

Approved Course Structure

Program: B.Tech.- Mechanical Engineering

Regulations: SVEC-19

I B.Tech. – I Semester

S.No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT1BS01	Differential Equations and Multivariable Calculus	3	1	-	4	4	40	60	100
2.	19BT1BS04	Engineering Chemistry	3	-	-	3	3	40	60	100
3.	19BT1HS01	Communicative English	3	-	-	3	3	40	60	100
4.	19BT10501	Programming for Problem Solving	3	1	-	4	4	40	60	100
5.	19BT1BS32	Engineering Chemistry Lab	-	-	2	2	1	50	50	100
6.	19BT1HS31	Communicative English Lab	-	-	2	2	1	50	50	100
7.	19BT10331	Computer Aided Engineering Drawing	-	1	2	3	2	50	50	100
8.	19BT10531	Programming for Problem Solving Lab	-	-	2	2	1	50	50	100
Total:			12	3	8	23	19	360	440	800

I B.Tech. – II Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT2BS01	Transformation Techniques and Linear Algebra	3	1	-	4	4	40	60	100
2.	19BT1BS02	Biology for Engineers	2	-	-	2	2	40	60	100
3.	19BT2BS02	Applied Physics	3	-	-	3	3	40	60	100
4.	19BT10201	Basic Electrical and Electronics Engineering	3	-	-	3	3	40	60	100
5.	19BT20301	Basic Engineering Mechanics	3	1	-	4	4	40	60	100
6.	19BT20302	Material Science and Engineering	3	-	-	3	3	40	60	100
7.	19BT2BS31	Applied Physics Lab	-	-	2	2	1	50	50	100
8.	19BT10231	Basic Electrical and Electronics Engineering Lab	-	-	2	2	1	50	50	100
9.	19BT20331	Engineering Workshop	-	-	2	2	1	50	50	100
10.	19BT20332	Material Science and Engineering Lab	-	-	2	2	1	50	50	100
Total:			17	2	8	27	23	440	560	1000
11.	19BT1AC01	Spoken English	2	-	-	2	-	-	-	-

II B.Tech. – I Semester

S.No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT3BS01	Numerical Methods, Probability and Statistics	3	1	-	4	4	40	60	100
2.	19BT30301	Engineering Thermodynamics	3	1	-	4	4	40	60	100
3.	19BT30302	Kinematics of Machinery	3	-	-	3	3	40	60	100
4.	19BT30303	Manufacturing Technology	3	-	-	3	3	40	60	100
5.	19BT30304	Strength of Materials	3	-	-	3	3	40	60	100
6.	19BT3HS31	Soft Skills Lab	-	-	2	2	1	50	50	100
7.	19BT30132	Strength of Materials Lab	-	-	2	2	1	50	50	100
8.	19BT30331	Computer Aided Machine Drawing	-	-	2	2	1	50	50	100
9.	19BT30332	Manufacturing Technology Lab	-	-	2	2	1	50	50	100
Total:			15	2	8	25	21	400	500	900
10.	19BT315AC	Design Thinking	2	-	-	2	-	-	-	-

III B.Tech. – I Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT50301	Computer Aided Design and Manufacturing	3	-	-	3	3	40	60	100
2.	19BT50302	Operation Research	3	-	-	3	3	40	60	100
3.	19BT50303	Thermal Engineering -II	3	-	-	3	3	40	60	100
4.	Professional Elective-1		3	-	-	3	3	40	60	100
	19BT50304	Automobile Engineering								
	19BT50305	Compressible Fluid Flow								
	19BT50306	Engineering Metallurgy								
	19BT50307	Industrial Engineering and Management								
	19BT50308	Tool Design								
19BT50309	Tribology									
5.	Open Elective-1		3	-	-	3	3	40	60	100
6.	Inter Disciplinary Elective-1		3	-	-	3	3	40	60	100
	19BT50310	Artificial Intelligence and Robotics								
	19BT50311	Automotive Electronics								
	19BT50312	Industrial Automation and Control Systems								
	19BT50313	Non-Conventional Energy Sources								
	19BT50314	Programmable logic controller in Automation								
19BT50315	Soft Computing Techniques in Mechanical Engineering									
7.	19BT50331	Computer Aided Design and Manufacturing Lab	-	-	2	2	1	50	50	100
8.	19BT50332	Thermal Engineering Lab	-	-	2	2	1	50	50	100
9.	19BT50333	Socially Relevant Project-1	-	-	-	-	1	50	50	100
Total:			18	-	4	22	21	390	510	900
10.	19BT503AC	Foundations of Entrepreneurship	2	-	-	2	-	-	-	-

