DIVISION OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

B.Tech. Computer Science and Engineering (Artificial Intelligence) - 2023 Batch REVISED COURSE COMPONENTS AND CURRICULUM PROGRAM STRUCTURE

Sl. No.	Course Category / Component	Abbreviation	Credits
1	Humanities and Social Sciences including Management and Entrepreneurship Courses	HSMC	11
2	Basic Science Courses	BSC	12
3	Engineering Science Courses	ESC	16
4	Professional Core Courses	PCC	69
5	Mini Project / Summer Internship Program / Internship	P	6
6	Project work	P	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	NITIES AND SOCIAL SCIENCES INCLUDING MANAG	EME	NT A	ND	
Sl. No.	Course Code	ENTREPRENEURSHIP COURSES [HSMC] Course Title	Hours per week			Credits
110.			L	Т	P	
1	NPTEL	English / French / German / Japanese	2	0	0	2
2	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3
3	20MS2007	Business Plan	3	0	0	3
4	23CS1013	Ethics in Information Technology	2	0	0	2
5	20MS2005	Soft Skills	1	0	0	1
Νι	ımber of credi	ts to be earned in Humanities and Social Sciences including and Entrepreneurship Category	g Mar	agen	nent	11
		BASIC SCIENCE COURSES [BSC]	,			
Sl.	Course Code	Code Course Title	Hours per week			Credits
No.			L	T	P	
1	23MA1001	Matrices, Calculus and Ordinary Differential Equations	L 3	T 0	P 0	3
	23MA1001 23MA1002	Matrices, Calculus and Ordinary Differential Equations Partial Differential Equations, Vector Spaces and Laplace Transform				3
1		Partial Differential Equations, Vector Spaces and Laplace	3	0	0	
1 2	23MA1002	Partial Differential Equations, Vector Spaces and Laplace Transform	3	0	0	3
1 2 3	23MA1002 23MA2001 23MA2002	Partial Differential Equations, Vector Spaces and Laplace Transform Probability and Statistics	3 3	0 0 0	0 0 0	3
1 2 3	23MA1002 23MA2001 23MA2002	Partial Differential Equations, Vector Spaces and Laplace Transform Probability and Statistics Discrete Structures	3 3	0 0 0	0 0 0	3 3 3
1 2 3 4 SI.	23MA1002 23MA2001 23MA2002	Partial Differential Equations, Vector Spaces and Laplace Transform Probability and Statistics Discrete Structures Number of credits to be earned in Basic Science Category	3 3 3 3	0 0 0	0 0 0 0	3 3 3
1 2 3 4	23MA1002 23MA2001 23MA2002	Partial Differential Equations, Vector Spaces and Laplace Transform Probability and Statistics Discrete Structures Number of credits to be earned in Basic Science Category ENGINEERING SCIENCE COURSES [ESC]	3 3 3 3	0 0 0 0	0 0 0 0	3 3 12
1 2 3 4 SI.	23MA1002 23MA2001 23MA2002	Partial Differential Equations, Vector Spaces and Laplace Transform Probability and Statistics Discrete Structures Number of credits to be earned in Basic Science Category ENGINEERING SCIENCE COURSES [ESC]	3 3 3 3	0 0 0 0	0 0 0 0	3 3 12

3	23CS1005	Programming for Problem Solving	3	0	0	3	
4	4 23CS1006 Programming for Problem Solving Lab 0 0 3		1.5				
5	23CS1007	Python Programming	3	0	0	3	
6	6 23CS1008 Python Programming Lab 0 0 3		1.5				
7	23CS1012	Computer Organization and Architecture	3	0	0	3	
	Number of credits to be earned in Engineering Science Category 16						
		PROFESSIONAL CORE COURSES (PCC)					

Sl.	Course Code	ourse Code Course Title		ours p week		Credits	
No.	course coue	Course Time	L	T	P	Creates	
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	23CS2024	Data Science Ecosystem	3	0	0	3	
12	23CS2032	Object Oriented Programming	3	0	0	3	
13	23CS2033	Object Oriented Programming Lab	0	0	3	1.5	
14	23CS2035	Operating Systems	3	0	0	3	
15	23CS2045	System Software and Compiler Design	3	0	0	3	
16	23CS2046	Theory of Computation	3	0	0	3	
17	23AI2001	Artificial Intelligence for Cyber Security	3	0	0	3	
18	23AI2002	Artificial Intelligence in Web Development	3	0	0	3	
19	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5	
20	23AI2004	Conversational Artificial Intelligence	3	0	0	3	
21	23AI2005	Conversational Artificial Intelligence Lab	0	0	3	1.5	
22	23AI2006	Cyber Threat Intelligence and Analytics	3	0	0	3	
23	23AI2007	Cyber Threat Intelligence and Analytics Lab	0	0	3	1.5	
24	23AI2008	Edge Artificial Intelligence	3	0	0	3	
25	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3	
26	23AI2010	Essentials of Information Retrieval	3	0	0	3	
27	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3	
						69	

