
Robotics and Automation Engineering

Department KKWIEER, Nashik

NEP Compliant First, Second, Third and Final Year B.Tech
Structure (2023)

F.Y. B.Tech Robotics and Automation wef AY 202324

SEM-I

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
2300101A	BSC	Linear Algebra	3	1	0	20	60	20	25	0	125	3	1	0	4
2300103A	BSC	Applied Chemistry	3	0	2	20	60	20	50	0	150	3	0	1	4
2300105A	ESC	Fundamentals of Electrical Engineering	3	0	2	20	60	20	50	0	150	3	0	1	4
2300110A	ESC	Engineering Drawing	1	0	2	20	30	0	50	0	100	1	0	1	2
300112A	AEC	Communication Skills	1	0	2	0	0	25	50	0	75	1	0	1	2
2300117H	VSEC	Introduction to Matlab	1	0	2	0	0	25	25	0	50	1	0	1	2
2300115A	CC	Liberal Learning, Sports, Yoga, Art	0	2	0	0	0	0	50		50	0	2	0	2
Total			12	3	10	80	210	110	300	0	700	12	3	5	20

SEM-II															
Course Code	Couse 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
2300102A	BSC	Differential Calculus	3	1	0	20	60	20	25	0	125	3	1	0	4
2300104A	BSC	Applied Physics	3	0	2	20	60	20	50	0	150	3	0	1	4
2300107A	ESC	Fundamentals of Electronics Engineering	3	0	2	20	60	20	50	0	150	3	0	1	4
2300108A	ESC	Programming in C	1	0	2	20	30	0	50	0	100	1	0	1	2
2300118H	PCC	Fundamentals of Robotics	2	0	0	20	60	20	0	0	100	2	0	0	2
2300116A	IKS	Indian Knowledge System	0	2	0	0	0	0	50	0	50	0	2	0	2
2300111A	VSEC	Workshop Practices	1	0	2	0	0	25	25	0	50	1	0	1	2
2300115B	CC	Engineering Exploration	0	2	0	0	0	0	75	0	75	0	2	0	2
			13	5	8	100	270	105	325	0	800	13	5	4	22

Department Specific Exit Courses (To award Certificate)															
Course Code	Couse 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
2300119A	EXIT	Internship*	0	0	0	0	0	0	100	0	100	0	2	0	2
2300126A	EXIT	Robot operating and Programming	2	0	2	20	30	0	50	0	100	2	1	0	3
2300127A	EXIT	Robotic welding	2	0	2	20	30	0	50	0	100	2	1	0	3
Total			4	0	4	40	60	0	200	0	300	4	4	0	8

S.Y. B. Tech wef AY 2024-25															
SEM-III															
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
2300201D	PCC/ BSC	Applied Mathematics III	3	-	-	20	60	20			100	3	-	-	3
2312202	PCC	Electrical and Electronics Systems	3	-	-	20	60	20			100	3	-	-	3
2312203	PCC	Manufacturing Technology	3	-	-	20	60	20			100	3	-	-	3
2312204	PCC	Lab work Computer aided design	-	-	2	-	-	-	25	25	50	-	-	1	1
2312205	PCC	Lab work Electrical and Electronics Systems	-	-	2+2	-	-	-	50	50	100	-	-	2	2
2312206	MDM	Minor 1 in AI: Numerical Methods	3	-	-	20	60	20	-	-	100	3	-	-	3
2312207	MDM	Minor 1 in AI: Numerical Methods Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2312208	OE	Open Elective 1 in Sociology of tourism	2	-	-	-	-	50	-	-	50	2	-	-	2
2312209	VEC	Democracy	-	2	-	-	-	-	50	-	50	-	2	-	2
2312210	VSEC	Basic Robotics Workshop	-	1	2	-	-	-	TUT-25 TW-25	-	50	-	1	1	2
Total			14	03	10	80	240	130	200	100	750	14	3	5	22

