database Management Systems Lab	AM	0	2	2	3	50	50	100	2
9	HSM C	MVJ20KAN49	Kannada	Humanities	1	0	0	3	50	50	100	1
		MVJ20CPH49	CPH					3	50	50		
10	NCMC	MVJ20MDSDIP41	Additional Mathematics-2	Mathematics				3	50	50	100	-
11	NCMC	AICTE Activity for 80-90 hours(20 points)		-	-	-	-	-	-	-	-	-
Total								30	500	500	1000	24

Note: BSC: Basic Science, PCC: Professional Core Course, HSMC: Humanity and Social Science
 MVJ20MXXDIP41-Mandatory non-credit course, NCMC: Non-credit mandatory course

V SEMESTER B.E.(5 Theory,3 Labs,1 Environmental study,1 AICTE Activity)

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	
	L	T			P							
1	HSMC	MVJ20TEM51	Technical Management & Entrepreneurship	AM	3	0	0	3	50	50	100	3
2	PCC	MVJ20AM52	Machine Learning	AM	3	2	0	3	50	50	100	4
3	PCC	MVJ20AM53	Data Communication & Computer Networks	AM	3	2	0	3	50	50	100	4
4	PCC	MVJ20AM54	Web Technologies	AM	3	0	0	3	50	50	100	3
5	PE	MVJ20AM55X	Professional Elective – I	AM	3	0	0	3	50	50	100	3
6	PCC	MVJ20AML56	Machine Learning Laboratory	AM	0	2	2	3	50	50	100	2
7	PCC	MVJ20AML57	Communication Network Laboratory	AM	0	2	2	3	50	50	100	2
8	PCC	MVJ20AML58	Web Technologies Laboratory	AM	0	2	2	3	50	50	100	2
9	HSMC	MVJ20ENV59	Environmental Studies	Humanities	1	0	0	3	50	50	100	1
10	HSMC	MVJ19UHV510	UHV-2	Humanities	2	0	0					2
	NCCM	AICTE Activity for 80-90 hours (20 points)		-	-	-	-	-	-	-	-	-
Total								27	450	450	1000	26

Note: PCC: Professional Core Course, PE: Professional Elective, HSMC: Humanity and Social Science, NCCM: Non-credit mandatory course

Course Code	Professional Elective-I
MVJ20AM551	Sensors and Sensor Applications
MVJ20AM552	Computer Graphics and Image Processing
MVJ20AM553	Virtual Reality
MVJ20AM554	Software Testing Methodologies

VI SEMESTER B.E.(5 Theory,2 Labs,1 MiniProject,1 AICTE Activity)

S No	Course		Teaching Department	Course Title	Teaching hours/week			Examination				Credits
	Type	Code			Theory	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
1	PCC	MVJ20AM61	AM	Foundations of Data Science	3	2	0	4	50	50	100	4
2	PCC	MVJ20AM62	AM	Internet of Things	3	2	0	4	50	50	100	4
3	PE	MVJ20AM63X	AM	Professional Elective-II	3	0	0	3	50	50	100	3
4	PE	MVJ20AM64X	AM	Professional Elective-III	3	0	0	3	50	50	100	3
5	OE	MVJ20AM65X	AM	Open Elective-I	3	0	0	3	50	50	100	3
6	PCC	MVJ20AML66	AM	Internet of Things Laboratory	0	2	2	3	50	50	100	2
7	PCC	MVJ20AML67	AM	Data Science Laboratory	0	2	2	3	50	50	100	2
8	Proj	MVJ20AMP68	AM	Mini-Project	-	-	-	3	50	50	100	3
9	NCMC	AICTE Activity for 80-90 hours (20 points)		-	-	-	-	-	-	-	-	-
Total								24	400	400	800	24

Note: PCC: Professional Core Course, PE: Professional Elective, OE: Open Elective, Proj: Project Work, NCMC: Non-credit mandatory course

Course Code	Professional Elective-II	Course Code	Professional Elective-II	Course Code	Open Elective-I
MVJ20AM631	Quantum Computing	MVJ20AM641	Ethical Hacking	MVJ20AM651	Artificial Intelligence
MVJ20CS632/ MVJ20AM632	Cloud Computing	MVJ20AM642	Cyber Security	MVJ20AM652	Web Technologies
MVJ20AM633	Introduction to Drones	MVJ20AM643	Green Computing	MVJ20AM653	Foundations of Data Science
MVJ20CS634/ MVJ20AM634	Social Network Analysis	MVJ20AM644	Computer Vision	MVJ20AM654	Python Programming

