

Department of Mechanical Engineering

Approved Course Structure

Program: B.Tech.-MECHANICAL ENGINEERING

Regulations: SVEC-20

Mandatory Induction Program	03 weeks duration
Induction program offered before commencement of the I-Semester course work	Physical activity
	Creative Arts
	Universal Human Values
	Literary
	Proficiency Modules
	Lectures by Eminent People
	Visits to local Areas
	Familiarization to Department/Branch and Innovations

I B.Tech. – I Semester

Sl. No.	Subject Code	Course Title	Course Category	Contact Periods per week				C	Scheme of Examination Max. Marks		
				L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT1BS01	Differential Equations and Multivariable Calculus	BS	3	-	-	3	3	30	70	100
2.	20BT1BS02	Engineering Chemistry	BS	3	-	-	3	3	30	70	100
3.	20BT10201	Basic Electrical and Electronics Engineering	ES	3	-	-	3	3	30	70	100
4.	20BT10301	Material Science and Engineering	ES	3	-	-	3	3	30	70	100
5.	20BT1BS31	Engineering Chemistry Lab	BS	-	-	3	3	1.5	30	70	100
6.	20BT10331	Computer Aided Engineering Drawing	ES	-	1	4	5	3	30	70	100
7.	20BT10332	Engineering Workshop	ES	-	-	3	3	1.5	30	70	100
8.	20BT10333	Material Science and Engineering Lab	ES	-	-	3	3	1.5	30	70	100
9.	20BT1HSAC	Spoken English (Audit Course)	AC1	2	-	-	2	-	-	-	-
Total:				14	1	13	28	19.5	240	560	800

I B.Tech. – II Semester

Sl. No.	Subject Code	Course Title	Course Category	Contact Periods per week				C	Scheme of Examination Max. Marks		
				L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT2BS01	Transformation Techniques and Linear Algebra	BS	3	-	-	3	3	30	70	100
2.	20BT1BS04	Applied Physics	BS	3	-	-	3	3	30	70	100
3.	20BT1HS01	Communicative English	HS	3	-	-	3	3	30	70	100
4.	20BT20541	Programming in C and Data Structures	ES	3	-	-	3	3	30	70	100
5.	20BT20301	Basic Engineering Mechanics	ES	3	-	-	3	3	30	70	100
6.	20BT1BS33	Applied Physics Lab	BS	-	-	3	3	1.5	30	70	100
7.	20BT1HS31	Communicative English Lab	HS	-	-	3	3	1.5	30	70	100
8.	20BT20551	Programming in C and Data Structures Lab	ES	-	-	3	3	1.5	30	70	100
9.	20BT1MC01	Universal Human Values (Mandatory Course)	MC	2	-	-	2	-	30	-	30
Total:				17	-	09	26	19.5	270	560	830

II B.Tech I–Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (c)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT3BS01	Numerical Methods, Probability and Statistics	3	-	-	3	3	30	70	100
2.	20BT30301	Engineering Thermodynamics	3	-	-	3	3	30	70	100
3.	20BT30302	Kinematics of Machinery	3	-	-	3	3	30	70	100
4.	20BT30303	Manufacturing Technology	3	-	-	3	3	30	70	100
5.	20BT30304	Strength of Materials	3	-	-	3	3	30	70	100
6.	20BT40133	Strength of Materials Lab	-	-	3	3	1.5	30	70	100
7.	20BT30331	Computer Aided Machine Drawing	-	-	3	3	1.5	30	70	100
8.	20BT30332	Manufacturing Technology Lab	-	-	3	3	1.5	30	70	100
9.	20BT3HS31	Soft Skills Lab	-	-	1	2	2	30	70	100
Total							21.5	270	630	900
10.	20BT3MC01	Environmental Science	2	-	-	2	-	30	-	30

II B.Tech II-Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT40301	Dynamics of Machinery	3	-	-	3	3	30	70	100
2.	20BT40302	Engineering Metrology and Machine Tools	3	-	-	3	3	30	70	100
3.	20BT40303	Fluid Mechanics and Machines	3	-	-	3	3	30	70	100
4.	20BT40304	Thermal Engineering-I	3	-	-	3	3	30	70	100
5.	Open Elective-1		3	-	-	3	3	30	70	100
6.	20BT30132	Fluid Mechanics and Hydraulic Machinery Lab	-	-	3	3	1.5	30	70	100
7.	20BT40331	Engineering Metrology Lab	-	-	3	3	1.5	30	70	100
8.	20BT40332	Machine Tools Lab	-	-	3	3	1.5	30	70	100
9.	20BT40333	MATLAB for Mechanical Engineers Lab	-	1	2	3	2	30	70	100
Total							21.5	270	630	900
10.	20BT315AC	Design Thinking	2	-	-	2	-	-	-	-

III B.Tech I-Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT50301	Design of Machine Elements	3	-	-	3	3	30	70	100
2.	20BT50302	Operations Research	3	-	-	3	3	30	70	100
3.	20BT50303	Thermal Engineering-II	3	-	-	3	3	30	70	100
4.	Open Elective-2						3	30	70	100
5.	Professional Elective- 1									
	20BT50304	Automobile Engineering	3	-	-	3	3	30	70	100
	20BT50305	Compressible Fluid Flow								
	20BT50306	Engineering Metallurgy								
	20BT50307	Statistical Inference and Modeling								
	20BT50308	Tool Design								
20BT50309	Tribology									
6.	20BT50331	Design and Dynamics Lab	-	-	3	3	1.5	30	70	100
7.	20BT50332	Thermal Engineering Lab	-	-	3	3	1.5	30	70	100
8.	20BT51551	Internet of Things Lab		1	2	3	2	30	70	100
9.	20BT50333	Summer Internship-I	-	-	-	-	1.5	-	100	100
Total							21.5	240	660	900
10.	20BT503AC	Foundations of-Entrepreneurship	2	-	-	2	-	-	-	-