SEM-IV															
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
2312211	PCC/ BSC	Robot Operating Systems	3	-	-	20	60	20			100	3	-	-	3
2312212	PCC	Computer Graphics for Robotics	3	-	-	20	60	20			100	3	-	-	3
2312213	PCC	Design of Machines and Mechanism	3	-	-	20	60	20			100	3	-	-	3
2312214	PCC	Robot Operating Systems Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2312215	PCC	Computer Graphics for Robotics Lab	-	-	4				50	50	100	-	-	2	2
2312216	MDM	Minor 2 in AI: Artificial Neural Networks and fuzzy systems	3	-	-	20	60	20	-	-	100	3	-	-	3
2312217	MDM	Minor 2 in AI: Artificial Neural Networks and fuzzy systems Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2312218	OE	Open Elective 2: Comparative Philosophy	2	-	-	-	-	50	-	-	50	2	-	-	2
2312219	VEC	UHV II	-	2	-	-	-	-	50	-	050	-	2	-	2
2312220	AEC	Soft skills	-	1	2	-	-	-	TUT-25 TW-25	-	050	-	1	1	2
Total			14	03	10	80	240	130	200	100	750	14	3	5	22

Department of Robotics and Automation, KKWIEER, Nashik

NEP Third Year B.Tech Structure (2023)

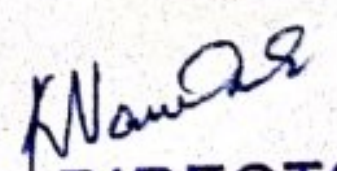
T. Y. B. Tech wef AY 2025-26																	
SEM-V																	
Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks								Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TW	TUT	OR	PR	TOTAL	TH	TU	PR	TOTAL
2312301	PCC	Robot Kinematics and Dynamics	3	-	-	20	60	20	-	-	-		100	3	-	-	3
2312302	PCC	Robot Path Planning	3	-	-	20	60	20	-	-	-		100	3	-	-	3
2312303	PCC	Microprocessors and Microcontrollers	3	-	-	20	60	20	-	-	-		100	3	-	-	3
2312304	PCC	Lab work Robot Kinematics and Dynamics	-	-	2	-	-	-	25	-	-	25	50	-	-	1	1
2312305	PCC	Lab work Microprocessors and Microcontrollers	-	-	2	-	-	-	25	-	-	25	50	-	-	1	1
2312306A 2312306B 2312306C 2312306D	PEC	1. Python programming 2. Design of Machine Elements 3. Hybrid Vehicle 4. Strength of Materials	3	-	-	20	60	20					100	3	-	-	3
2312307A 2312307B 2312307C 2312307D	PEC	Lab work in 1. Python programming 2. Design of Machine Elements 3. Hybrid Vehicle 4. Strength of Materials	-	-	2	-	-	-	25		-		50	-	-	1	1
2312308	OE	Open Elective Financial Management	2	-	-	-	-	50	-	-	-	-	50	2	-	-	2
2312309	MDM	Minor3 in AI: Evolutionary Computation	3	-	-	20	60	20	-		-	-	100	3	-	-	3
2312310	CEP	Seminar	-	1	2	-	-	-		25	-	25	50	-	1	1	2
	TOTAL		17	1	8	100	300	150	75	25	-	100	750	17	1	4	22

