



**UTTARAKHAND BOARD OF TECHNICAL EDUCATION**  
**INSTITUTE OF RESEARCH DEVELOPMENT & TRAINING**  
**(STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME)**



**BRANCH NAME – AUTOMATION AND ROBOTICS**

**SEMESTER – III**

**BRANCH CODE - 46**

Course Code	Course Title	TH	T	P	T O T	EVALUATION SCHEME						Total Marks	Total Credit
						Internal Assessment		External					
						Theory	Practical	Theory		Practical			
						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
Hours Per Week													
463001	An Introduction to Robotics	4	0	0	4	50	0	50	2.5	0	-	100	4
453004	Analog Electronics & Devices	4	0	4	8	30	20	50	2.5	50	3.0	150	6
453003	Digital Electronics	4	0	0	4	50	0	50	2.5	0	-	100	4
433004	'C' Programming	4	0	4	8	30	20	50	2.5	50	3.0	150	6
453002	Electrical Machines	4	0	4	8	30	20	50	2.5	50	3.0	150	6
463002	Kinematics & Dynamics of Machines	4	0	4	8	30	20	50	2.5	50	3.0	150	6
463003	Computer Aided Machine Drawing (With Solid Works)	0	0	4	4	0	50	0	-	50	3.0	100	2
AS301	Summer Internship-I (3-4 Week duration After II sem)	-	-	-	-	-	25	-	-	25	3.0	50	2
013054	General Proficiency	0	0	4	4	-	25	-	-	-	-	25	-
463052	Industrial Exposure	-	-	-	-	-	25	-	-	-	-	25	-
	<b>Total</b>	<b>24</b>	<b>0</b>	<b>24</b>	<b>48</b>	<b>220</b>	<b>205</b>	<b>300</b>	<b>-</b>	<b>275</b>	<b>-</b>	<b>1000</b>	<b>36</b>



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**BRANCH NAME – AUTOMATION AND ROBOTICS**

**SEMESTER – IV**

**BRANCH CODE - 46**

Course Code	Course Title	TH	T	P	T O T	EVALUATION SCHEME						Total Marks	Total Credit
						Internal Assessment		External					
						Theory	Practical	Theory		Practical			
						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
Hours Per Week													
464001	Sub Systems of Robots	4	0	0	4	30	0	50	2.5	0	-	80	4
464002	Special Machines & Controllers	4	0	2	6	30	20	50	2.5	50	3.0	150	5
464003	Fluid Power Automation	4	0	2	6	30	20	50	2.5	50	3.0	150	5
464004	Sensor & Instrumentation	4	0	2	6	30	20	50	2.5	50	3.0	150	5
454001	Strength of Materials	4	0	2	6	30	20	50	2.5	50	3.0	150	5
464005	Electrical Circuits & Power Supplies	4	0	2	6	30	20	50	2.5	50	3.0	150	5
454007	<b>Elective:</b> Artificial Intelligence & Machine Learning or, Soft Computing	4	0	0	4	30	0	50	2.5	0	-	80	4
454008													
AS401	Essence of Indian Traditional Knowledge (Audit Course)	2	0	0	2	0	0	50	2.5	0	-	50	0
AS402	Minor Project	0	0	4	4	0	20	0	0	70	3.0	90	2
014054	General Proficiency	0	0	4	4	0	25	0	0	0	-	25	0
464052	Industrial Exposure	0	0	0	0	0	25	0	0	0	-	25	0
	Total	30	0	18	48	210	170	400	-	320	-	1100	35



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**BRANCH NAME – AUTOMATION AND ROBOTICS**

**SEMESTER – V**

**BRANCH CODE - 46**

Course Code	Course Title	TH	T	P	T O T	EVALUATION SCHEME						Total Marks	Total Credit
						Internal Assessment		External					
						Theory	Practical	Theory		Practical			
						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
Hours Per Week						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
465001	Micro Controller & Embedded System	6	0	8	14	30	20	75	2.5	75	3.0	200	10
455006	Computer Integrated Manufacturing (C I M)	6	0	8	14	30	20	75	2.5	75	3.0	200	10
465002	<b>Elective-1: IOT &amp; Integrated Automation or,</b> Industrial Automation	5	0	0	5	50	0	50	2.5	0	-	100	5
465003													
465004	<b>Elective-2: Power Electronics or,</b> Industrial Electronics	5	0	0	5	50	0	50	2.5	0	-	100	5
465005													
465006	<b>Open Elective: Mobile Robots or,</b> Total Quality Management	4	0	0	4	50	0	50	2.5	0	-	100	4
455005													
AS501	Summer Internship-II (4-6 week duration after IV Sem)	-	-	-	-	0	50	0	-	50	3.0	100	3
AS502	Major Project-I	0	0	2	2	0	50	0	-	100	3.0	150	1
015054	General Proficiency	0	0	4	4	0	25	0	0	0	-	25	0
465052	Industrial Exposure	0	0	0	0	0	25	0	0	0	-	25	0
	<b>Total</b>	<b>26</b>	<b>0</b>	<b>22</b>	<b>48</b>	<b>210</b>	<b>190</b>	<b>300</b>	<b>-</b>	<b>300</b>	<b>-</b>	<b>1000</b>	<b>38</b>



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**BRANCH NAME – AUTOMATION AND ROBOTICS**

**SEMESTER – VI**

**BRANCH CODE - 46**

Course Code	Course Title	TH	T	P	T O T	EVALUATION SCHEME						Total Marks	Total Credit
						Internal Assessment		External					
						Theory	Practical	Theory		Practical			
						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
Hours Per Week						Max Marks	Max Marks	Max Marks	Duration in Hrs.	Max Marks	Duration in Hrs.		
466001	Kinematics & Dynamics of Robot	8	0	0	8	50	0	100	2.5	0	-	150	8
466002 466003	<b>Open Elective-1:</b> Modelling & Simulation using MATLAB or, Python Programming	6	0	4	10	30	20	50	2.5	50	3.0	150	8
456004 456006	<b>Open Elective 2:</b> Material Handling Systems or, Industrial Engineering & Management	6	0	0	6	50	0	50	2.5	0	-	100	6
456002 466004	<b>Program Elective:</b> Control System & PLC or, Mechatronics	6	0	0	6	50	0	50	2.5	0	-	100	6
AS601	Indian Constitution (Audit Course)	2	0	0	2	0	0	50	2.5	0	-	50	0
AS602	Entrepreneurship and Starts-Ups	4	0	0	4	50	0	100	2.5	0	-	150	4
AS603	Major Project-II	0	0	6	6	0	50	0	-	150	3.0	200	3
AS604	Seminar	2	0	0	2	0	50	0	-	0	-	50	1
016054	General Proficiency	0	0	4	4	0	25	0	0	0	-	25	0
466052	Industrial Exposure	0	0	0	0	0	25	0	0	0	-	25	0
	<b>Total</b>	<b>34</b>	<b>0</b>	<b>14</b>	<b>48</b>	<b>230</b>	<b>170</b>	<b>400</b>	<b>-</b>	<b>200</b>	<b>-</b>	<b>1000</b>	<b>36</b>

**General Proficiency :** will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS, cultural activities and discipline etc.

**Industrial Exposure :** compulsory at minimum 2 Industries or Departments.

**Major Project:** It is divided in to two parts (Major Project-I & Major Project-II). Major Project will be initiated in V Semester and will get complete in VI Semester.

**Note :-**

1. Each period will be of 50 minutes.
2. Each session will be of 16 weeks.
3. Effective teaching will be at least 12.5 weeks.