

**13. Courses of Study and Scheme of Assessment  
BE ROBOTICS AND AUTOMATION**

**(2019 Regulations)**

Course Code	Course Title	Periods / week			Maximum Marks				
		Lecture	Tutorial	Practical	Credits	CA	FE	Total	CAT
<b>SEMESTER VII</b>									
19R701	Mobile Robotics	2	1	0	3	50	50	100	PC
19____	Open Elective I	3	0	0	3	50	50	100	OE
19R____	Professional Elective III	3	0	0	3	50	50	100	PE
19R____	Professional Elective IV	3	0	0	3	50	50	100	PE
19R____	Professional Elective V	3	0	0	3	50	50	100	PE
19R710	Innovation Practices	0	0	4	2	100	0	100	EEC
19R720	Project Work I	0	0	4	2	100	0	100	EEC
<b>Total 23 periods</b>		<b>14</b>	<b>1</b>	<b>8</b>	<b>19</b>	<b>450</b>	<b>250</b>	<b>700</b>	
<b>SEMESTER VIII</b>									
19____	Open Elective II	3	0	0	3	50	50	100	OE
19R____	Professional Elective VI	3	0	0	3	50	50	100	PE
19R820	Project Work II	0	0	8	4	50	50	100	EEC
<b>Total 14 periods</b>		<b>6</b>	<b>0</b>	<b>8</b>	<b>10</b>	<b>150</b>	<b>150</b>	<b>300</b>	

CA            Continuous Assessment  
FE            Final Examination

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## **LANGUAGE ELECTIVES**

- 19G001 Communication Skills for Engineers
- 19G002 German- Level A1.1
- 19G003 French Language Level 1
- 19G004 Basic Japanese

## **PROFESSIONAL ELECTIVES**

### **ROBOTICS**

- 19R001 Industry 4.0
- 19R002 Robotic Control Systems
- 19R003 Industrial Robotics and Material Handling Systems
- 19R004 Microrobotics
- 19R005 Cognitive Robotics
- 19R006 Cloud Robotics
- 19R007 Medical Robotics
- 19R008 Robotic Welding Technology

### **AUTOMATION AND NETWORKING**

- 19R010 Electrical Machines for Automation
- 19R011 Industrial Networking
- 19R012 Virtual Instrumentation Systems
- 19R013 Sensor Networks
- 19R014 Digital Control Systems
- 19R015 Automobile Engineering
- 19R016 Renewable Energy Systems
- 19R017 Farm Automation
- 19R018 Advanced Control Systems

### **SIGNAL PROCESSING**

- 19R020 Image Analytics
- 19R021 Speech Signal Processing
- 19R022 Signal Processing
- 19R023 Embedded Processors
- 19R024 Advanced Microprocessors and Microcontrollers

### **COMPUTER SCIENCE**

- 19R030 Internet of Things
- 19R031 Computer Architecture
- 19R032 Embedded and Real-time Systems
- 19R033 Big Data Analytics
- 19R034 Software Project Management and Quality Assurance
- 19R035 Neural Networks and Fuzzy Systems
- 19R036 Internet Tools and Java Programming
- 19R037 Machine Learning for Robotics

## **MANUFACTURING AND INDUSTRIAL ENGINEERING**

- 19R040 Lean Manufacturing
- 19R041 Supply Chain Management
- 19R042 Process Planning and Cost Estimation
- 19R043 Maintenance and Safety Engineering
- 19R044 Industrial Design and Applied Ergonomics
- 19R045 Product Design and Development
- 19R046 Computer Integrated Manufacturing
- 19R047 Additive Manufacturing

## **ONE-CREDIT COURSES**

### **ROBOTICS AND AUTOMATION ENGINEERING**

- 19RF01 CAD Tools for Industrial Automation
- 19RF02 Design Concepts and Realization
- 19RF03 Dynamic Modeling Simulations and Control of Robots
- 19RF04 Modeling and Simulation of Dynamic Systems Using Adams
- 19RF05 Robot Operating Systems
- 19RF06 Computer Vision with OpenCV
- 19RF07 Underwater Robotics
- 19RF08 Digital Technology for Automation Drives
- 19RF09 PC Based Industrial Automation
- 19RF10 Robot Simulation Using Open Source Tools
- 19RF11 Introduction to Haptic Interface Design
- 19RF12 Codesys Programming
- 19RF13 Open PLC
- 19RF14 Applied Robotics
- 19RF15 Evolutionary Optimization Techniques

### **HUMANITIES**

- 19OFA1 Export – Import Practices
- 19OFA2 Insurance - Concepts and Practices
- 19OFA3 Public Finance
- 19OFA4 Security Analysis and Portfolio Management

### **ENGLISH**

- 19GF01 Interpersonal and Organizational Communication
- 19GF02 Human Values Through Literature

### Summary of Credit Distribution

BE ROBOTICS AND AUTOMATION										
S. No	Course Category	Credits Per Semester								Total Credits
		1	2	3	4	5	6	7	8	
1	HS	3	2	3	0	0	0	0	0	8
2	BS	12	6	4	3	0	0	0	0	25
3	ES	7	12	4	0	0	0	0	0	23
4	PC	0	0	11	20	16	20	3	0	70
5	PE	0	0	0	0	3	3	9	3	18
6	OE	0	0	0	0	0	0	3	3	6
7	EEC	0	2+2 <sup>£</sup>	0	1	1	1	4	4	15
8	MC	-	-	-	-	-	-	-	-	-
	<b>TOTAL</b>	<b>22</b>	<b>22+2<sup>£</sup></b>	<b>22</b>	<b>24</b>	<b>20</b>	<b>24</b>	<b>19</b>	<b>10</b>	<b>165</b>

£ Summer Term Course(s)

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