II B.Tech. – II Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT40301	Dynamics of Machinery	3	1	-	4	4	40	60	100
2.	19BT40302	Engineering Metrology	3	-	-	3	3	40	60	100
3.	19BT40303	Fluid Mechanics and Hydraulic Machinery	3	-	-	3	3	40	60	100
4.	19BT40304	Metal Cutting and Machine Tools	3	-	-	3	3	40	60	100
5.	19BT40305	Thermal Engineering-I	3	-	-	3	3	40	60	100
6.	Open Elective-2		3	-	-	3	3	40	60	100
7.	19BT40132	Fluid Mechanics and Hydraulic Machinery Lab	-	-	2	2	1	50	50	100
8.	19BT40331	Dynamics of Machinery Lab	-	-	2	2	1	50	50	100
9.	19BT40332	Engineering Metrology and Machine Tools Lab	-	-	2	2	1	50	50	100
Total:			18	1	6	25	22	390	510	900
10.	19BT3MC01	Environmental Science	2	-	-	2	-	40	--	40

III B.Tech. – II Semester

S. No	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT6HS02	Organizational Behavior	3	-	-	3	3	40	60	100
2.	19BT60301	Design of Machine Elements	3	-	-	3	3	40	60	100
3.	19BT60302	Heat Transfer	3	-	-	3	3	40	60	100
4.	Professional Elective-2									
	19BT60303	Casting and Welding Technology								
	19BT60304	Composite Materials								
	19BT60305	Gas Turbines and Jet Propulsion	3	-	-	3	3	40	60	100
	19BT60306	Internal Combustion Engines								
	19BT60307	Mechanical Vibrations								
	19BT60308	Quality Management and Reliability								
5.	Professional Elective-3									
	19BT60309	Automotive Fuels and Combustion								
	19BT60310	Design of Pressure Vessels and Piping Systems								
	19BT60311	Mechanical Behavior of Materials	3	-	-	3	3	40	60	100
	19BT60312	Non-conventional machining processes								
	19BT60313	Optimization Techniques								
	19BT60314	Refrigeration and Air Conditioning								
6.	Inter Disciplinary Elective-2									
	19BT50408	Microelectromechanical Systems								
	19BT60315	Instrumentation and Control systems								
	19BT60316	Hydraulics and Pneumatics	3	-	-	3	3	40	60	100
	19BT60317	Industrial Internet of Things								
	19BT60318	Machinery Fault Diagnosis and Signal Processing								
19BT60319	Mechatronics									
7.	19BT61531	Internet of Things (IoT) Lab	-	1	2	3	2	50	50	100
8.	19BT60331	Heat Transfer Lab	-	-	2	2	1	50	50	100
9.	19BT60332	Socially Relevant Project-2	-	-	-	-	1	50	50	100
Total:			18	1	4	23	22	390	510	900
10.	19BT5MC01	Universal Human Values	2	-	-	2	-	40	-	40

