

^MVJ College of Engineering, Whitefield, Bangalore

An Autonomous Institution, Affiliated to VTU, Belagavi

Department of Computer Science and Engineering (Data Science)

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
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	L	T			P							
1	BSC	MVJ20MDS31	Discrete Math & Probability Theory for Data Science	Mathematics	3	0	0	3	50	50	100	3
2	PCC	MVJ20DS32	Data Structure & Applications	ISE Dept	4	0	0	3	50	50	100	4
3	PCC	MVJ20DS33	Design & Analysis of Algorithm	ISE Dept	3	0	0	3	50	50	100	3
4	PCC	MVJ20DS34	Python Programming	ISE Dept	3	0	0	3	50	50	100	3
5	PCC	MVJ20DS35	Optimization Methods in Data Science	ISE Dept	3	0	0	3	50	50	100	3
6	PCC	MVJ20DS36	Professional ethics in computing	ISE Dept	3	0	0	3	50	50	100	3
7	PCC	MVJ20DSL37	Python Programming Lab	ISE Dept	0	0	4	3	50	50	100	2
8	PCC	MVJ20DSL38	Data Structure & Algorithm Lab	ISE Dept	0	0	4	3	50	50	100	2
9	HSMC	MVJ20KAN39	Kannada	Humanities	1	0	0	3	50	50	100	1
		MVJ20CPH39	CPH					3	50	50		
10	NCMC	MVJ20MDS DIP301	Additional Mathematics-1	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
 MVJ19MXXDIP301- 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
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	L	T			P							
1	BSC	MVJ20MDS41	Statistical Foundation for Data Science	Mathematics	3	0	0	3	50	50	100	3
2	PCC	MVJ20DS42	Advanced Java Programming	ISE Dept	4	0	0	3	50	50	100	4
3	PCC	MVJ20DS43	Data Mining & Data Warehouse	ISE Dept	3	0	0	3	50	50	100	3
4	PCC	MVJ20DS44	Data Acquisition and Visualization	ISE Dept	3	0	0	3	50	50	100	3
5	PCC	MVJ20DS45	Information Retrieval	ISE Dept	3	0	0	3	50	50	100	3
6	PCC	MVJ20DS46	Social Network Analysis	ISE Dept	3	0	0	3	50	50	100	3
7	PCC	MVJ20DSL47	Advanced Java Programming Lab	ISE Dept	0	0	4	3	50	50	100	2
8	PCC	MVJ20DSL48	Data Mining Lab	ISE Dept	0	0	4	3	50	50	100	2
9	HSMC	MVJ20KAN49	Kannada	Humanities	1	0	0	3	50	50	100	1
		MVJ20CPH49	CPH					3	50	50		
10	NCMC	MVJ20MDS DIP401	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
 MVJ19MXXDIP401- 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
	Type	Code			Theory Lecture	Tutorial	Practical/Dr	Duration in Hours	CIE Marks	SEE Marks	Total marks	
					L	T	P					
1	HSMC	MVJ20TIM51	Technical Management & Entrepreneurship	DS Dept	3	0	0	3	50	50	100	3
2	PCC	MVJ20CD52	Principles of Database Systems	DS Dept	4	0	0	3	50	50	100	4
3	PCC	MVJ20CD53	R Programming for Data Science	DS Dept	4	0	0	3	50	50	100	4
4	PCC	MVJ20CD54	Data Communication	DS Dept	3	0	0	3	50	50	100	3
5	PE	MVJ20CD55X	Professional Elective-I	DS Dept	3	0	0	3	50	50	100	3
6	PCL	MVJ20CDL56	Database System Lab	DS Dept	0	0	4	3	50	50	100	2
7	PCL	MVJ20CDL57	R Programming Lab	DS Dept	0	0	4	3	50	50	100	2
8	PCL	MVJ20CDL58	Data Communication Lab	DS Dept	0	0	4	3	50	50	100	2
9	HSMC	MVJ20ENV59	Environmental Studies	Humanities	1	0	0	1	50	50	100	1
10	HSMC	MVJ20UHV510	UHV-II	Humanities	2	0	0	2	50	50	100	2
	NCMC	AICTE Activity for 80-90 hours (20 points)		-	-	-	-	-	-	-	-	-
Total								27	500	500	1000	26

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

Course Code	Professional Elective-I
MVJ20CD551	Soft Computing
MVJ20CD552	Pattern Recognition
MVJ20CD553	Web Technology
MVJ20CD554	Data Compression

