

K. K. Wagh Institute of Engineering Education and Research, Nasik (Autonomous w. e. f. A.Y.2022 -23)
Details of Course Structure: B. Tech.



Department of Robotics and Automation KKWIEER, Nasik

First, Second, Third and Final Year B.Tech Structure (2022 Pattern)



K. K. Wagh Institute of Engineering Education and Research, Nasik (Autonomous w. e. f. A.Y.2022 -23)

**Course Structure: Robotics and Automation
F. Y. B. Tech. Semester – I**

Course Code	Course Type	Title of Course	Teaching Scheme Hrs./week			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	In Sem	End Sem	CCE	TU/TW	PR/O	Total	TH	TU	PR	Total
FYE221001	BSC	Applied Mathematics – I	4	1	0	20	60	20	25	0	125	4	1	0	5
FYE221003	BSC	Applied Physics (A)	3	0	2	20	60	20	50	0	150	3	0	1	4
FYE221007	ESC	Fundamentals of Electronics Engineering	3	0	2	20	60	20	50	0	150	3	0	1	4
FYE221012	ESC	Engineering Drawing	1	1	2	25	50	0	50	0	125	1	1	1	3
FYE221014	LHSM	Communication Skills	1	0	2	0	0	25	50	0	75	1	0	1	2
FYE221016	LHSM	Democracy, Election and Governance	2	0	0	25	25	0	0	0	50	2	0	0	2
		Total	14	2	8	110	255	85	225	0	675	14	2	4	20



K. K. Wagh Institute of Engineering Education and Research, Nasik (Autonomous w. e. f. A.Y.2022 -23)

**Course Structure: Robotics and Automation
F. Y. B. Tech. Semester – II**

Course Code	Course Type	Title of Course	Teaching Scheme Hrs./week			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	In Sem	End Sem	CCE	TU/TW	PR/O	Total	TH	TU	PR	Total
FYE221002	BSC	Applied Mathematics – II	4	1	0	20	60	20	25	0	125	4	1	0	5
FYE221005	BSC	Applied Chemistry	3	0	2	20	60	20	50	0	150	3	0	1	4
FYE221006	ESC	Fundamentals of Electrical Engineering	3	0	2	20	60	20	50	0	150	3	0	1	4
FYE221009	ESC	Engineering Mechanics	3	0	2	20	60	20	25	0	125	3	0	1	4
FYE221010	ESC	Programming in C	2	0	2	25	50	0	50	0	125	2	0	1	3
FYE221013	ESC	Workshop Practice	0	0	2	0	0	0	50	0	50	0	0	1	1
FYE221015	PSI	Engineering Explorations	0	0	2	0	0	0	50	0	50	0	0	1	1
		Total	15	1	12	105	290	80	300	0	775	15	1	6	22



K. K. Wagh Institute of Engineering Education and Research, Nasik (Autonomous w. e. f. A.Y.2022 -23)

**Course Structure: Robotics and Automation
S. Y. B. Tech. Semester – III**

Course Code	Course Type	Title of Course	Teaching Scheme Hrs./week			In Sem	End Sem	Evaluation Scheme and Marks						Credits			
			TH	TU	PR			CC E	TU	TW	PR	OR	Total	TH	TU	PR	Total
ROB222001	BSC	Applied Mathematics –III	3	1	-	20	60	20	25	-	-	-	125	3	1	-	4
ROB222002	DCC	Manufacturing Technology	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222003	DCC	Electrical and Electronics Systems	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222004	ESC	Computer Graphics for Robotics	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222005	DCC	Robot Path Planning	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222006	LHSM	Universal Human Values- II	1	-	-	-	-	-	-	25	-	-	25	1	-	-	1
ROB222007	DCC	Manufacturing Technology Lab	-	-	2+2	-	-	-	-	25	-	50	75	-	-	2	2
ROB222008	DCC	Electrical and Electronics Systems Lab	-	-	2	-	-	-	-	25	25	-	50	-	-	1	1
ROB222009	ESC	Computer Graphics for Robotics Lab	-	-	2	-	-	-	-	25	25	-	50	-	-	1	1
ROB222010	PSI	Basic Robotics Workshop	-	-	2	-	-	-	-	25#	-	-	25	-	-	1	1
Total			16	1	10	100	300	100	25	125	50	50	750	16	1	5	22

Assessment of 25 marks will be done considering consistent progress of work throughout the semester



K. K. Wagh Institute of Engineering Education and Research, Nasik (Autonomous w. e. f. A.Y.2022 -23)

**Course Structure: Robotics and Automation
S. Y. B. Tech. Semester – IV**

Course Code	Course Type	Title of Course	Teaching Scheme Hrs./week			Assessment Scheme of Marks								Credits			
			TH	TU	PR	In Sem	End Sem	CCE	TU	TW	PR	O R	Total	TH	TU	PR	Total
ROB222011	DCC	Robot Kinematics and Dynamics	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222012	DCC	Design of Machine Elements	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222013	DCC	Hydraulics and Pneumatics	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222014	DCC	Robot Operating System	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222015	LHSM	Industrial Management	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB222016	AC	Human Rights	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ROB222017	DCC	Robot Kinematics and Dynamics Lab	-	-	2+2	-	-	-	-	25	25	25	75	-	-	2	2
ROB222018	DCC	Robot Operating System Lab	-	-	2	-	-	-	-	25	25	-	50	-	-	1	1
ROB222019	DCC	Hydraulics and Pneumatics Lab	-	-	2	-	-	-	-	25	25	-	50	-	-	1	1
ROB222020	PSI	Project Based Learning	-	-	2	-	-	-	-	25 #	-	-	25	-	-	1	1
Total			16	-	10	100	300	100	-	100	75	25	700	15	-	5	20

Assessment of 25 marks will be done considering consistent progress of work throughout the semester and Project Presentation at end of semester.

