

MECHANICAL ENGINEERING DEPARTMENT KKWIEER, Nashik



NEP Complaint First, Second, Third and Final Year BTech Structure (2023 PAT)



**K.K. Wagh Institute of Engineering Education and
Research, Nashik**

Curriculum

F.Y. B.Tech.

Mechanical Engineering

w.e.f.: AY 2023-2024

F.Y. B.Tech Mechanical Engineering wef AY 2023-24

SEM-I

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TU	*TW	TOTAL	TH	TU	*PR	TOTAL
2300101A	BSC	Linear Algebra and Differential Calculus	3	1	0	20	60	20	25	0	125	3	1	0	4
2300103B	BSC	Applied Physics (B)	3	0	2	20	60	20	0	50	150	3	0	1	4
2300114A	ESC	Fundamentals of Mechanical Engineering	3	0	2	20	60	20	0	50	150	3	0	1	4
2300110A	ESC	Engineering Drawing	1	0	2	20	30	0	0	50	100	1	0	1	2
2300112A	AEC	Communication Skills	1	0	2	0	0	25	0	50	75	1	0	1	2
2300117B	VSEC	Introduction to CAD	1	0	2	0	0	25	0	25	50	1	0	1	2
2300115A	CC	Sports, Yoga and Art	0	2	0	0	0	0	50	0	50	0	2	0	2
Total			12	3	10	80	210	110	75	225	700	12	3	5	20

Note: Credits are as per the Teaching Scheme. *Credits for 'PR' head are linked with 'TW' marks

F.Y. B.Tech Mechanical Engineering wef AY 2023-24

SEM-II

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TUT	*TW	TOTAL	TH	TU	*PR	TOTAL
2300102A	BSC	Differential Equations and Integral Calculus	3	1	0	20	60	20	25	0	125	3	1	0	4
2300104A	BSC	Applied Chemistry	3	0	2	20	60	20	0	50	150	3	0	1	4
2300113A	ESC	Engineering Mechanics	3	0	2	20	60	20	0	50	150	3	0	1	4
2300106A	ESC	Basic Electrical Engineering	1	0	2	20	30	0	0	50	100	1	0	1	2
2300118G	PCC	Joining Processes	2	0	0	20	60	20	0	0	100	2	0	0	2
2300116A	IKS	Indian Knowledge System	0	2	0	0	0	0	0	50	50	0	2	0	2
2300111A	VSEC	Workshop Practice	1	0	2	0	0	25	0	25	50	1	0	1	2
2300115B	CC	Engineering Exploration	0	2	0	0	0	0	75	0	75	0	2	0	2
Total			13	5	8	100	270	105	100	225	800	13	5	4	22

Note: Credits are as per the Teaching Scheme. *Credits for 'PR' head are linked with 'TW' marks

Department Specific Exit Courses (To award Certificate)															
Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks						Credits			
			TH	TU/TW	PR	INSEM	ENDSEM	CCE	TUT/TW	PR/OR	TOTAL	TH	TU/TW	PR	TOTAL
2300119A	EXIT	Internship*	0	0	0	0	0	0	100	0	100	0	2	0	2
2300132A	EXIT	Welding Technology	2	0	2	20	30	0	50	0	100	2	1	0	3
2300133A	EXIT	3D Printing	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

*Internship in industry for 2-weeks

→To get certificate student should get following credits

Internship

→2 credits

Exit course-1

→3 credits

Exit course-2

→3 credits

Total credits

→8 credits

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



SEM-III

CourseCode	Course Type	Title of Course	TeachingScheme			Evaluation Scheme and Marks						Credits			
			TH	TU	PR	INSEM	ENDSE M	CCE	TW	OR	TOTAL	TH	TU	PR	TOTAL
2305201	PCC	Manufacturing Processes	3	-	-	20	60	20	-	-	100	3	-	-	3
2305202	PCC	Engineering Thermodynamics	3	-	-	20	60	20	-	-	100	3	-	-	3
2305203	PCC	Mechanism and Machines	3	-	-	20	60	20	-	-	100	3	-	-	3
2305204	PCC	Mechanism and Machines Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2305205	PCC	Material Testing and Measurement Lab	-	-	4	-	-	-	50	50	100	-	-	2	2
2305206	MDM	Energy Systems for Mobility	3	-	-	20	60	20	-	-	100	3	-	-	3
2305207	MDM	Energy Systems for Mobility Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2305208	OE	Industrial Management	2	-	-	-	-	50	-	-	50	2	-	-	2
2305209	VEC	Professional Ethics	-	2	-	-	-	50	-	-	50	-	2	-	2
2305210	VSEC	Workshop Practice	1	-	2	-	-	-	50	-	50	1	-	1	2
Total			15	02	10	80	240	180	150	100	750	15	2	5	22

