DIVISION OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

B.Tech. Computer Science and Engineering (Artificial Intelligence) - 2024 Batch onwards COURSE COMPONENTS AND CURRICULUM PROGRAM STRUCTURE

Sl. No.	Course Category / Component	Abbreviation	Credits
1	Humanities and Social Sciences including Management and Entrepreneurship Courses	HSMC	14
2	Basic Science Courses	BSC	12
3	Engineering Science Courses	ESC	16
4	Professional Core Courses	PCC	66
5	Mini Project / Summer Internship Program / Internship	P	6
6	Project work	r	14
7	Professional Elective Courses	PEC	21
8	Open Elective Courses	OEC	6
9	Mandatory Courses	MC	0
10	Skill Based Courses	SBC	5
11	Online Courses		5
	Total Credits		165

COURSE COMPONENTS

	HUMANITIES AND SOCIAL SCIENCES INCLUDING MANAGEMENT AND ENTREPRENEURSHIP COURSES [HSMC]									
Sl. No.	Course Code	Course Title	Hours pe week			Credits				
110.	Coue		L	T	P					
1	NPTEL	English / French / German / Japanese	2	0	0	2				
2	UHV	Universal Human Values – II	2	1	0	3				
3	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3				
4	20MS2007	Business Plan	3	0	0	3				
5	23CS1013	Ethics in Information Technology	2	0	0	2				
6	20MS2005	Soft Skills	1	0	0	1				
	Number of	f credits to be earned in Humanities and Social Sciences i Management and Entrepreneurship Category	inclu	ding		14				
		BASIC SCIENCE COURSES [BSC]								
Sl. No.	Course Code	Course Title		ours p week		Credits				
110.	Code		L	T	P					
1	23MA1001	Matrices, Calculus and Ordinary Differential Equations	3	0	0	3				
2	23MA1002	Partial Differential Equations, Vector Spaces and Laplace Transform	3	0	0	3				
3	23MA2001	Probability and Statistics	3	0	0	3				
4	23MA2002	Discrete Structures	3	0	0	3				
	N	umber of credits to be earned in Basic Science Category		_		12				

		ENGINEERING SCIENCE COURSES [ESC]				
Sl.	Course	Course Title		ours p week	Credits	
No.	Code		L	T	P	
1	23CS1001	Digital System Design	3	0	0	3
2	23CS1002	Digital System Design Lab	0	0	2	1
3	23CS1005	Programming for Problem Solving	3	0	0	3
4	23CS1006	Programming for Problem Solving Lab	0	0	3	1.5
5	23CS1007	Python Programming	3	0	0	3
6	23CS1008	Python Programming Lab	0	0	3	1.5
7	23CS1012	Computer Organization and Architecture	3	0	0	3
	Num	ber of credits to be earned in Engineering Science Categ	ory			16
		PROFESSIONAL CORE COURSES [PCC]	1			1
Sl.	Course			ours p		
No.	Code	Course Title	L	week T	P	Credits
1	23CS1009	Artificial Intelligence in IoT	3	0	0	3
2	23CS1010	Artificial Intelligence in IoT Lab	0	0	3	1.5
3	23CS2001	Artificial Intelligence: Principles and Techniques	3	0	0	3
4	23CS2004	Computer Networks	3	0	0	3
5	23CS2005	Computer Networks Lab	0	0	3	1.5
6	23CS2011	Data Structures and Algorithms	3	0	0	3
7	23CS2012	Data Structures and Algorithms Lab	0	0	3	1.5
8	23CS2013	Database Management Systems	3	0	0	3
9	23CS2014	Database Management Systems Lab	0	0	3	1.5
10	23CS2017	Design and Analysis of Algorithms	3	0	0	3
11	23CS2032	Object Oriented Programming	3	0	0	3
12	23CS2033	Object Oriented Programming Lab	0	0	3	1.5
13	23CS2035	Operating Systems	3	0	0	3
14	23CS2045	System Software and Compiler Design	3	0	0	3
15	23CS2046	Theory of Computation	3	0	0	3
16	23AI2001	Artificial Intelligence for Cyber Security	3	0	0	3
17	23AI2002	Artificial Intelligence in Web Development	3	0	0	3
18	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5
19	23AI2004	Conversational Artificial Intelligence	3	0	0	3
20	23AI2005	Conversational Artificial Intelligence Lab	0	0	3	1.5
21	23AI2006	Cyber Threat Intelligence and Analytics	3	0	0	3
22	23AI2007	Cyber Threat Intelligence and Analytics Lab	0	0	3	1.5
23	23AI2008	Edge Artificial Intelligence	3	0	0	3
24	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3