III B.Tech II–Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT60301	Computer Aided Design and Manufacturing	3	-	-	3	3	30	70	100
2.	20BT60302	Industrial Engineering and Management	3	-	-	3	3	30	70	100
3.	20BT60303	Heat Transfer	3	-	-	3	3	30	70	100
Professional Elective-2										
4.	20BT60304	Casting and Welding Technology	3	-	-	3	3	30	70	100
	20BT60305	Composite Materials								
	20BT60306	Design of Transmission systems								
	20BT60307	Gas Turbines and Jet Propulsion								
	20BT60308	Internal Combustion Engines								
	20BT60309	Quality Management and Reliability								
Professional Elective-3										
5.	20BT60310	Automotive Fuels and Combustion	3	-	-	3	3	30	70	100
	20BT60311	Design of Pressure Vessels and Piping Systems								
	20BT60312	Mechanical Behavior of Materials								
	20BT60313	Non-Traditional machining processes								
	20BT60314	Optimization Techniques								
	20BT60315	Refrigeration and Air Conditioning								
Inter disciplinary Elective-1										
7.	20BT60316	Artificial Intelligence and Robotics	3	-	-	3	3	30	70	100
	20BT60317	Automotive Electronics								
	20BT60318	Industrial Automation and Control Systems								
	20BT60319	Machinery Fault Diagnosis and Signal Processing								
	20BT60320	Non-Conventional Energy Sources								
	20BT60321	Programmable logic controller in Automation								
8.	20BT60331	Computer Aided Design and Manufacturing Lab	-	-	3	3	1.5	30	70	100
9.	20BT60332	Heat Transfer Lab	-	-	3	3	1.5	30	70	100
10.	20BT60333	Simulation and Analysis Lab		1	2	3	2	30	70	100
Total							23	270	630	900
11.	20BT5MC01	Professional Ethics	2	-	-	2	-	30	-	30

IV B.Tech I–Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT5HS02	Principles of Business Economics and Accountancy	3	-	-	3	3	30	70	100
2.	20BT70301	Operations Management	3	-	-	3	3	30	70	100
Professional Elective-4										
3.	20BT70302	Computational Fluid Dynamics	3	-	-	3	3	30	70	100
	20BT70303	Finite Element Method								
	20BT70304	Material Processing Techniques								
	20BT70305	Power Plant Engineering								
	20BT70306	Supply Chain Management								
	20BT70307	Sustainable Manufacturing								
Professional Elective-5										
4.	20BT70308	Cryogenics	3	-	-	3	3	30	70	100
	20BT70309	Design of Automotive components								
	20BT70310	Hybrid and Electric Vehicles								
	20BT70311	Project Management								
	20BT70312	Rapid Prototyping								
	20BT70313	Surface Engineering								
Inter disciplinary Elective-2										
5.	20BT60410	Microelectromechanical Systems	3	-	-	3	3	30	70	100
	20BT70314	Hydraulics and Pneumatics								
	20BT70315	Industrial Internet of Things								
	20BT70316	Instrumentation and Control systems								
	20BT70317	Mechatronics								
	20BT70318	Soft Computing Techniques in Mechanical Engineering								
6.	20BT70331	Industrial Automation and Robotics Lab	-	-	3	3	1.5	30	70	100
7.	20BT70332	Manufacturing systems and Operations Management Lab	-	-	3	3	1.5	30	70	100
8.	20BT70333	HVAC Lab		1	2	3	2	30	70	100
9.	20BT70334	Summer Internship-II					1.5	-	100	100
Total							21.5	240	660	900
10.	20BT703AC	3D Printing and Design	2	-	-	2	-	-	-	-

IV B.Tech II–Semester

S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT80331	Project Work	-	-	-	-	12	100	100	200
2.	19BT80332	Internship	-	-	-	-	-	-	-	-
Total			-	-	-	-	12	100	100	200

**LIST OF COURSES FOR
OPEN ELECTIVE-1 AND OPEN ELECTIVE-2**

Course Code	Open Elective -1	Course Code	Open Elective -2
20BT4BS01	Material Science	20BT4HS01	Banking and Insurance
20BT4HS02	Business Communication and Career Skills	20BT4HS03	Cost Accounting and Financial Management
20BT4HS04	Entrepreneurship for Micro, Small and Medium Enterprises	20BT4HS05	Gender and Environment
20BT4HS06	German Language	20BT4HS07	Indian Economy
20BT4HS08	Indian History	20BT4HS09	Life Skills
20BT4HS10	Personality Development	20BT4HS11	Indian Tradition and Culture
20BT4HS12	Women Empowerment	20BT4HS13	Constitution of India
20BT40205	Reliability and Safety Engineering	20BT50106	Disaster Mitigation and Management
20BT40105	Environmental Pollution and Control	20BT50107	Sustainable Engineering
20BT40106	Planning for Sustainable Development	20BT50108	Contract Laws and Regulations
20BT40107	Rural Technology	20BT50310	Global Strategy and Technology
20BT40305	Human Resource Management	20BT50311	Management Science
20BT50506	Ethical Hacking	20BT40502	Cyber Laws and Security
20BT51205	AI in Healthcare	20BT50206	Intellectual Property Rights
20BT51501	Bioinformatics	20BT50406	Green Technologies



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