T.Y.B.Techwef AY 2025-26
Sem-VI

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks								Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT	TW	OR	PR	TOTAL	TH	TU	PR	TOTAL
2312311	PCC	Sensors Technology	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
2312312	PCC	Robot Programming	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
2312313	PCC	Lab work in Sensors Technology	-	-	2	-	-	-	-	25	-	25	50	-	-	1	1
2312314A 2312314B 2312314C 2312314D	PEC	1 Object-oriented programming 2 Tool and Die Design 3 Advanced Processors 4 Machines and Mechanisms	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
2312315A 2312315B 2312315C 2312315D	PEC	1 Cloud Computing 2 Flexible Manufacturing Systems 3 Power electronics and Drives 4 Hydraulics and Pneumatics	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
2312316A 2312316B 2312316C 2312316D	PEC	1 Lab work in Cloud Computing 2 FMS 3 Power electronics and Drives 4 Hydraulics and Pneumatics	-	-	2	-	-	-	-	25	-	25	50	-	-	1	1
2312317	MDM	Minor 4inAI: Machine Vision	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
2312318	OE	Nutrition and weight Management	2	-	-	-	-	50	-	-	-	-	50	2	-	-	2
2312319	VSEC	Design thinking and problem solving(Mini Project)	-	1	2	-	-	-	25	-	-	25	50	-	1	1	2
2312320	RM	Research Methodology	-	-	2	-	-	-	-	25	-	25	50	-	-	1	1
Total			17	1	8	100	300	150	25	75	0	100	750	17	01	4	22


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Department Specific Exit Courses (To award B.Sc.)

CourseCode	Couse Type	TitleofCourse	Teaching Scheme			EvaluationSchemeandMarks						Credits			
			TH	TU	PR	IN SEM	END SEM	CCE	TW	PR	TOTAL	TH	TU	PR	TOTAL
2312321	EXIT0	Internship*	2-weeks			InternshipReport						-	-	-	2
2312322	EXIT1	Industrial Automation	40-60 hours online course			Online certification						-	-	-	3
2312323	EXIT2	ServiceRobots	40-60 hours online course			Online certification						-	-	-	3
Total											-	-	-	8	

* Internship in industry for 2-weeks

*Internship in industry for 2-weeks

To get certificate students should get following credits Internship 2 credits

Exit course-1 3 credits Exit course-2 3 credits

Total credits 8 credits

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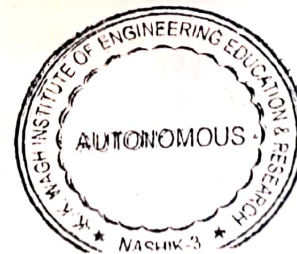
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Final year B. Tech w e f AY2025-26

SEM-VII

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks								Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TW	TUT	OR	PR	TOTAL	TH	TU	PR	TOTAL
ROB224001	DCC	PLC & SCADA Programming ✓	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB224002	DCC	Machine Vision System ✓	3	-	-	20	60	20	-	-	-	-	100	3	-	-	3
ROB224003	DCC	Lab work in PLC & SCADA Programming ✓	-	-	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	100	150	-	-	4	4
Total			16	-	12	100	270	130	150	-	50	100 50	750	16	-	6	22

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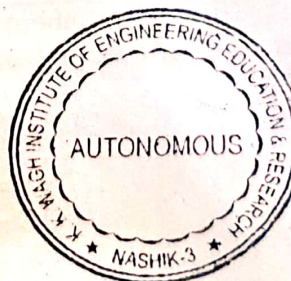


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Program Elective Courses

Elective1	Elective2	Elective3	Elective4	Elective5
Python Programming	Micro-electro Mechanical Systems	Finite Element Analysis	[ROB224005A] Deep Learning	[ROB224006A] Natural Language Processing
Reverse Engineering	Additive Manufacturing	Power Electronics and Drives	[ROB224005B] Humanoid Robots	[ROB224006B] Industry4.0 ✓
Java Programming	Flexible manufacturing System	Swarm Intelligence for Robotics	[ROB224005C] Intelligent Manufacturing Systems ✓	[ROB224006C] Modelling and Simulation
Digital Signal Processing	Cloud Computing	Automobile Engineering	[ROB224005D] Embedded systems in Robotics	ROB224006D] Hybrid Vehicle


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

Course Structure: Robotics and Automation [2022 Pattern]
Final Year B. Tech. Semester – VIII