SEMESTER WISE CURRICULUM

	SEMESTER-1								
	(Focus on Basics of Programming and Entrepreneurship)								
Sl. No.				urs p week	er	Credits			
NO.			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	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	6 MC-01 Mandatory Course I						
		Sub Total Credits for Theory Courses				14	
Laboratory Courses					1		
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	urs p	or		
Sl.	Course Code	Course Title		week		Credits	
No.	course coue	Course Title	L	Т	P		
		Theory Courses		<u> </u>	<u> </u>	1	
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	
7	MC-02	Mandatory Course II					
		Sub Total Credits for Theory Courses				17	
		Laboratory Courses	1	1	ı	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				21	
		SEMESTER-3 (Focus on Artificial Intelligence and Programming)					
		(2 veus on 111 micingence and 1 10gramming)	На	urs p	er		
Sl.	Course Code	Course Title		week		Credits	
No.			L	T	P	1	
		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	
4	23CS2032	Object Oriented Programming	3	0	0	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	2033 Object Oriented Programming Lab 0 0 3		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	4.					
	1	(Focus on Data Management and latest AI development				1		
Sl.		G WH		ours p		G 114		
No.	Course Code	le Course Title	L	week T	P	Credits		
		Theory Courses	L	1	r			
1	23MA2002	Discrete Structures	3	0	0	3		
2	23CS2024	Data Science Ecosystem	3	0	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			Ü	18		
	Laboratory Courses							
1	23CS2014	Database Management Systems Lab	0	0	3	1.5		
2	23AI2005	Conversational Artificial Intelligence 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		
		SEMESTER-5						
		(Focus on the Cyber Security)	TT					
Sl.	Course Code	Course Title		Hours per		-		Credits
No.	Course Code	Course Title	L	T	P	Credits		
		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		
		Laboratory Courses				1		
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						
		(Focus on Web Development and Distributed Comput	ing)					

Sl.	Course Code	Course Title		urs p week		Credits
No.	Course Coue	Course Title	L	T	P	Credits
		Theory Courses				
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				
	T	(Focus on Artificial Intelligence Applications)	11.			1
Sl.	Course Code	Course Title		urs p week		Credits
No.	Course Coue	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
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				20.5
	(D	SEMESTER-8			1 777	T PC
	(Project Focu	sing on Food, Water, Sustainable Energy and Healthcar Technology Missions)	e secto	rs an	d KI	TS
		reclining Missions	Но	urs p	er	
Sl.	Course Code	Course Title		week		Credits
No.			L	Т	P	
	<u> </u>	Project			1	1
1	23AI2999	Project	0	0	28	14
		Sub Total credits for Project				14
		Total				14
	Τ	Online Courses				5
		Grand Total including Online Courses				165

B.Tech. Computer Science and Engineering (Artificial Intelligence and Machine Learning) -2023 Batch

REVISED COURSE COMPONENTS AND CURRICULUM PROGRAM STRUCTURE

Sl. No.	Course Category / Component	Course Category / Component Abbreviation	
1	Humanities and Social Sciences including Management and Entrepreneurship Courses	HSMC	11
2	Basic Science Courses	BSC	12
3	Engineering Science Courses	ESC	16
4	Professional Core Courses	PCC	69
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