VII SEMESTER B.E.(5 Theory,2 Labs, Project Phase-I, 1 AICTE Activity)

S No	Course		Course Title	Teaching Department	Teaching hours/week				Examination				Credits
	Type	Code			Theory	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks		
												L	
1	PCC	MVJ20AM71	Artificial Intelligence For Robotics	AM	3	2	0	4	50	50	100	4	
2	PCC	MVJ20AM72	Natural Language Processing	AM	3	2	0	4	50	50	100	4	
3	PE	MVJ20AM73X	Professional Elective-IV	AM	3	0	0	3	50	50	100	3	
4	PE	MVJ20AM74X	Professional Elective-V	AM	3	0	0	3	50	50	100	3	
5	OE	MVJ20AM75X	Open Elective-II	AM	3	0	0	3	50	50	100	3	
6	PCC	MVJ20AML76	Artificial Intelligence For Robotics Lab	AM	0	2	2	3	50	50	100	2	
7	PCC	MVJ20AML77	Natural Language Processing Lab	AM	0	2	2	3	50	50	100	2	
8	Proj	MVJ20AMP78	Project Phase-I	AM	-	-	-	-	50	-	50	2	
9	NCMC	AICTE Activity for 80-90 hours (20 points)			-	-	-	-	-	-	-	-	
Total								21	400	350	750	23	

Note: PCC: Professional Core Course, PE: Professional Elective, OE: Open Elective, Proj: Project Work, NCMC: Non-credit mandatory course

Course Code	Professional Elective-IV	Course Code	Professional Elective-V	Course Code	Open Elective-II
MVJ20AM731	High Performance Computing	MVJ20CS741/ MVJ20AM741	Deep Learning	MVJ20AM751	Internet of Things
MVJ20AM732	Big Data Analytics	MVJ20AM742	Robotic Automation Process	MVJ20AM752	Cyber Forensics
MVJ20AM733	Pervasive Computing	MVJ20AM743	Human Interaction	MVJ20AM753	Introduction to Drones
MVJ20AM734	Cognitive Science	MVJ20AM744	AI in Block chain	MVJ20AM754	Big Data Analytics

VIII SEMESTER B.E.(2 Theory, Project Phase-II, Internship, 1 Technical Seminar,1 Certification course,1 AICTE Activity)

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	
	L	T			P							
1	Proj	MVJ20AMP81	ProjectPhase-2	AM	-	-	-	3	50	50	100	8
2	Int	MVJ20AMI82	Internship	AM	-	-	-	3	50	50	100	3
3	Sem	MVJ20AMS83	Seminar	AM	-	-	-	3	50	50	100	1
4	CRT	MVJ20AMC84	*Certification course	Industry/Institute	-	-	-	-	-	-	-	2
5	NCMC	AICTE Activity for 80-90 hours (20 points)			-	-	-	-	-	-	-	-
Total								15				14
<p>Note: Proj: Project Work, Internship, ,CRT: Course (Can be carried out during the program period but will reflect in the final semester grade NCMC: Non-credit</p>												

*** Students can opt maximum 2 certification courses covering minimum total of 30 Hours (for scoring 2 Credits in VIII sem). Students can opt either 1 course covering 30 Hours or maximum 2 courses covering 15 Hours by each course. Students can start certification course from V sem itself instead of waiting till VIII sem. Once they complete certification (Min. 30 Hours) Credit will be awarded.**

proposed Coursera Certification Courses	Course duration (Hours)	Link for the Course
Agile Software Development	12.8	https://www.coursera.org/learn/agile-software-development
Text Mining and Analytics	15.4	https://www.coursera.org/learn/text-mining
Web Application Development with JavaScript andMongoDB	18.4	https://www.coursera.org/learn/web-application-development

Using Python to Interact with the Operating System	29.6	https://www.coursera.org/learn/python-operating-system
Python for Data Science and AI	11.4	https://www.coursera.org/learn/python-for-applied-data-science-ai
R Programming	19.5	https://www.coursera.org/learn/r-programming
Multiplatform Mobile App Development with React Native	22.3	https://www.coursera.org/learn/react-native
Data Structures and Design Patterns for Game Developers	15.1	https://www.coursera.org/learn/data-structures-design-patterns
DevOps Culture and Mindset	15.2	https://www.coursera.org/learn/devops-culture-and-mindset