25	23AI2010	Essentials of Information Retrieval	3	0	0	3
26	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3
	Nui	nber of credits to be earned in Professional Core Catego	ry			66

SEMESTER WISE CURRICULUM

		SEMESTER WISE CONGRESSION SEMESTER-1				
	<u> </u>	(Focus on Basics of Programming and Entrepreneursh				
Sl.	Course Code	Course Title	Hours per week			Credits
No.	Course Coue	Course Title	L	Т	P	Credits
		Theory Courses	I		I	
1	NPTEL	English / French / German / Japanese	2	0	0	2
2	23MA1001	Matrices, Calculus and Ordinary Differential Equations	3	0	0	3
3	23CS1001	Digital System Design	3	0	0	3
4	23CS1005	Programming for Problem Solving	3	0	0	3
5	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3
6	MC-01	Mandatory Course I				
		Sub Total Credits for Theory Courses				14
	1	Laboratory Courses	1	1	ı	
1	23CS1002	Digital System Design Lab	0	0	2	1
2	23CS1006	Programming for Problem Solving Lab	0	0	3	1.5
3	SBC-01	Skill Based Course - I	0	0	2	1
		Sub Total Credits for Laboratory Courses				3.5
		Total				17.5
		SEMESTER-2				
		(Focus on Fundamentals of IoT and Programming)	Но	ure n	or	
Sl.	Course Code	Course Title		Hours per week		Credits
No.			L	T	P	
		Theory Courses	ı		I	
1	23MA1002	Partial Differential Equations, Vector Spaces and Laplace Transform	3	0	0	3
2	23CS1007	Python Programming	3	0	0	3
3	23CS1009	Artificial Intelligence in IoT	3	0	0	3
4	23CS1012	Computer Organization and Architecture	3	0	0	3
5	23CS1013	Ethics in Information Technology	2	0	0	2
6	20MS2007	Business Plan	3	0	0	3
	2011152007					
7	MC-02	Mandatory Course II				
7		Mandatory Course II Sub Total Credits for Theory Courses				17
7	MC-02	Sub Total Credits for Theory Courses Laboratory Courses				
1 2		Sub Total Credits for Theory Courses	0 0	0 0	3 3	1.5 1.5

3	SBC-02	Skill Based Course - II	0	0	2	1
		Sub Total Credits for Laboratory Courses	I		I	4
Total						21
		SEMESTER-3				
		(Focus on Artificial Intelligence and Programming)				
Sl.	Course Code	Course Title		ours p week		Credits
No.	Course Coue	Course Thic	L	T	P	Credits
	l	Theory Courses		1		
1	23MA2001	Probability and Statistics	3	0	0	3
2	23CS2001	Artificial Intelligence: Principles and Techniques	3	0	0	3
3	23CS2011	Data Structures and Algorithms	3	0	0	3
4	23CS2032	Object Oriented Programming	3	0	0	3
5	23CS2035	Operating Systems	3	0	0	3
		Sub Total Credits for Theory Courses				15
	T	Laboratory Courses			l	
1	23CS2012	Data Structures and Algorithms Lab	0	0	3	1.5
2	23CS2033	Object Oriented Programming Lab	0	0	3	1.5
3	SBC-03	Skill Based Course – III	0	0	2	1
4	SIP2911	Summer Internship Program - I	0	0	4	2
		Sub Total Credits for Laboratory Courses				6
		Total				21
		SEMESTER-4 (Focus on Data Management and latest AI development	ata)			
		(Focus on Data Wanagement and latest AT developmen		ours p	er	
Sl.	Course Code	Course Title		week		Credits
No.			L	T	P	
	T	Theory Courses	1	1		
1	23MA2002	Discrete Structures	3	0	0	3
2	UHV	Universal Human Values - II	2	1	0	3
3	23CS2013	Database Management Systems	3	0	0	3
4	23CS2017	Design and Analysis of Algorithms	3	0	0	3
5	23AI2004	Conversational Artificial Intelligence	3	0	0	3
6	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3
		Sub Total Credits for Theory Courses				18
		Laboratory Courses				1
1	23CS2014	Database Management Systems Lab	0	0	3	1.5
2	23AI2005	Conversational Artificial Intelligence Lab	0	0	3	1.5
_		Skill Based Course – IV	0	0	2	1
3	SBC-04					_
3	SBC-04	Sub Total Credits for Laboratory Courses				4
3	SBC-04					4 22