	COURSE COMPONENTS HUMANITIES AND SOCIAL SCIENCES INCLUDING MANAGEMENT AND						
Sl.	Course Lifle Week C						
No.	Code		L	T	P		
1	NPTEL	English / French / German / Japanese	2	0	0	2	
2	23MS2001	Concepts and Applications in Entrepreneurship	3	0	0	3	
3	20MS2007	Business Plan	3	0	0	3	
4	23CS1013	Ethics in Information Technology	2	0	0	2	
5	20MS2005	Soft Skills	1	0	0	1	
Nun	nber of credit	s to be earned in Humanities and Social Sciences including and Entrepreneurship Category	g Mar	agen	nent	11	
	1	BASIC SCIENCE COURSES [BSC]					
Sl.	Course	Course Title		ours p week		Credits	
No.	Code		L	T	P		
1	23MA1001	Matrices, Calculus and Ordinary Differential Equations	3	0	0	3	
2		Partial Differential Equations, Vector Spaces and Laplace					
_	23MA1002	Transform	3	0	0	3	
3	23MA1002 23MA2001		3	0	0	3	
		Transform		Ť	Ů		
3	23MA2001 23MA2002	Transform Probability and Statistics Discrete Structures Sumber of credits to be earned in Basic Science Category	3	0	0	3	
3	23MA2001 23MA2002	Transform Probability and Statistics Discrete Structures	3 3	0 0	0 0	3	
3	23MA2001 23MA2002	Transform Probability and Statistics Discrete Structures Tumber of credits to be earned in Basic Science Category ENGINEERING SCIENCE COURSES [ESC]	3 3	0 0 ours p	0 0	3 3 12	
3 4	23MA2001 23MA2002 N	Transform Probability and Statistics Discrete Structures Sumber of credits to be earned in Basic Science Category	3 3	0 0	0 0	3	

2	23CS1002	CS1002 Digital System Design Lab 0 0 2		1		
3	23CS1005	CS1005 Programming for Problem Solving		0	0	3
4	4 23CS1006 Programming for Problem Solving Lab 0		0	0	3	1.5
5	23CS1007	Python Programming	3	0	0	3
6	23CS1008	CS1008 Python Programming Lab 0 0 3		3	1.5	
7	7 23CS1012 Computer Organization and Architecture 3 0 0		0	3		
Number of andita to be council in Engineering Science Cottoney				1.6		

Number of credits to be earned in Engineering Science Category

16

PROFESSIONAL CORE COURSES [PC

Sl.	Course	Course Title	Hours per week			Credits
No.	Code		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	23CS2024	Data Science Ecosystem	3	0	0	3
14	23CS2028	Machine Learning Techniques	3	0	0	3
15	23CS2029	Machine Learning Techniques Lab	0	0	3	1.5
16	23CS2032	Object Oriented Programming	3	0	0	3
17	23CS2033	Object Oriented Programming Lab	0	0	3	1.5
18	23CS2035	Operating Systems	3	0	0	3
19	23CS2045	System Software and Compiler Design	3	0	0	3
20	23CS2046	Theory of Computation	3	0	0	3
21	23AI2002	Artificial Intelligence in Web Development	3	0	0	3
22	23AI2003	Artificial Intelligence in Web Development Lab	0	0	3	1.5
23	23AI2009	Essentials of Generative Artificial Intelligence	3	0	0	3
24	23AI2010	Essentials of Information Retrieval	3	0	0	3
25	23AI2011	Software Engineering for Artificial Intelligence Systems	3	0	0	3
26	23AI2012	Foundation of Generative Adversarial Networks	3	0	0	3
27	24AI2013	Foundation of Natural Language Processing	3	0	0	3
	Number of credits to be earned in Professional Core Category					69

SEMESTER WISE CURRICULUM

	SEMESTER WISE CURRICULUM SEMESTER-1							
		(Focus on Basics of Programming and Entrepreneursh	1			1		
Sl.			Ho					
No.	Course Code	Course Title	L	week T	P	Credits		
		Theory Courses	L	1	1			
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		I	<u>I</u>	14		
Labor	atory Courses							
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 Artificial Intelligence in IoT and Pro				1		
Sl.	Course Code	Course Title		ours p week		Credits		
No.	Course Code	Course Title	L	T	P	Credits		
		Theory Courses						
1	23MA1002	Partial Differential Equations, Vector Spaces and Laplace	3	0	0	3		
1	23WA1002	Transform	3	U	U			
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						
		Sub Total Credits for Theory Courses				17		
	22 551 000	Laboratory Courses				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 4		
Sub Total Credits for Laboratory Courses								
		Total				21		
	SEMESTER-3 (Focus on Programming and Artificial Intelligence Principles and Techniques)							
	(1 3043 0	(Hours per					
Sl. No.	Course Code Course Title		week		Credits			
110.			L	T	P			
	ry Courses		1 -					
1	23MA2001	Probability and Statistics	3	0	0	3		

