



JOY UNIVERSITY  
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## School of Computational Intelligence

Department of Engineering & Technology

B.Tech (All Engineering Programmes) – I Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Mathematics for Engineers- I	3	1	0	4	4
2.		Applied Physics for Engineers	3	0	0	3	3
3		Communication Skills in English	2	0	0	2	2
4.		Fundamentals of Computer Programming	3	0	0	3	3
5.		Mechanics for Engineers	3	0	0	3	3
6.		Foundation of Electrical, Electronics & Instrumentation Engineering	3	0	0	3	3
7.		Engineering Graphics & Visualization	2	0	3	5	3
7.		Fundamentals of Computing Lab	0	0	3	3	2
9.		Engineering Physics Laboratory	0	0	2	2	1
		<b>TOTAL</b>	<b>19</b>	<b>1</b>	<b>8</b>	<b>28</b>	<b>24</b>

### B.Tech (Robotics & Control Programmes) – II Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Mathematics for Engineers- II	3	1	0	4	4
2.		Environmental Science	3	0	0	3	3
3.		Introduction to Artificial Intelligence	3	0	0	3	3
4.		Thermodynamics & Its Engineering Application	3	0	0	3	3
5.		Modern Biology for Engineers	2	0	0	2	2
6.		Economics for Engineers	3	0	0	3	3
7.		Electrical, Electronics & Instrumentation Engineering Laboratory	0	0	3	3	2
8.		Practical Approach of Engineering Realization	0	0	3	3	2
9.		Artificial Intelligence Laboratory	0	0	2	2	1
10.		Entrepreneurship and Innovation	1	0	2*	3*	2
		<b>TOTAL</b>	<b>18</b>	<b>1</b>	<b>9</b>	<b>28</b>	<b>25</b>

*\*Alternate Week.*

### B.Tech (Robotics & Control Programmes) – III Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Materials for Robotic Application	3	0	0	3	3
2.		Numerical Techniques and Statistics	3	0	0	3	3
3.		Manufacturing Processes and Automation	3	0	0	3	3
4.		Fluid Mechanics and Thermal Engineering	3	0	0	3	3
5.		Electrical Machines & Actuators	3	0	0	3	3
6.		Mechanics of Solids	3	0	0	3	3
7.		Material Testing and Manufacturing Laboratory	0	0	3	3	2
8.		Thermal and Fluid Laboratory	0	0	2	2	1
9.		Electrical Drives & Actuators Laboratory	0	0	2	2	1
		<b>TOTAL</b>	<b>18</b>	<b>0</b>	<b>7</b>	<b>25</b>	<b>22</b>

**B.Tech (Robotics & Control Programmes) – IV Semester**

<b>Sl. No.</b>	<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Contact Hrs / Wk</b>	<b>Credits</b>
1.		Kinematics and Dynamics of Mechanisms	3	1	0	4	4
2.		Elements of Digital Electronics & Microprocessors	3	0	0	3	3
3.		Machining Technology and CNC Machines	3	0	0	3	3
4.		Embedded Systems and Programming	3	0	0	3	3
5.		Measurements and Instrumentation	3	0	0	3	3
6.		Computer Aided Design & Analysis	3	0	0	3	3
7.		Computer Aided Design & Analysis Laboratory	0	0	2	2	1
8.		Embedded Systems Laboratory	0	0	2	2	1
9.		Kinematics and Dynamics of Machine Laboratory	0	0	2	2	1
10.		Measurements and Instrumentation Laboratory	0	0	2	2	1
		<b>TOTAL</b>	<b>18</b>	<b>1</b>	<b>8</b>	<b>27</b>	<b>23</b>

### B.Tech (Robotics & Control Programmes) – V Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Design for Transmission System and Robot Element	3	0	0	3	3
2.		Kinematics & Dynamics of Robot	4	0	0	4	4
3.		Hydraulic and Pneumatics for Robot	3	0	0	3	3
4.		Sensors and Transducers in Engineering	3	0	0	3	3
5.		Automatic Control Systems	3	0	0	3	3
6.		Elective-I	3	0	0	3	3
7.		Kinematic & Dynamics Laboratory for Robot	0	0	3	3	1
8.		Sensors and Control Systems Laboratory	0	0	2	2	1
9.		Hydraulic and Pneumatics Laboratory	0	0	2	2	1
10.		Modelling and Simulation of Robot Elements Laboratory	0	0	3	3	2
		<b>TOTAL</b>	<b>19</b>	<b>0</b>	<b>10</b>	<b>29</b>	<b>24</b>