IV B.Tech. – I Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT6HS01	Principles of Business Economics and Accountancy	3	-	-	3	3	40	60	100
2.	19BT70301	Design of Transmission Systems	3	-	-	3	3	40	60	100
3.	19BT70302	Operations Management	3	-	-	3	3	40	60	100
4.	Professional Elective-4		3	-	-	3	3	40	60	100
	19BT70303	Computational Fluid Dynamics								
	19BT70304	Finite Element Method								
	19BT70305	Modern Manufacturing Process								
	19BT70306	Power Plant Engineering								
	19BT70307	Supply Chain Management								
	19BT70308	Sustainable Manufacturing								
5.	Professional Elective-5		3	-	-	3	3	40	60	100
	19BT70309	Cryogenics								
	19BT70310	Design of Automotive components								
	19BT70311	Statistical Inference and Modeling								
	19BT70312	Rapid Prototyping								
	19BT70313	Surface Engineering								
	19BT70314	Hybrid and Electric Vehicles								
6.	19BT7MOOC	Open Elective-5 (MOOC)	-	-	-	-	3	-	100	100
7.	19BT70331	Industrial Automation and Robotics Lab	-	-	2	2	1	50	50	100
8.	19BT70332	Simulation and Analysis Lab	-	-	2	2	1	50	50	100
9.	19BT70333	Internship	-	-	-	-	2	--	100	100
Total:			15	-	4	19	22	300	600	900
10.	19BT703AC	MATLAB for Mechanical Engineers	2	-	-	2	-	-	-	-

IV B.Tech. – II Semester

Sl. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT80331	Project Work	-	-	-	-	10	100	100	200
Total:			-	-	-	-	10	100	100	200

LIST OF COURSES FOR

OPEN ELECTIVE-1 and OPEN ELECTIVE-2

Course Code	Open Elective -1	Course Code	Open Elective -2
19BT4BS01	Material Science	19BT4HS01	Banking and Insurance
19BT4HS02	Business Communication and Career Skills	19BT4HS03	Cost Accounting and Financial Management
19BT4HS04	Entrepreneurship for Micro, Small and Medium Enterprises	19BT4HS05	Gender and Environment
19BT4HS06	German Language	19BT4HS07	Indian Economy
19BT4HS08	Indian History	19BT4HS09	Life Skills
19BT4HS10	Personality Development	19BT4HS11	Professional Ethics
19BT4HS12	Women Empowerment	19BT4HS13	Indian Tradition and Culture
19BT4HS14	Constitution of India	19BT40106	Disaster Mitigation and Management
19BT40205	Reliability and Safety Engineering	19BT40107	Sustainable Engineering
19BT50107	Environmental Pollution and Control	19BT40108	Contract Laws and Regulations
19BT50108	Planning for Sustainable Development	19BT40306	Global Strategy and Technology
19BT50109	Rural Technology	19BT40307	Management Science
19BT50505	Ethical Hacking	19BT40504	Cyber Laws and Security
19BT51207	AI in Healthcare	19BT50208	Intellectual Property Rights
19BT51506	Bioinformatics	19BT50409	Green Technologies

MINOR/HONORS DEGREE IN ROBOTICS

Semester	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
III B.Tech. I Semester	19BT50316	Introduction to Robotics	3	-	-	3	3	40	60	100
	19BT50317	Robot Programming	3	-	-	3	3	40	60	100
	19BT50333	Robot Programming Lab	-	-	2	2	1	50	50	100
III B.Tech. II Semester	19BT60320	Drives and Control for Industrial Automation	3	-	-	3	3	40	60	100
	19BT60321	Motion and Operation Planning of Robotic Systems	3	-	-	3	3	40	60	100
	19BT60322	Principles of Automation and Advanced Manufacturing Systems	3	-	-	3	3	40	60	100
	19BT60333	Industrial Automation Lab	-	-	2	2	1	50	50	100
IV B.Tech. I Semester	19BT70315	Humanoid Robots Modeling and Control	3	-	-	3	3	40	60	100
	19BT70316	Introduction to AI and Robotics	3	-	-	3	3	40	60	100
	19BT70317	Machine learning in Robotics	3	-	-	3	3	40	60	100
	19BT70334	Robot Modeling and Analysis Lab	-	-	2	2	1	50	50	100

* If the student pursued any of the above courses in their curriculum then, he/she is not eligible to opt the same in minor/honor degree.



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