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



SEM-IV

Course Code	Course Type	Title of Course	Teaching Scheme			Evaluation Scheme and Marks							Credits			
			TH	TU	PR	INSEM	ENDSEM	CCE	TW	OR	PR	TOTAL	TH	TU	PR	TOTAL
2300201D	BSC	Applied Mathematics	3	-	-	20	60	20	-	-	-	100	3	-	-	3
2305212	PCC	Fluid Mechanics and Machines	3	-	-	20	60	20	-	-	-	100	3	-	-	3
2305213	PCC	Solid Mechanics	3	-	-	20	60	20	-	-	-	100	3	-	-	3
2305214	PCC	Fluid Mechanics and Machines Laboratory	-	-	2	-	-	-	25	25	-	50	-	-	1	1
2305215	PCC	Geometric Modeling and Production Drawing	-	-	4	-	-	-	50	-	50	100	-	-	2	2
2305216	MDM	Machine Intelligence	3	-	-	20	60	20	-	-	-	100	3	-	-	3
2305217	MDM	Machine Intelligence Laboratory	-	-	2	-	-	-	25	25	-	50	-	-	1	1
2305218	OE	Industrial Psychology and organizational Behaviour	2	-	-	-	-	50	-	-	-	50	2	-	-	2
2305219	VEC	Democracy, Election and Governance	-	2	-	-	-	50	-	-	-	50	-	2	-	2
2305220	AEC	Soft Skill	1	-	2	-	-	-	50	-	-	50	1	-	1	2
Total			15	02	10	80	240	180	150	50	50	750	15	2	5	22



S.Y. B. Tech wef AY 2024-25															
Department Specific Exit Courses (to award Certificate)															
Course Code	Course Type	Title of Course	TeachingScheme			Evaluation Scheme and Marks						Credits			
			TH	TU/T W	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU/TW	PR	TOTAL
2305221	EXIT	Internship	-		--	-	-	-	100	-	100		2	-	2
2305222	EXIT	Fault Diagnosis and Maintenance of EV	2	-	2	-	-	50	50	-	100	2	1	-	3
2305223	EXIT	Battery build up Technology for EV	2	-	2	-	-	50	50	-	100	2	1	-	3
Total			4		4	-	-	100	200	-	300	4	4	-	8

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	TUT /TW	PR /OR	TOTAL	TH	TU	PR	TOTAL	
2305301	PCC	Machine Design-I	3	-	-	20	60	20	-	-	100	3	-	-	3	
2305302	PCC	Heat Transfer	3	-	-	20	60	20	-	-	100	3	-	-	3	
2305303	PCC	Numerical and Statistical Methods	3	-	-	20	60	20	-	-	100	3	-	-	3	
2305304	PCC	Heat Transfer lab	-	-	2	-	-	-	25	25	50	-	-	1	1	
2305305	PCC	Numerical and Statistical Methods lab	-	-	2	-	-	-	25	25	50	-	-	1	1	
2305306	PEC	Elective-I	3	-	-	20	60	20	-	-	100	3	-	-	3	
2305307	PEC	Elective-I lab	-	-	2	-	-	-	25	25	50	-	-	1	1	
2305308	OE	Environmental Economics	2	-	-	-	-	50	-	-	50	2	-	-	2	
2305309	MDM	Instrumentation and Control	3	-	-	20	60	20	-	-	100	3	-	-	3	
2305310	CEP	Mechatronics Lab	-	1	2	-	-	-	50	-	050	-	1	1	2	
Total			17	01	08	100	300	150	125	75	750	17	1	4	22	
Elective-I			2305306A Machining Technology				2305306B Energy Audit and Management						2305306C Design of Pressure Vessel and Piping			
Elective-I Lab			2305307A Machining Technology Lab				2305307B Energy Audit and Management Lab						2305307C Design of Pressure Vessel and Piping Lab			