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

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	Credits
	L	T			P							
1	PCC	MVJ20CD61	Artificial Intelligence	DS Dept	4	0	0	4	50	50	100	4
2	PCC	MVJ20CD62	Machine Learning	DS Dept	4	0	0	4	50	50	100	4
3	PE	MVJ20CD63X	Professional Elective-II	DS Dept	3	0	0	3	50	50	100	3
4	PE	MVJ20CD64X	Professional Elective-III	DS Dept	3	0	0	3	50	50	100	3
5	OE	MVJ20CD65X	Open Elective-I	DS Dept	3	0	0	3	50	50	100	3
6	PCL	MVJ20CDL66	Artificial Intelligence Lab	DS Dept	0	0	4	3	50	50	100	2
7	PCL	MVJ20CDL67	Machine Learning Lab	DS Dept	0	0	4	3	50	50	100	2
8	Proj	MVJ20CDP68	Mini-Project	DS Dept	-	-	-	3	50	50	100	2
9	NCM C	AICTE Activity for 80-90 hours (20 points)		-	-	-	-	-	-	-	-	-
Total								26	400	400	800	23
Note: PCC: Professional Core Course, PE: Professional Elective, OE: Open Elective, Proj: Project Work, NCMC: Non-credit mandatorycourse												

Course Code	Professional Elective-II	Course Code	Professional Elective-III	Course Code	Open Elective-I
MVJ20CD631	Unix System Programming	MVJ20CD641	Object oriented Analysis and Design	MVJ20CD651	Computer Network
MVJ20CD632	Data Centre Networking	MVJ20CD642	Cloud Computing	MVJ20CD652	Data Warehousing and Data Mining
MVJ20CD633	Information Storage Management	MVJ20CD643	Mobile Application Development	MVJ20CD653	Introduction to AI
MVJ20CD634	Storage Area Network	MVJ20CD644	Information Network Security	MVJ20CD654	Web 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
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in Hours	CIE Marks	SEE Marks	Total marks	
	L	T			P							
1	PCC	MVJ20CD71	IoT for Data Science & Analytics	DS Dept	4	0	0	4	50	50	100	4
2	PCC	MVJ20CD72	Big Data & Hadoop	DS Dept	4	0	0	4	50	50	100	4
3	PCC	MVJ20CD73X	Professional Elective-IV	DS Dept	3	0	0	3	50	50	100	3
4	PE	MVJ20CD74X	Professional Elective-V	DS Dept	3	0	0	3	50	50	100	3
5	OE	MVJ20CD75X	Open Elective-II	DS Dept	3	0	0	3	50	50	100	3
6	PCC	MVJ20CDL76	IoT Lab	DS Dept	0	0	4	3	50	50	100	2
7	PCL	MVJ20CDL77	Big Data & Hadoop Lab	DS Dept	0	0	4	3	50	50	100	2
8	Proj	MVJ20CDP78	Project Phase-I	DS Dept	-	-	-	-	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
MVJ20CD731	Data Analytics	MVJ20CD741	Natural Language Processing	MVJ20CD751	Principles of OS
MVJ20CD732	Deep Learning	MVJ20CD742	Neural Network	MVJ20CD752	Information Network Security
MVJ20CD733	Block Chain Technology	MVJ20CD743	Data Visualization	MVJ20CD753	Principles of Programming Language
MVJ20CD734	Business Intelligence	MVJ20CD744	Cyber Security, Law and Ethics	MVJ20CD754	Machine Learning

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

S No	Course		Course Title	Teaching Department	Teaching hours/week			Examination				Credits
	Type	Code			Theory Lecture	Tutorial	Practical/ Drawing	Duration inHours	CIE Marks	SEE Marks	Total marks	
1	Proj	MVJ20CDP8 1	Project Phase-II	DS Dept	-	-	-	3	50	50	100	8
2	Int	MVJ20CDI8 2	Internship	DS Dept	-	-	-	3	50	50	100	3
3	Sem	MVJ20CDS8 3	Seminar	DS Dept	-	-	-	3	50	50	100	1
4	CRT	MVJ20CDC8 4	*Certification course	Industry/Institute	-	-	-	-	-	-	-	2
5	NCMC	AICTE Activity for 80-90 hours (20 points)			-	-	-	-	-	-	-	-
Total								15				14
Note: 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) NCMC: Non-credit mandatory course												

*** 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 VIII sem, based on number of Hours of certification(Min . 30 Hours) Credit will be awarded.**