

RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

Scheme of Teaching & Examination of Bachelor of Technology

III Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No.	Course Code	Category	Course Name	Hours/ Week			Credits	Maximum Marks					Minimum Passing Marks	
				L	T	P		Theory		Practical		Total		
								Internal	University	Internal	University		Theory	Practical
1	BTechRAI301T	Basic Science Course	Discrete Mathematics and Graph Theory	3	1	0	4.00	30	70	-	-	100	45	
2	BTechRAI302T	Professional core courses	Operating Systems	3	0	0	3.00	30	70	-	-	100	45	
3	BTechRAI303T	Professional core courses	Principles of Robotics	3	0	0	3.00	30	70	-	-	100	45	
4	B.TechRAI304T	Professional core courses	Data Structures Algorithms	3	1	0	4.00	30	70	-	-	100	45	
5	BTechRAI304P	Professional core courses	Data Structures Algorithms Lab	0	0	2	1.00	-	-	25	25	50		25
6	BTechRAI305T	Engineering Sciences	Analog and Digital Circuit	3	1	0	4.00	30	70			100	45	
7	BTechRAI305P	Engineering Sciences	Analog and Digital Circuit Lab	0	0	2	1.00	-	-	25	25	50		25
8	BTechRAI306P	Professional core courses	Professional Skills (Python)	0	0	2	1.00			25	25	50		25
9	BTechRAI307T	HSMC	Universal Human Values	2	0	0	2.00	15	35			50	23	
10	BTechRAI308T	Mandatory Audit Course	Environmental Science	2	0	0	Audit	College assessment in grades O, A,B,C						
Total				19	3	6	23.00	165	385	75	75	700		

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IV Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No.	Course Code	Category	Course Name	Hours/ Week			Credit s	Maximum Marks					Minimum Passing Marks	
				L	T	P		Theory		Practical		Total		
								Internal	University	Internal	University			Theory
1	BTechRAI401T	Professional core courses	Introduction to AI	3	0	0	3.00	30	70	-	-	100	45	
2	BTechRAI402T	Professional Core courses	Computer Networks	3	0	0	3.00	30	70	-	-	100	45	
3	BTechRAI403T	Professional Core courses	Robotics Sensor Technology	3	0	0	3.00	30	70	-	-	100	45	
4	B.TechRAI404T	Professional core courses	Object Oriented Programming	3	0	0	3.00	30	70	-	-	100	45	
5	BTechRAI404P	Professional core courses	Object Oriented Programming Lab	0	0	2	1.00	-	-	25	25	50		25
6	BTechRAI405T	Professional core courses	Robot Kinematics	3	0	0	3.00	30	70			100	45	
7	BTechRAI405P	Professional Core courses	Robot Kinematics Lab	0	0	2	1.00	-	-	25	25	50		25
8	BTechRAI406T	Professional Core courses	Intelligent Embedded System	3	1	0	4.00	30	70	-	-	100	45	
9	BTechRAI406P	Professional Core courses	Intelligent Embedded System Lab	0	0	2	1.00	-	-	25	25	50	-	25
10	BTechRAI407P	Project Work/Internship	Internship	0	0	2	1.00			50	--	50		25
Total				18	1	8	23.00	180	420	125	75	800		

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Scheme of Teaching & Examination of Bachelor of Technology

V Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No.	Course Code	Category	Course Name	Hours/ Week			Credits	Maximum Marks					Minimum Passing Marks	
				L	T	P		Theory		Practical		Total		
								Internal	University	Internal	University			Theory
1	BTechRAI501T	Professional Core courses	Robot Dynamics	3	0	0	3.00	30	70			100	45	
2	BTechRAI501P	Professional core courses	Robot Dynamics	0	0	2	1.00			25	25	50	45	25
3	BTechRAI502T	Professional Core courses	Machine Learning Algorithms	3	1	0	4.00	30	70	-	-	100	45	
4	BTechRAI502P	Professional core courses	Machine Learning Algorithms lab	0	0	2	1.00			25	25	50	45	25
6	BTechRAI503T	Professional core courses	Robotic Drive System	3	0	0	3.00	30	70	-	-	100	45	
7	BTechRAI504T	Engineering Sciences	Internet of Things and its Application	3	0	0	3.00	30	70	-	-	100	45	
8	BTechRAI504P	Engineering Sciences	Internet of Things and its Application	0	0	2	1.00	-	-	25	25	50		25
9	BTechRAI505T	Professional Elective Course	Elective-I	3	0	0	3.00	30	70			100	45	
10	BTechRAI506T	HSMC	Effective Technical Communication	2	0	0	2.00	15	35			50	23	
Total				17	1	6	21	165	385	75	75	700		

Elective-I-1.Field and Service Robotics 2.Information Security 3.Wireless Communication Technologies 4.ARM Processor & its Essentials 5.Drone & Automation System

