

#### MVJ College of Engineering, Bengaluru

(An Autonomous Institute)

Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi, Recognised by UGC with 2(f) & 12 (B), Accredited by NBA & NAAC

### Scheme of Teaching and Examination 2021-22

Outcome Based Education (OBE) and Choice Based Credit System (CBCS) Effective from the academic year 2021-22

Department of Artificial Intelligence and Machine Learning

# III SEMESTER

					Tea	ching F	lours/We	eek		Exa	mination	1	
Sl. No.		Course	Course Title	BOS	Theory/ lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	Credits
	Туре	Code			L	Т	Р	S	Dur				
1	BSC	MVJ21MA31B	Discrete Mathematical Structures and Probability	MA	3	2	0	-	3	50	50	100	4
2	PCC	MVJ21AI32	Object Oriented Programming	AI	3	2	0	-	3	50	50	100	4
3	PCC	MVJ21AI33	Operating System	AI	3	0	0	-	3	50	50	100	3
4	IPCC	MVJ21AI34	Data Structure and Applications	AI	3	0	2	-	3	100	100	200	4
5	IPCC	MVJ21AI35	Analog and Digital Electronics	AI	3	0	2	Y	3	100	100	200	4
6	HSMC	MVJ21SK/BK36	Kannada	Any Department	1	0	0	-	2	50	50	100	1
7	AEC	MVJ21AIA37	UNIX Shell Programming	AI	1	0	2	-	2	50	50	100	2
8	BSC	MVJ21MATDIP-I	Additional Mathematics-I	МА	1	2	0	-	3	50	50	100	-
				Total	18/19	4/6	6/6	-	19/22	450/500	450/500	900/1000	22
Cour Addi	Note: BSC: Basic Science Course, PCC: Professional Core Course, IPCC: Integrated Professional Core Course, HSMC: Humanity and Social Science & Management Course, AEC: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical, S: Self Study, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation. Additional Mathematics-I: The course is a non-credit mandatory course (NCMC) prescribed for III semester lateral entry diploma holders admitted to BE programs. The successful completion of the program is mandatory for the award of the degree.												

#### IV SEMESTER

					Теа	ching l	Hours/W	/eek	Examination					
Sl. No.		Course	Course Title	BOS	Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	Credits	
	Туре	Code			L	Т	Р	S	Dura					
1	BSC	MVJ21MA41B	Operations Research, Numerical and Statistical Methods	МА	2	2	0	-	3	50	50	100	3	
2	PCC	MVJ21AI42	Microcontroller and Embedded Systems	AI	3	0	0	-	3	50	50	100	3	
3	PCC	MVJ21AI43	Computer Organisation and Architecture	AI	3	0	0	_	3	50	50	100	3	
4	IPCC	MVJ21AI44	Python Programming	AI	3	0	2	-	3	100	100	200	4	
5	IPCC	MVJ21AI45	Design and Analysis of Algorithms	AI	3	0	2	Y	3	100	100	200	4	
6	HSMC	MVJ21CPH46	Constitution of India and Professional Ethics and Cyber Law	Any Department	1	0	0	-	2	50	50	100	1	
7	AEC	MVJ21AIA47	.Net and C# Framework	AI	1	0	2	-	2	50	50	100	2	
8	INT	MVJ21INT48	Summer Internship-I	Should be comple and III semesters.					d of II	-	-	-	2	
9	BSC	MVJ21MATDIP-II	Additional Mathematics-II	MA	1	2	0	-	3	50	50	100	-	
				Total	16/17	2/4	6/6		19/22	450/500	450/500	900/1000	22	
Mana SEE: S	igement Semester	Course, AEC: Ability r End Evaluation.	PCC: Professional Core Course PCC: Professional Course, INT: Ir	iternship, L: Lecture	e, T: Tuto	orial, P:	Practica	al, S: Sel	f Study	, CIE: Conti	nuous Inter	mal Evaluatio		
			purse is a non-credit mandatory program is mandatory for the av		scribed f	or III se	emester l	ateral er	ntry dip	loma holder	rs admitted	to BE prograr	ns.	
Sumr	ner Inter	rnship-I: Viva voice v	will be conducted for the 03 wee	eks inter/intra institu										

II and III semesters. The internship will be considered as a head of passing and will be considered for the award of degree. Those, who do not take up / complete the internship will be declared fail and will have to complete during subsequent examination after satisfying the internship requirements.

**V** SEMESTER

					Tead	ching H	lours/We	eek		Exa	mination		
Sl. No.		Course	Course Title	BOS	Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	Credits
Туре		Code			L	Т	Р	S	Dur				
1	HSMC	MVJ21AI51	Software Engineering Management	AI	3	0	0	-	3	50	50	100	3
2	PCC	MVJ21AI52	Data Communication and Computer Networks	AI	3	0	0	-	3	50	50	100	3
3	IPCC	MVJ21AI53	Database Management Systems	AI	2	2	2	-	3	100	100	200	4
4	IPCC	MVJ21AI54	Artificial Intelligence	AI	2	2	2	Y	3	100	100	200	4
5	PEC	MVJ21AI55X	Professional Elective – I	AI	3	0	0	-	3	50	50	100	3
6	HSMC	MVJ21ENV56	Environmental Studies	CV	1	0	0	-	2	50	50	100	1
7	AEC	MVJ21RMI57	Research Methodology & IPR	AE	1	2	0	-	2	50	50	100	2
8	UHV	MVJ21UHV58	Universal Human Values	CV	2	0	0	-	2	50	50	100	2
				Total	17	6	4	-	21	500	500	1000	22
Elect	Note: HSMC: Humanity and Social Science & Management Course, PCC: Professional Core Course, IPCC: Integrated Professional Core Course, PEC: Professional Elective Course, AEC: Ability Enhancement Course, UHV: Universal Human Values, L: Lecture, T: Tutorial, P: Practical, S: Self Study, CIE: Continuous Internal												

Evaluation, SEE: Semester End Evaluation.

