B.Tech in Robotics and AI

FIRST SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
3 WEEKS COMPULSORY INDUCTION PROGRAM (UHV-I)								
1	BSC	15B11MA111	Mathematics-1	3	1	0	4	4
2	BSC	15B11PH111	Physics-I	3	1	0	4	4
3	ESC	15B11CI111	Software Development Fundamentals- I	3	1	0	4	4
4	HSC	15B11HS112	English	1	0	2	3	2
5	BSC	24B11EC111	Basic Electronics	3	1	0	4	4
6	LAB	15B17PH171	PhysicsLab-1	0	0	2	2	1
7	LAB	15B17CI171	Software Development Fundamentals Lab-I	0	0	2	2	1
8	LAB	18B15GE112	Workshop	0	0	3	3	1.5
9	LAB	24B15EC111	Basic Electronics Lab	0	0	2	2	1
			Total	**13**	**4**	**11**	**28**	**22.5**

SECOND SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	BSC	15B11MA211	Mathematics-2	3	1	0	4	4
2	BSC	15B11PH211	Physics-2	3	1	0	4	4
3	ESC	15B11CI121	Software Development Fundamentals -II	3	1	0	4	4
4	LAB	15B17PH271	PhysicsLab-2	0	0	2	2	1
5	LAB	15B17CI271	Software Development Fundamentals Lab- II	0	0	2	2	1
6	LAB	24B16HS111	Life Skills &Professional Communication Lab	0	0	2	2	Qualifying
7	LAB	18B15GE111	Engineering Drawing & Design	0	0	3	3	1.5
8	HSC	15B11HS111	Universal Human Values (UHV)	2	1	0	3	3
			Total				**24**	**18.5**

THIRD SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	BSC		Probability and Random Processes	3	1	0	4	4
2	PCC		Analog & Digital Electronics	3	1	0	4	4
3	PCC		Fundamentals of Robotics & AI	3	1	0	4	4
4	PCC		Fundamentals of Materials Science & Smart Materials	3	0	0	3	3
5	OMC		Environmental Studies	3	0	0	3	Qualifying
6	LAB		Analog & Digital Electronics Laboratory	0	0	2	2	1
7	LAB		Robot Programming Laboratory	0	0	2	2	1
8	ESC		Fundamental of Mechanical Engineering	2	0	0	2	2
9	HSC		Economics	2	1	0	3	3
10	PRC		SummerTraining-I(4 weeks)	-	-	-	-	2
			Total				**27**	**24**

FOURTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	HSC		HSSElective–1	2	1	0	3	3
2	PCC		Machine Learning	3	1	0	4	4
3	PCC		Sensors and Actuators for Robotics	3	1	0	4	4
4	PCC		Microcontrollers and its Applications	3	1	0	4	4
5	PCC		Signals and Systems	3	0	0	3	3
6	LAB		Sensors and Actuators Laboratory	0	0	2	2	1
7	LAB		Microcontrollers & its Applications Laboratory	0	0	2	2	1
8	LAB		Signals and Systems Laboratory	0	0	2	2	1
9	PEC		**Discipline Elective -1**	3	0	0	3	3
			Total				**27**	**24**

FIFTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PCC		Data Structures and Algorithms	3	1	0	4	4
2	PCC		Control Systems	3	1	0	4	4
3	LAB		Data Structures and Algorithms Lab	0	0	2	2	1
4	LAB		Control Systems Laboratory	0	0	2	2	1
5	PCC		Advances in Robotics and Artificial Intelligence	2	0	0	2	2
6	PEC		**Discipline Elective -2**	3	0	0	3	3
7	PEC		**Discipline Elective -3**	3	0	0	3	3
8	LAB		Artificial Intelligence Laboratory	0	0	2	2	1
9	OMC		Indian Constitution & Traditional Knowledge	3	0	0	3	Qualifying
10	PRC		Summer Training-II(6 weeks)	0	0	0	0	2
			Total				**25**	**21**

SIXTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PCC		Kinematics of Robotics	3	0	0	3	3
2	PCC		Embedded Systems Design	3	0	0	3	3
3	PCC	18B11EC315	Data Science	2	0	0	2	2
4	PCC		Dynamics and Trajectory Planning	2	0	0	2	2
5	PCC		Robot Operating Systems	1	0	2	2	2
6	PCC		Knowledge Engineering and Expert System	2	0	0	2	2
7	PEC		**Discipline Elective -4**	3	0	0	3	3
8	Valueadded		Selected Value-Added Course	2	0	0	2	Audit
9	LAB	18B15EC313	Embedded Systems/IOT Lab	0	0	2	2	1
10	LAB	18B15EC315	Robotic Simulation Laboratory	0	0	2	2	1
11	HSC		HSS Course	-	-	2	2	1
12	PRC		Minor Project	-	-	4	4	2
			Total				**29**	**22**

SEVENTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PCC		Internet of Robotic Things (RIoT)	3	0	0	3	3
2	PEC		**Discipline Elective -5**	3	0	0	3	3
3	PRC		Major Project Part-I	0	0		8	4
4	PRC		Summer Training-III (6 weeks)	0	0	0	0	4
			Total				**14**	**14**

EIGHTH SEMESTER

S. No.	Course Type	Course Code	Course Title	Lecture	Tutorial	Practical	Total	Credit
1	PEC		**Discipline Elective -6**	3	0	0	3	3
2	OEC		Open Elective	3	-	-	3	3
3	PRC		Major Project Part-II	-	-	16	16	8
			Total				**22**	**14**

TOTAL CREDITS: 160

Courses for Fourth Semester

HSS Elective–I
Discipline Elective -I

1. Mobile and Micro Robotics
2. Intelligent Manufacturing

Courses for Fifth Semester

Discipline Elective II

1. Autonomous Robotics
2. Deep Learning
3. Mechatronics System Design

Discipline Elective III

1. Advanced Robotics Programming
2. Advanced Artificial Intelligence

Courses for Sixth Semester

Discipline Elective IV

1. Augmented Reality and Virtual Reality
2. Robot Dynamics and Control

Courses for Seventh Semester

Discipline Elective V

1. Biomedical Robotics
2. Advanced Mechatronics

Courses for Eighth Semester

Discipline Elective VI

1. Advanced Control System
2. Data Analytics

PCC: Professional Core Course	**AC:** Auditing Course
PEC: Professional Elective Course	**OEC:** Open Elective Courses
BSC: BasicScienceCourses	**ESC:**EngineeringScienceCourses