#### Elective: I

Automobile Engineering  
Flexible Manufacture and System  
Robotics in Smart & Digital Manufacturing  
Linear Integrated Circuits  
Mechanical Vibrations and Noise Control  
Industrial Robotics and Material Handling Systems

## B.Tech (Robotics & Control Programmes) – VI Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Programmable Logic Controller & Circuit Design	3	1	0	4	4
2.		IoT & Machine Learning for Robotics Application	3	0	0	3	3
3.		Path Planning for Robot	3	0	0	3	3
4.		Vision Systems and Intelligence	3	0	0	3	3
5.		Elective- II	3	0	0	3	3
6.		Robotics & Programmable Logic Controller Lab	0	0	3	3	1
7.		Machine Learning & IoT Practical	0	0	3	3	2
8.		Robotic Programming, Vision and Intelligence Laboratory	0	0	2	2	1
9.		Internship	0	0	0	0	1
		<b>TOTAL</b>	<b>15</b>	<b>1</b>	<b>8</b>	<b>24</b>	<b>21</b>

### Elective: II

Microcontrollers for Robotics System  
Mobile Robotics  
Electric and Hybrid Vehicles  
Development in Drone Technology  
Advanced Artificial Intelligence & IoT in Robotics  
Smart and Intelligent Vehicles Mobility  
Motion Control Technologies  
Advanced Image Processing

### B.Tech (Robotics & Control Programmes) – VII Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Artificial Neural Network & Fuzzy System	3	0	0	3	3
2.		Industrial Engineering & Operation Research	3	0	0	3	3
3.		Elective –III	3	0	0	3	3
4.		Elective – IV	3	0	0	3	3
5.		Seminar	0	0	3	3	1
6.		Project- I	0	0	12	12	6
7.		<b>TOTAL</b>	<b>12</b>	<b>0</b>	<b>15</b>	<b>27</b>	<b>19</b>

#### Elective- III

Automotive Embedded Systems  
 Autonomous Mobile Robots  
 Underwater Robotics  
 Cloud Robotics  
 Real Time Embedded Systems  
 Data Structure for Robotics and Automation  
 Advanced Computer Integrated Systems  
 Computer Vision and Deep Learning

#### Elective- IV

Optimization Techniques in Engineering  
 Additive Manufacturing  
 Smart & Digital Manufacturing  
 Flexible Manufacturing Systems  
 Theory & Application of Humanoid Robotics  
 Vehicle Dynamics & Control  
 Modern Driver Assistance System  
 Condition Monitoring and Fault Diagnostics  
 Mechatronics in Aircraft Application

### B.Tech (Robotics & Control Programmes) – VIII Semester

Sl. No.	Course Code	Course Title	L	T	P	Contact Hrs / Wk	Credits
1.		Professional Ethics and Constitution of India	3	0	0	3	3
2.		Industrial Engineering and Management	3	0	0	3	3
3.		Elective- V	3	0	0	3	3
4.		Project-2	0	0	16	16	8
		<b>TOTAL</b>	<b>9</b>	<b>0</b>	<b>16</b>	<b>25</b>	<b>17</b>

#### Elective- V

Fundamentals of Accounting  
 Introductory course for Taxation  
 Marketing of Social and Digital Media  
 Organizational Behaviour  
 Intellectual Property Rights  
 Entrepreneurship Development  
 Fundamentals of Cognitive Science  
 Overview of Cyber Security

#### Credit Summary

Semesters	Credits
Semester- I	24
Semester- II	25
Semester- III	22
Semester- IV	22
Semester- V	23
Semester- VI	21
Semester- VII	19
Semester VIII	17
<b>Total</b>	<b>175</b>