		(Focus on the Cyber Security)							
Sl.	Course Code	Course Title	e Title Hours per week						
No.			L	T	P	1			
Theory Courses									
1	23CS2004	Computer Networks	3	0	0	3			
2	23CS2046	Theory of Computation	3	0	0	3			
3	23AI2001	Artificial Intelligence for Cyber Security	3	0	0	3			
4	23AI2006	Cyber Threat Intelligence and Analytics	3	0	0	3			
5	23AI2010	Essentials of Information Retrieval	3	0	0	3			
6	PEC-01	Professional Elective – 1	3	0	0	3			
		Sub Total Credits for Theory Courses				18			
	Г	Laboratory Courses		1	1	T			
1	23CS2005	Computer Networks Lab	0	0	3	1.5			
2	23AI2007	Cyber Threat Intelligence and Analytics Lab	0	0	3	1.5			
3	SIP2912	Summer Internship Program - II	0	0	4	2			
		Sub Total Credits for Laboratory Courses				5			
		Total				23			
		SEMESTER-6	4: ~·)						
		(Focus on Web Development and Distributed Compu		urs p	NOW.				
Sl.	Course Code	Course Title		week		Credits			
No.	Course code	Course Title	L	Т	P	Creates			
	I	Theory Courses	l l	1		1			
1	23CS2045	System Software and Compiler Design	3	0	0	3			
2	23AI2002	Artificial Intelligence in Web Development	3	0	0	3			
3	23AI2008	Edge Artificial Intelligence	3	0	0	3			
4	PEC-02	Professional Elective – 2	3	0	0	3			
5	OEC-01	Open Elective – 1	3	0	0	3			
6	20MS2005	Soft Skills	1	0	0	1			
		Sub Total Credits for Theory Courses		•	•	16			
		Laboratory Courses							
1	PEC-03	Professional Elective – 3	0	0	3	1.5			
2	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5			
3	MP2911	Mini Project	0	0	4	2			
	•	Sub Total Credits for Laboratory Courses	•			5			
		Total				21			
SEMESTER-7									
~		(Focus on Artificial Intelligence Applications)	Но	urs p	er				
Sl. No.	Course Code			urs p week		Credits			

		Theory Courses				
1	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3
2	PEC-04	Professional Elective – 4	3	0	0	3
3	PEC-05	Professional Elective – 5	3	0	0	3
4	PEC-06	Professional Elective – 6	3	0	0	3
5	PEC-07	Professional Elective – 7	3	0	0	3
5	OEC-02	Open Elective – 2	3	0	0	3
		Sub Total Credits for Theory Courses				18
		Laboratory Courses				
1	PEC-08	Professional Elective – 8	0	0	3	1.5
2	SBC-05	Skill Based Course – V	0	0	2	1
		Sub Total Credits for Laboratory Courses				2.5
Total						
		Total				20.5
		SEMESTER-8				I
	(Project Focus	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcard	e secto	ors an	nd KI	<u>I</u>
	(Project Focus	SEMESTER-8	T			<u>I</u>
Sl.		SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions)	Но	ours p	er	TS
Sl. No.	(Project Focus	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions)	Но	urs p week	oer	<u>I</u>
		SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions) Course Title	Но	ours p	er	TS
		SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions)	Но	urs p week	oer	TS
No.	Course Code	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions) Course Title Project	Ho L	urs p week T	per P	TS Credits
No.	Course Code	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions) Course Title Project Project	Ho L	urs p week T	per P	TS Credits
No.	Course Code	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healthcare Technology Missions) Course Title Project Project Sub Total credits for Project	Ho L	urs p week T	per P	Credits 14 14

B.Tech. Computer Science and Engineering (Artificial Intelligence and Machine Learning) -2024 Batch COURSE COMPONENTS AND CURRICULUM PROGRAM STRUCTURE