T.Y. B. Tech wef 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	PR /OR	TOTAL	TH	TU	PR	TOTAL
2305311	PCC	Machine Design-II	3	-	-	20	60	20	-	-	100	3	-	-	3
2305312	PCC	Energy Engineering	3	-	-	20	60	20	-	-	100	3	-	-	3
2305313	PCC	Machine Design Lab (I&II)	-	-	2	-	-	-	25	25	50	-	-	1	1
2305314	PEC	Elective-II	3	-	-	20	60	20	-	-	100	3	-	-	3
2305315	PEC	Elective-III	3	-	-	20	60	20	-	-	100	3	-	-	3
2305316	PEC	Elective-II Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2305317	MDM	Robotics ,Automation and Control	3	-	-	20	60	20	-	-	100	3	-	-	3
2305318	OE	Financial management	2	-	-	-	-	50	-	-	50	2	-	-	2
2305319	VSEC	Digital Manufacturing	1	-	2	-	-	-	25	25	50	1	-	1	2
2305320	RM	Seminar	-	-	2	-	-	-	50	-	50	-	-	1	1
Total			18	00	08	100	300	150	125	75	750	18	0	4	22
Elective-II			2305314A Finite Element Analysis				2305314B Renewable Energy Engineering				2305314C Computational Fluid Dynamics		2305314D Operation Research		
Elective-III			2305315A Computer Integrated Manufacturing				2305315B Automobile Engineering				2305315C Product Design, Innovation and Entrepreneurship				
Elective-II Lab			2305316A Finite Element Analysis Lab				2305316B Renewable Energy Engineering Lab				2305316C Computational Fluid Dynamics Lab		2305316D Operation Research Lab		



T.Y. B. Tech wef AY 2025-26

Department Specific Exit Courses (to award Certificate)

CourseCode	Course Type	Title of Course	TeachingScheme			Evaluation Scheme and Marks						Credits			
			TH	TU/TW	PR	INSEM	ENDSEM	CCE	TUT /TW	PR /OR	TOTAL	TH	TU/TW	PR	TOTAL
2305321	EXIT	Internship	-	-	-	-	-	-	100	-	100		2	-	2
2305322	EXIT	Energy Conservation in Thermal System	2	-	2	-	-	50	50	-	100	2	1	-	3
2305323	EXIT	Energy Conservation in Electrical System	2	-	2	-	-	50	50	-	100	2	1	-	3
Total			4	-	4	-	-	100	200	-	300	4	4	-	8



Final year B. Tech wef AY 2026-27															
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
2305401	PCC*	Engineering System Design and optimization	3	-	-	-	100	-	-	-	100	3	-	-	3
2305402	PEC*	Elective-VI	3	-	-	-	100	-	-	-	100	3	-	-	3
2305403	HSSM-EEM*	Principles of Macro Economics	2	-	-	-	-	50	-	-	50	2	-	-	2
2305404	INTERNSHIP		-	-	24	-	-	-	300	200	500	-	-	12	12
Total			8	-	24	-	200	50	300	200	750	8	-	12	20
Elective-VI			2305402A Total Quality Management			2305402B Smart Materials			2305402C Design of Heat Exchanger						

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



Final year B. Tech wef AY 2026-27															
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
2305411	PCC	HAVC	3	-	-	20	60	20			100	3	-	-	3
2305412	PCC	Dynamic of Machinery	3	-	-	20	60	20			100	3	-	-	3
2305413	PCC	Dynamic of Machinery Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2305414	PCC	Data Analytics Lab	-	-	2	-	-	-	25	25	50	-	-	1	1
2305415	PEC	Elective-IV	3	-	-	20	60	20	-	-	100	3	-	-	3
2305416	PEC	Elective-V	2	-	-	20	30	-	-	-	50	2	-	-	2
2305417	RM	Research Methodology	3	-	-	20	60	20	-	-	100	3	-	-	3
2305418	HSSM-EEM	Industrial Engineering	2	-	-	-	-	50	-	-	50	2	-	-	2
2305419	PROJ	Project Work	-	-	8	-	-	-	100	50	150	-	-	4	4
Total			16	00	12	100	270	130	150	100	750	16	-	6	22
Elective-IV			2305415A Heat Transfer in Electronic System				2305415B Smart Manufacturing with Industry 4.0				2305415C Design of Electro-Mechanical System		2305415D Supply Chain Management		
Elective-V			2305416A Lubrication, Friction and Wear				2305416B Unmanned Aerial Vehicles				2305416C Sustainable Futures and Materials				