Final year B. Tech wef AY 2025-26

SEM-VIII												Credits			
Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						TH	TU	PR	TOTAL
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL				
ROB224011	DCC*	Wireless Sensor Network	3	-	-	-	60	40**			100	3	-	-	3
ROB224012	DEC*	Micro - Robotics	3	-	-	-	60	40**	-	-	100	3	-	-	3
ROB224013	LHSM	Project and Finance Management	2	-	-	-	-	50	-	-	50	2	-	-	2
ROB224014	PSI	Internship with Project work	-	-	24	-	-	-	200	100	300	-	-	12	12
Total			08	00	24	-	200	130	200	100	550	08	-	12	20

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

** Four Written assignments/LMS Test of 10 marks each will be conducted at the end of each month and one at the end of semester, when students will report for review/presentation of internship work.

Dr. P. J. Pawar
Chairman BOS [R & A]

Dr. K. N. Nandurkar
Director, KKWIEER





K.K.Wagh Institute of Engineering Education and Research, Nashik (Autonomous w.e.f. A.Y.2022-23)
Details of Course Structure: B.Tech (2023 Pattern)

Board of Studies in Robotics and Automation Engineering
B.Tech (Robotics and Automation Engineering) Hon. with MdM

Sem	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	OR	Total	TH	TU	PR	Total
V	PCC	2312381	Workplace Management	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
	PCC	2312382	Workplace Management Lab	-	-	02	-	-	-	-	25	50	-	75	-	-	01	01
	AEC	2312383	Seminar	-	-	02	-	-	-	-	50	-	-	50	-	-	01	01
VI	PCC	2312384	✓ TQM Culture And Waste Management	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
	PCC	2312385	✓ TQM Culture And Waste Management Lab	-	-	02	-	-	-	-	25	50	-	75	-	-	01	01
	PROJ	2312386	✓ Mini Project	-	-	02	-	-	-	-	50	-	-	50	-	-	01	01
VII	PCC	2312481	Productivity Enhancement	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
VII / I *	PCC	2312482	Quality Enhancement and Inventory Management	02	-	-	-	-	50	-	-	-	-	50	02	-	-	02
Total				14	-	08	-	180	170	-	150	100	-	600	14	-	04	18

* This courses will offer in sem VII those who are having regular internship in sem VIII.

* This courses will offer in sem VIII those who are having regular internship in sem VII.


Name and Sign of BoS Chairman


Sign of Director



K.K.Wagh Institute of Engineering Education and Research, Nashik (Autonomous w.e.f. A.Y.2022-23)
Details of Course Structure: B.Tech (2023 Pattern)

Board of Studies in Robotics and Automation Engineering

B.Tech (Robotics and Automation) with Double Minors (Multidisciplinary and Specialization Minors)

Sem	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	OR	Total	TH	TU	PR	Total
V	PCC	2312351	Workplace Management	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
	PCC	2312352	Workplace Management Lab	-	-	02	-	-	-	-	25	50	-	75	-	-	01	01
	AEC	2312353	Seminar	-	-	02	-	-	-	-	50	-	-	50	-	-	01	01
VI	PCC	2312354	TQM Culture And Waste Management	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
	PCC	2312355	TQM Culture And Waste Management Lab	-	-	02	-	-	-	-	25	50	-	75	-	-	01	01
	PROJ	2312356	Mini Project	-	-	02	-	-	-	-	50	-	-	50	-	-	01	01
	PCC	2312451	Productivity Enhancement	04	-	-	-	60	40	-	-	-	-	100	04	-	-	04
VII / VII I *	PCC	2312452	Quality Enhancement and Inventory Management	02	-	-	-	-	50	-	-	-	-	50	02	-	-	02
Total				14	-	08	-	180	170	-	150	100	-	600	14	-	04	18

- * This courses will offer in sem VII those who are having regular internship in sem VIII.
- * This courses will offer in sem VIII those who are having regular internship in sem VII.

Name and Sign of BoS Chairman

Sign of Director