Sl. No.	Course Category / Component	Abbreviation	Credits
1	Humanities and Social Sciences including Management and Entrepreneurship Courses	HSMC	14
2	Basic Science Courses	BSC	12
3	Engineering Science Courses	ESC	19
4	Professional Core Courses	PCC	66
5	Mini Project / Summer Internship Program / Internship	P	6
6	Project work	r	14
7	Professional Elective Courses	PEC	21
8	Open Elective Courses	OEC	6

9	Mandatory Courses	MC	0
10	Skill Based Courses	SBC	5
11	Online Courses		5
	Total Credits		165

COURSE COMPONENTS

	HUMAN	COURSE COMPONENTS ITIES AND SOCIAL SCIENCES INCLUDING MANAGER TO SERVE THE PROPERTY OF THE PR	EME	ENT A	ND	
Sl. No.	Course Code	Course Title				Credits
1	NPTEL	English / Franch / Cormon / Jananasa	L 2	T 0	P 0	2
2	UHV	English / French / German / Japanese Universal Human Values – II	2	1	0	3
3	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3
4	20MS2007	Business Plan	3	0	0	3
5	23CS1013	Ethics in Information Technology	2	0	0	2
6	20MS2005	Soft Skills	1	0	0	1
		s to be earned in Humanities and Social Sciences including and Entrepreneurship Category				14
		BASIC SCIENCE COURSES [BSC]				ı
Sl. No.	Course Code	Course Title	Hours per week		-	
110.			L	T	P	
1	23MA1001	Matrices, Calculus and Ordinary Differential Equations	3	0	0	3
2	23MA1002	Partial Differential Equations, Vector Spaces and Laplace Transform	3	0	0	3
3	23MA2001	Probability and Statistics	3	0	0	3
4	23MA2002	Discrete Structures	3	0	0	3
	N	umber of credits to be earned in Basic Science Category				12
		ENGINEERING SCIENCE COURSES [ESC]	1			1
Sl. No.	Course Code	Course Title	Н	ours p week		Credits
110.	Couc		L	T	P	
1	23CS1001	Digital System Design	3	0	0	3
2	23CS1002	Digital System Design Lab	0	0	2	1
3	23CS1005	Programming for Problem Solving	3	0	0	3
4	23CS1006	Programming for Problem Solving Lab	0	0	3	1.5
5	23CS1007	Python Programming	3	0	0	3
6	23CS1008	Python Programming Lab	0	0	3	1.5
7	23CS1012	Computer Organization and Architecture	3	0	0	3
	Num	ber of credits to be earned in Engineering Science Catego	ry			16

PROFESSIONAL CORE COURSES [PCC]								
Sl. No.	Course Code	Course Title		ours p week		Credits		
110.	Coue		L	T	P			
1	23CS1009	Artificial Intelligence in IoT	3	0	0	3		
2	23CS1010	Artificial Intelligence in IoT Lab	0	0	3	1.5		
3	23CS2001	Artificial Intelligence: Principles and Techniques	3	0	0	3		
4	23CS2004	Computer Networks	3	0	0	3		
5	23CS2005	Computer Networks Lab	0	0	3	1.5		
6	23CS2008	Data Visualization	3	0	0	3		
7	23CS2009	Data Visualization Lab	0	0	3	1.5		
8	23CS2011	Data Structures and Algorithms	3	0	0	3		
9	23CS2012	Data Structures and Algorithms Lab	0	0	3	1.5		
10	23CS2013	Database Management Systems	3	0	0	3		
11	23CS2014	Database Management Systems Lab	0	0	3	1.5		
12	23CS2017	Design and Analysis of Algorithms	3	0	0	3		
13	23CS2028	Machine Learning Techniques	3	0	0	3		
14	23CS2029	Machine Learning Techniques Lab	0	0	3	1.5		
15	23CS2032	Object Oriented Programming	3	0	0	3		
16	23CS2033	Object Oriented Programming Lab	0	0	3	1.5		
17	23CS2035	Operating Systems	3	0	0	3		
18	23CS2045	System Software and Compiler Design	3	0	0	3		
19	23CS2046	Theory of Computation	3	0	0	3		
20	23AI2002	Artificial Intelligence in Web Development	3	0	0	3		
21	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5		
22	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3		
23	23AI2010	Essentials of Information Retrieval	3	0	0	3		
24	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3		
25	23AI2012	Foundation of Generative Adversarial Networks	3	0	0	3		
26	24AI2013	Foundation of Natural Language Processing	3	0	0	3		
	Nur	mber of credits to be earned in Professional Core Category	y			66		