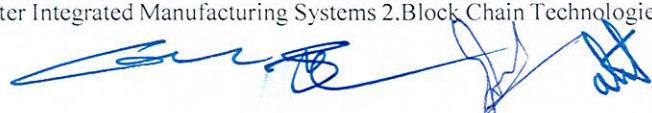
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Scheme of Teaching & Examination of Bachelor of Technology

VI Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No	Course Code	Category	Course Name	Hours/Week			Credits	Maximum Marks					Minimum Passing Marks	
								Theory		Practical		Total		
				L	T	P		Internal	University	Internal	University		Theory	Practical
1	BTechRAI601T	Professional Core courses	Computer Vision & Deep Learning	3	0	0	3.00	30	70	-	-	100	45	
2	BTechRAI601P	Professional Core courses	Computer Vision & Deep Learning Lab	0	0	2	1.00			25	25	50		25
3	BTechRAI602T	Professional core courses	Automation System Design	3	0	0	3.00	30	70	-	-	100	45	
4	BTechRAI602P	Professional Core courses	Automation System Design lab	0	0	2	1.00			25	25	50		25
5	BTechRAI603T	Professional Core courses	Big Data Analytics for Business Intelligence	3	0	0	3.00	30	70	-	-	100	45	
6	BTechRAI603P	Professional Core courses	Big Data Analytics for Business Intelligence Lab	0	0	2	1.00	-	-	25	25	50		25
7	BTechRAI604T	Professional Elective course	Elective 2	3	0	0	3.00	30	70			100	45	
8	BTechRAI605T	Open Elective course	Open Elective-1	3	0	0	3.00	30	70			100	45	
9	BTechRAI606T	HSMC	Organizational Behavior	2	0		Audit	College assessment in grades O, A,B,C						
10	BTechRAI607P	Project Work/Internship	Mini Project/Internship	0	0	6	3.00	-	-	25	25	50	-	25
Total				17	0	12	21.00	150	350	100	100	700		

Elective II: 1.Computer Integrated Manufacturing Systems 2.Block Chain Technologies. 3. Intelligent Sensor & Instrumentation 4. Robotics and Intelligent Systems 5. Robotic Process Automation



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Scheme of Teaching & Examination of Bachelor of Technology
VII Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No.	Course Code	Category	Course Name	Hours/ Week			Credits	MaximumMarks					Minimum Passing Marks	
								Theory		Practical		Total		
				L	T	P		Internal	University	Internal	University		Theory	Practical
1	BTechRAI701T	Professional core courses	Robot Programming	3	0	0	3.00	30	70	-	-	100	45	
2	BTechRAI701P	Professional core courses	Robot Programming Lab	0	0	2	1.00			25	25	50		25
3	BTechRAI702T	Professional core courses	Digital Signal Processing for Robotics	3	0	0	3.00	30	70	-	-	100	45	
4	BTechRAI702P	Professional core courses	Digital Signal Processing for Robotics Lab	0	0	2	1.00			25	25	50		25
5	BTechRAI703T	Professional Elective Course	Elective-III	3	0	0	3.00	30	70	-	-	100	45	
6	BTechRAI704T	Open Elective	Open Elective-II	3	0	0	3.00	30	70	-	-	100	45	
7	BTechRAI705P	Project Work	Project		0	6	3.00	-	-	50	50	100		50
Total				12	0	10	17.00	120	280	100	100	600		

Elective III: 1. Human Robot Interaction 2. CNC Machines 3. Embedded Controllers and Real time Operating Systems 4. Natural Language Processing 5. Additive Manufacturing

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VIII Semester B.Tech. (Robotics & Artificial Intelligence)

Sr. No.	Course Code	Category	Course Name	Hours/ Week			Credits	Maximum Marks					Minimum Passing Marks	
								Theory		Practical		Total		
				L	T	P		Internal	University	Internal	University		Theory	Practical
1	BTechRAI801T	Professional Elective Course	Elective-IV	3	0	0	3.00	30	70	-	-	100	45	
2	BTechRAI802T	Professional Elective Course	Elective-V	3	0	0	3.00	30	70	-	-	100	45	
3	BTechRAI803P	Project Work	Project	0	0	16	8.00			100	100	200		100
Total				6	0	16	14.00	60	140	100	100	400		

Elective IV: 1.Cloud Computing 2. Robotics & Industrial Applications 3.Medical Robotics 4. Pattern Recognition

Elective V: 1.Cognitive Robotics 2.Operational Research in Robotics 3.Digital Forensics 4. Micro-Electro-Mechanical System



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Credit Structure

B.Tech. Robotics and Artificial Intelligence

Sr.No.	Semester	Category							Total
		BSC	ESC	HSMC	PCC	PEC	OEC	PROJ	
1.	I	09	07	03	-	-	-	-	19
2	II	09	13	-	-	-	-	-	22
3	III	04	05	02	12	-	-	-	23
4	IV	-		-	22	-	-	01	23
5	V	--		02	16	03		-	21
6	VI	-	-		12	03	03	03	21
7	VII	-	-	-	08	03	03	03	17
8	VIII	-	-	-	-	06	-	08	14
Total		22	25	07	70	15	06	15	160