T.Y. B. Tech wef AY 2024-25

SEM-V

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU	PR	TOTAL
ROB223001	DCC	Control Systems Engineering	3	-	-	20	60	20			100	3	-	-	3
ROB223002	DCC	Artificial Intelligence for Robotics	3	-	-	20	60	20			100	3	-	-	3
ROB223003	DCC	Microprocessors and Microcontrollers	3	-	-	20	60	20			100	3	-	-	3
ROB223004	DCC	Artificial Intelligence for Robotics Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB223005	DCC	Microprocessors and Microcontrollers Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB223006	DEC	Elective 1:Python Prog.	3	-	-	20	60	20			100	3	-	-	3
ROB223007	DEC	Lab work in elective 1	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB223008	OEC	Open Elective -3 Financial Management	2	-	-	-	-	50	-	-	50	2	-	-	2
ROB223009	ESC	Data Analytics	3	-	-	20	60	20	-	-	100	3	-	-	3
ROB223010	PSI	Seminar	-	1	2	-	-	-	TUT-25 TW-25	-	050	-	1	1	2
Total			17	01	08	100	300	150	125	75	750	17	1	4	22

T.Y. B. Tech wef AY 2024-25

SEM-VI

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU	PR	TOTAL
ROB223011	DCC	Sensors Technology	3	-	-	20	60	20			100	3	-	-	3
ROB223012	DCC	Robot Programming	3	-	-	20	60	20			100	3	-	-	3
ROB223013	DCC	Lab work in Robot Programming	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB223014	DEC	Elective 2	3	-	-	20	60	20			100	3	-	-	3
ROB223015	DEC	Elective 3	3	-	-	20	60	20	-	-	100	3	-	-	3
ROB223016	DEC	Lab work in Elective 3	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB223017	ESC	Swarm Robotics	3	-	-	20	60	20			100	3	-	-	3
ROB223018	OEC	Nutrition and weight Management	2	-	-	-	-	50	-	-	50	2	-	-	2
ROB223019	ASM	Design thinking and problem solving (Min Project)	-	1	2				25	25	50	-	1	1	2
ROB223020	PSI	Research Methodology	-	-	2	-	-	-	50	-	50	-	-	1	1
Total			17	01	08	100	300	150	125	75	750	17	1	4	22

Final year B. Tech wef AY 2025-26

SEM-VII

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU	PR	TOTAL
ROB224001	DCC	Embedded systems in Robotics	3	-	-	20	60	20			100	3	-	-	3
ROB224002	DCC	Machine Vision System	3	-	-	20	60	20			100	3	-	-	3
ROB224003	DCC	Lab work in Embedded systems in Robotics	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB224004	DCC	Lab work in Machine Vision System	-	-	2	-	-	-	25	25	50	-	-	1	1
ROB224005	DEC	Elective-4	3	-	-	20	60	20	-	-	100	3	-	-	3
ROB224006	DEC	Elective-5	2	-	-	20	30	-	-	-	50	2	-	-	2
ROB224007	ASM	Innovation, Entrepreneurship & IPR	3	-	-	20	60	20	-	-	100	3	-	-	3
ROB224008	LHSM	Supply Chain Management	2	-	-	-	-	50	-	-	50	2	-	-	2
ROB224009	PSI	Project Stage -	-	-	8	-	-	-	100	50	150	-	-	4	4
Total			16	00	12	100	270	130	150	100	750	16	-	6	22

Final year B. Tech wef AY 2025-26

SEM-VIII

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU	PR	TOTAL
ROB224011	DCC*	Wireless sensor network(online)	3	-	-	-	100	-			100	3	-	-	3
ROB224012	DEC*	Material handling systems and Robotics (Online)	3	-	-	-	100	-	-	-	100	3	-	-	3
ROB224013	LHSM	Project and Finance Management	2	-	-	-	-	50	-	-	50	2	-	-	2
ROB224014	PSI	Internship with Project work	-	-	24	-	-	-	300	200	500	-	-	12	12
Total			10	00	24	-	200	50	300	200	750	10	-	12	20

* Considering Internship of 6 months, these courses to be offered in online mode.

Program Elective Courses

Elective 1	Elective 2	Elective 3	Elective 4	Elective 5
Python Programming	Micro electro Mechanical Systems	Finite Element Analysis	Deep Learning	Natural Language Processing
Reverse Engineering	Additive Manufacturing	Power Electronics and Drives	Humanoid Robots	Industry 4.0
Java Programming	Flexible manufacturing System	Swarm Intelligence for Robotics	Intelligent Manufacturing Systems	Modelling and Simulation
Digital Signal Processing	Cloud Computing	Automobile Engineering	Power Electronics & Drives	Hybrid Vehicle