SEMESTER WISE CURRICULUM

SEMESTER-1 (Focus on Basics of Programming and Entrepreneurship)								
Sl. No.	Course Code		Hours per			Credits		
			L	T	P			
	Theory Courses							
1	NPTEL	English / French / German / Japanese	2	0	0	2		
2	23MA1001	Matrices, Calculus and Ordinary Differential Equations	3	0	0	3		

3								
S 23MS2001 Concepts and Applications in Entrepreneurship 3 0 0 3 3 0 0 3 3 0 0	3	23CS1001	Digital System Design	3	0	0	3	
Mandatory Course I Sub Total Credits for Theory Courses	4	23CS1005	Programming for Problem Solving	3	0	0	3	
Sub Total Credits for Theory Courses	5	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3	
Taboratory Courses 1	6	MC-01	Mandatory Course I					
1 23CS1002 Digital System Design Lab 0 0 0 3 1.5 2 23CS1006 Programming for Problem Solving Lab 0 0 0 3 1.5 3 SBC-01 Skill Based Course −1 0 0 0 0 2 1							14	
2 23CS1006 Programming for Problem Solving Lab 0 0 3 1.5 3 SBC-01 Skill Based Course −1 0 0 0 2 1 5 Sub Total Credits for Laboratory Courses			Laboratory Courses					
SBC-01 Skill Based Course −1 Sub Total Credits for Laboratory Courses Total SEMESTER-2 SEMESTER-2 SEMESTER-2 Focus on Fundamentals of Artificial Intelligence in IoT and Programming Same Semes Semes and Laplace Transform Same Semes and Laplace Transform Same Semes and Laplace Transform Same Semes and Laplace Same Semes and Same Semes and Laplace Same Semes and Same Semes Semes and Same Semes Seme	1	23CS1002	Digital System Design Lab	0	0	2	1	
Sub Total Credits for Laboratory Courses 17.5	2	23CS1006	7	0	0	3	1.5	
Total SEMESTER-2 SEMESTER-2	3	SBC-01	Skill Based Course – I	0	0	2	-	
SEMESTER-2	Sub Total Credits for Laboratory Courses							
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $							17.5	
No. Course Code Howevel. Credits Theory Courses 1 23MA1002 Partial Differential Equations, Vector Spaces and Laplace partial Data Data Data Data Data Data Data Da		(E			.	-)		
Course Code Course Title		(Focus o	on Fundamentals of Artificial Intelligence in 101 and Pro					
Theory Courses	Sl.	Course Code	Course Title		•		Credits	
Theory Courses Partial Differential Equations, Vector Spaces and Laplace Transform	No.	Course Couc	ourse time		1		Creaks	
1 23MA1002 Partial Differential Equations, Vector Spaces and Laplace Transform 3 0 0 3 2 23CS1007 Python Programming 3 0 0 3 3 23CS1009 Artificial Intelligence in IoT 3 0 0 3 3 23CS1012 Computer Organization and Architecture 3 0 0 3 4 23CS1013 Ethics in Information Technology 2 0 0 2 5 20MS2007 Business Plan 3 0 0 3 6 MC-02 Mandatory Course II Intelligence Technology 1 1 1 8 Value Total Credits for Theory Courses 1<			Theory Courses					
3	1	23MA1002	Partial Differential Equations, Vector Spaces and Laplace	3	0	0	3	
3	2	23CS1007	Python Programming	3	0	0	3	
4 23CS1013 Ethics in Information Technology 2 0 0 2 2 5 20MS2007 Business Plan 3 0 0 3 3 6 MC-02 Mandatory Course II Sub Total Credits for Theory Courses 17	3	23CS1009	Artificial Intelligence in IoT	3	0	0	3	
5 20MS2007 Business Plan 3 0 0 3 6 MC-02 Mandatory Course II Sub Total Credits for Theory Courses 17 1 23CS1008 Python Programming Lab 0 0 3 1.5 2 23CS1010 Artificial Intelligence in IoT Lab 0 0 3 1.5 3 SBC-02 Skill Based Course – II 0 0 0 2 1 SL Sub Total Credits for Laboratory Courses 4 21 SEMESTER-3 (Focus on Programming and Artificial Intelligence Principles and Techniques Artificial Intelligence Principles and Techniques Credits SI. No. Course Code Course Title Hours per week Credits 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 0 0 3 <td< td=""><td>3</td><td>23CS1012</td><td>Computer Organization and Architecture</td><td>3</td><td>0</td><td>0</td><td>3</td></td<>	3	23CS1012	Computer Organization and Architecture	3	0	0	3	
MC-02 Mandatory Course II Sub Total Credits for Theory Courses 17 Laboratory Courses 1 23CS1008 Python Programming Lab 0 0 3 1.5 2 23CS1010 Artificial Intelligence in IoT Lab 0 0 3 1.5 3 SBC-02 Skill Based Course - II 0 0 2 1 SEMESTER-3 Focus on Programming and Artificial Intelligence Principles and Techniques SI. No. Course Code Course Title Hours per week Credits 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 0 0 3 0 0 3	4	23CS1013	Ethics in Information Technology	2	0	0	2	
Sub Total Credits for Theory Courses	5	20MS2007	Business Plan	3	0	0	3	
1 23CS1008 Python Programming Lab 0 0 3 1.5 2 23CS1010 Artificial Intelligence in IoT Lab 0 0 0 3 1.5 3 SBC-02 Skill Based Course – II 0 0 0 2 1 Sub Total Credits for Laboratory Courses 4 Total SEMESTER-3	6	MC-02	Mandatory Course II					
1 23CS1008 Python Programming Lab 0 0 3 1.5 2 23CS1010 Artificial Intelligence in IoT Lab 0 0 3 1.5 3 SBC-02 Skill Based Course – II 0 0 2 1 Sub Total Credits for Laboratory Courses 21 SEMESTER-3 (Focus on Programming and Artificial Intelligence Principles and Techniques) Techniques Credits SI. No. Course Code Course Title Hours per week Credits L T P Theory Courses 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 2 23CS2011 Data Structures and Algorithms 3 0 0 3			Sub Total Credits for Theory Courses				17	
2 23CS1010 Artificial Intelligence in IoT Lab 0 0 3 1.5 3 SBC-02 Skill Based Course − II 0 0 0 2 1 Sub Total Credits for Laboratory Courses 4 Total 21 SEMESTER-3 (Focus on Programming and Artificial Intelligence Principles and Techniques) Hours per week Credits L T P Theory Courses 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 2 23CS2011 Data Structures and Algorithms 3 0 0 3			•	•				
SBC-02 Skill Based Course − II 0 0 2 1	1	23CS1008	Python Programming Lab	0	0	3	1.5	
	2	23CS1010	Artificial Intelligence in IoT Lab	0	0	3	1.5	
	3	SBC-02	Skill Based Course – II	0	0	2	1	
			Sub Total Credits for Laboratory Courses				4	
	Total							
		(Focus or		l Tech	ıniqu	es)		
Course Code Course Title Week Credits Theory Courses 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 23CS2011 Data Structures and Algorithms 3 0 0 3	SI.							
Theory Courses 1 23MA2001 Probability and Statistics 3 0 0 3 2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 23CS2011 Data Structures and Algorithms 3 0 0 3		Course Code	Course Title			1	Credits	
123MA2001Probability and Statistics3003223CS2001Artificial Intelligence: Principles and Techniques3003323CS2011Data Structures and Algorithms3003								
2 23CS2001 Artificial Intelligence: Principles and Techniques 3 0 0 3 3 23CS2011 Data Structures and Algorithms 3 0 0 3	1	221/4/2001	·	2		Λ	2	
3 23CS2011 Data Structures and Algorithms 3 0 0 3	-		·					
- C								
4 25CS2U32 Object Oriented Programming 3 0 0 3	-		Ţ					
	4	23CS2032	Object Oriented Programming	3	U	U	3	