Course Code	Professional Elective – I
MVJ21AI551	Artificial Neural Networks
MVJ21AI552	Complier Design
MVJ21AI553	Virtual Reality
MVJ21AI554	Digital Image Processing

## VI SEMESTER

					Теа	iching l	Hours/W	eek		Exam	ination		
Sl. No.		Course	Course Title	BOS	Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	Credits
	Туре	Code			L	Т	Р	S					
1	HSMC	MVJ21AI61	Project management with OOMD	AI	3	0	0	-	3	50	50	100	3
2	IPCC	MVJ21AI62	Machine Learning	AI	3	0	2	Y	3	100	100	200	4
3	IPCC	MVJ21AI63	Web Technologies	AI	3	0	2	_	3	100	100	200	4
4	OEC	MVJ21AI64X	Open Elective-I	AI	3	0	0	-	3	50	50	100	3
5	OEC	MVJ21AI65X	MOOC Courses (Open Elective-II)	AI	A twelve-week course should be selected from online platforms like NPTEL/SWAYAM					nline	3		
6	AEC	MVJ21AIA66	ANGULAR JS AND NODE JS	AI	2	0	0	-	2	50	50	100	1
7	PRJ	MVJ21AIMP67	Mini Project	AI	0	0	4	-	3	50	50	100	2
8	INT	MVJ21INT68	Summer Internship-II	AI			uring the and V ser		•	50	50	100	2
				Total	14	0	8	-	17	450	450	900	22
Enha Evalu	ncement lation.	: Course, PRJ: Pro	and Social Science & Management Course, IF ject, INT: Internship, L: Lecture, T: Tutorial, we will be conducted for the 04 weeks Industria	P: Practical, S: S	Self Stud	dy, CIE:	Continu	ous Inte	ernal Ev	valuatio	n, SEE: 1	Semeste	r End
activi of de	ties carrie gree. Tho	ed out during the i	ntervening period of IV and V semesters. The i ake up / complete the internship will be decla	nternship will be	conside	ered as a	a head of	passing	and wi	ll be cor	nsidered	for the a	ward

Course Code	Open Elective-I
MVJ21AI641	Cloud Computing
MVJ21AI642	Foundation of Data Science
MVJ21AI643	Java Programming
MVJ21AI44	Ethical Hacking

## VII SEMESTER

					Tead	ching l	Hours/V	Veek		Exami	nation	-	
Sl. No.		Course	Course Title	BOS	Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	Duration in Hours	CIE Marks	SEE Marks	Total Marks	Credits
	Туре	Code			L	Т	Р	S					
1	IPCC	MVJ21AI71	Foundation of Data Science	AI	3	0	2	-	3	100	100	200	4
2	PEC	MVJ21AI72X	Professional Elective-II	AI	3	0	0		3	50	50	100	3
3	PEC	MVJ21AI73X	Professional Elective-III	AI	3	0	0		3	50	50	100	3
4	OEC	MVJ21AI74X	Open Elective-III	AI	3	0	0		3	50	50	100	3
5	PRJ	MVJ21AIP75	Project Phase-I	AI	0	0	4		3	50	50	100	2
6	AEC	MVJ21AIA76	Ability Enhancement Course-4	AI	A twelve-week course should be selected from online platforms				1				
				Total	12	0	6		15	300	300	600	16
	Integrated Professional Core Course, PEC: Professional Elective Course, OEC: Open Elective Course, PRJ: Project, AEC: Ability Enhancement Course, L: Lecture, T: Tutorial, P: Practical, S: Self Study, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation.												

Course Code	Professional Elective-II	Course Code	Professional Elective-III	Course Code	Open Elective-II
MVJ21AI721	Computer Vision	MVJ21AI731	AI731 Natural language MVJ21AI741 Processing		Computer Graphics
MVJ21AI722	Information Retrieval MVJ21AI732 Pattern Recognition MV		MVJ21AI742	Introduction to Human Computer Interaction	
MVJ21AI723	Big Data Analytics	MVJ21AI733	Vision Systems and Robotics	MVJ21AI743	Mobile Application Development
MVJ21AI724	Pervasive Computing MVJ21AI734 Deep Learning Techniques MVJ21AI		MVJ21AI744	Quantum Computing	

VIII SEMESTER

						Teaching I	-lours/Week			Exam	inatio	n	
Sl. No.			Course Title	BOS	Theory lecture	Tutorials	Practical/ Drawing	Self-Study Components	ation in Hours	CIE Marks	SEE Marks	Total Marks	Credits
	Туре	Code			L	Т	Ρ	S	Dura			F	
1	PRJ	MVJ21AIP81	Project Phase-II	AI	20 -					50	50	100	10
2	INT	MVJ21INT82	Research /Industrial Internship	AI	Should be beginning continuing semesters	, and	3	50	50	100	5		
3	SEM	MVJ21AIS83	Seminar	AI	-	-	2	-	-	100	-	100	1
				Total	-	-	22	-	6	200	100	300	16
Note	Note: PRJ: Project, INT: Internship, SEM: Seminar, CIE: Continuous Internal Evaluation, SEE: Semester End Evaluation.												

**Research/Industrial Internship**: Viva voice will be conducted for the 24 weeks Research/Industrial/Rural Internship activities carried out during beginning after the sixth semester test and continuing through the seventh and eighth semesters. The internship will be considered as a head of passing and will be considered for the award of degree. Those, who do not take up / complete the internship will be declared fail and will have to complete during subsequent examination after satisfying the internship requirements.

HOD AIML

Dean Academics