2	23CS2001	Artificial Intelligence: Principles and Techniques	3	0	0	3	
3	23CS2001 23CS2011	Data Structures and Algorithms	3	0	0	3	
4	23CS2011 23CS2032	Object Oriented Programming	3	0	0	3	
5	23CS2032 23CS2035	Operating Systems	3	0	0	3	
Sub Total Credits for Theory Courses							
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		1	I	6	
		Total				21	
		SEMESTER-4					
	(Foo	cus on Artificial Intelligence Applications and Data Visua					
Sl.	Course Code	Comes Tide		urs p week		G . 71	
No.	Course Code	Course Title	L	T	P	Credits	
		Theory Courses	L	1	1		
1	23MA2002	Discrete Structures	3	0	0	3	
2	23CS2024	Data Science Ecosystem	3	0	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	
		Laboratory Courses			ı		
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	
	(Fo	SEMESTER-5 cus on Machine Learning Techniques and Information R	etriev	al)			
	(10)	tus on Machine Bearing Teeninques and Information I		urs p	er		
Sl. No.	Course Code	Course Code Course Title		week		Credits	
110.			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 18	
Sub Total Credits for Theory Courses Laboratory Courses							
1	23CS2005	Computer Networks Lab	0	0	3	1.5	
1	23032003	Computer 110tworks Edo	1 0	U	,	1.3	

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)	Но	urs p	ner	
Sl.	Course Code	e Code Course Title		week		Credits
No.			L	T	P	
	ī	Theory Courses		1	ı	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				16
	DEG 02	Laboratory Courses				1.5
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				21
			Но	ours p	oer	21
Sl.	Course Code	SEMESTER-7		ours p		21 Credits
Sl. No.	Course Code	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title		_		
No.		SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses	L	week T	P	Credits
No.	23AI2011	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems	L 3	week T	P	Credits 3
1 2	23AI2011 PEC-04	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4	L 3 3	week T 0 0	P 0 0	Credits 3 3
1 2 3	23AI2011 PEC-04 PEC-05	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5	3 3 3	T	0 0 0	Credits 3 3 3
1 2 3 4	23AI2011 PEC-04 PEC-05 PEC-06	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6	3 3 3 3	T	0 0 0 0	3 3 3 3 3
1 2 3 4 5	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7	3 3 3 3 3	T	0 0 0 0	3 3 3 3 3 3 3
1 2 3 4	23AI2011 PEC-04 PEC-05 PEC-06	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2	3 3 3 3	T	0 0 0 0	3 3 3 3 3 3
1 2 3 4 5	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses	3 3 3 3 3	T	0 0 0 0	3 3 3 3 3 3 3
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses	L 3 3 3 3 3 3 3 3	T	0 0 0 0 0	3 3 3 3 3 3 18
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8	3 3 3 3 3 3	T	0 0 0 0 0 0	3 3 3 3 18
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V	L 3 3 3 3 3 3 3 3	T	0 0 0 0 0	3 3 3 3 18
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses	3 3 3 3 3 3	T	0 0 0 0 0 0	3 3 3 3 18 1.5 1 2.5
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses Total	3 3 3 3 3 3	T	0 0 0 0 0 0	3 3 3 3 18
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02 PEC-08 SBC-05	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses Total SEMESTER-8	L 3 3 3 3 3 3 3 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	3 3 3 3 18 1.5 1 2.5 20.5
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02 PEC-08 SBC-05	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses Total	L 3 3 3 3 3 3 3 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	3 3 3 3 18 1.5 1 2.5 20.5
1 2 3 4 5 6 Proj	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02 PEC-08 SBC-05	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses Total SEMESTER-8 n Food, Water, Sustainable Energy and Healthcare sectors	L 3 3 3 3 3 3 3 3	T	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 18 1.5 1 2.5 20.5
1 2 3 4 5 6	23AI2011 PEC-04 PEC-05 PEC-06 PEC-07 OEC-02 PEC-08 SBC-05	SEMESTER-7 (Focus on Artificial Intelligence Applications) Course Title Theory Courses Software Engineering for Artificial Intelligence Systems Professional Elective – 4 Professional Elective – 5 Professional Elective – 6 Professional Elective – 7 Open Elective – 2 Sub Total Credits for Theory Courses Laboratory Courses Professional Elective – 8 Skill Based Course – V Sub Total Credits for Laboratory Courses Total SEMESTER-8 n Food, Water, Sustainable Energy and Healthcare sectors	L 3 3 3 3 3 3 3 3	T	9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 18 1.5 1 2.5 20.5

Project							
1	23AI2999	Project	0	0	28	14	
		Sub Total credits for Project				14	
Total					14		
Online Courses					5		
		Grand Total including Online Courses				165	