5	23CS2035	Operating Systems	3	0	0	3	
		Sub Total Credits for Theory Courses				15	
Laboratory Courses							
1	23CS2012	Data Structures and Algorithms Lab	0	0	3	1.5	
2	23CS2033	Object Oriented Programming Lab	0	0	3	1.5	
3	SBC-03	Skill Based Course – III	0	0	2	1	
4	SIP2911	Summer Internship Program – I	0	0	4	2	
		Sub Total Credits for Laboratory Courses				6	
		Total				21	
	(Foc	SEMESTER-4 cus on Artificial Intelligence Applications and Data Visua	alizati	on)			
	(100	us on Artificial Intelligence Applications and Data Visua		urs p	er		
Sl.	Course Code	Course Code Course Title	week			Credits	
No.			L	T	P]	
		Theory Courses					
1	23MA2002	Discrete Structures	3	0	0	3	
2	UHV	Universal Human Values – II	2	1	0	3	
3	23CS2008	Data Visualization	3	0	0	3	
4	23CS2013	Database Management Systems	3	0	0	3	
5	23CS2017	Design and Analysis of Algorithms	3	0	0	3	
6	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3	
		Sub Total Credits for Theory Courses				18	
	T	Laboratory Courses	1		ı	T	
1	23CS2009	Data Visualization Lab	0	0	3	1.5	
2	23CS2014	Database Management Systems Lab	0	0	3	1.5	
3	SBC-04	Skill Based Course – IV	0	0	2	1	
		Sub Total Credits for Laboratory Courses				4	
		Total				22	
	(Foc	SEMESTER-5 us on Machine Learning Techniques and Information R	etriev	al))			
	(2 0 0	30 011 12 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	ı	urs p	er		
Sl.	Course Code	Course Title		week		Credits	
No.			L	T	P]	
		Theory Courses	•	•			
1	23CS2004	Computer Networks	3	0	0	3	
2	23CS2028	Machine Learning Techniques	3	0	0	3	
3	23CS2046	Theory of Computation	3	0	0	3	
4	23AI2010	Essentials of Information Retrieval	3	0	0	3	
5	23AI2012	Foundation of Generative Adversarial Networks	3	0	0	3	
6	PEC-01	Professional Elective – 1	3	0	0	3	
		Sub Total Credits for Theory Courses				18	
Laboratory Courses							

1	23CS2005	Computer Networks Lab	0	0	3	1.5		
2	23CS2029	Machine Learning Techniques Lab	0	0	3	1.5		
3	SIP2912	Summer Internship Program – II	0	0	2	2		
	Sub Total Credits for Laboratory Courses				5			
		Total				23		
	SEMESTER-6							
		(Focus on Basics of Natural Language Processing)						
Sl.		rse Code Course Title	Hours per week			G 114		
No.	Course Code		L	T	P	Credits		
		Theory Courses	L		1			
1	23CS2045	System Software and Compiler Design	3	0	0	3		
2	23AI2002	Artificial Intelligence in Web Development	3	0	0	3		
3	23AI2013	Foundation of Natural Language Processing	3	0	0	3		
4	PEC-02	Professional Elective – 2	3	0	0	3		
5	OEC-01	Open Elective – 1	3	0	0	3		
6	20MS2005	Soft Skills	1	0	0	1		
		Sub Total Credits for Theory Courses	1	I		16		
Laboratory Courses								
1	PEC-03	Professional Elective – 3	0	0	3	1.5		
2	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5		
3	MP2911	Mini Project	0	0	4	2		
		Sub Total Credits for Laboratory Courses				5		
		Total				21		
		SEMESTER-7						
		(Focus on Artificial Intelligence Applications)				Π		
Sl.	Course Code	Course Title	Hours per week	er	Cua dita			
No.	Course Code	Course Title	L	T	P	Credits		
		Theory Courses		_	1			
1	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3		
2	PEC-04	Professional Elective – 4	3	0	0	3		
3	PEC-05	Professional Elective – 5	3	0	0	3		
4	PEC-06	Professional Elective – 6	3	0	0	3		
5	PEC-07	Professional Elective – 7	3	0	0	3		
6	OEC-02	Open Elective – 2	3	0	0	3		
Sub Total Credits for Theory Courses						18		
Laboratory Courses								
1	PEC-08	Professional Elective – 8	0	0	3	1.5		
2	SBC-05	Skill Based Course – V	0	0	2	1		
		Sub Total Credits for Laboratory Courses				2.5		

		Total				20.5
	(Project Focus	SEMESTER-8 sing on Food, Water, Sustainable Energy and Healt Technology Missions)	thcare sect	ors ai	nd K	ITS
Sl. No.	Course Code	Course Title		urs p week		Credits
110.			L	T	P	
		Project				
1	24AI2999	Project	0	0	28	14
Sub Total credits for Project					14	
Total					14	
	Online Courses					
Grand Total including Online Courses						165