Scheme for Second Year B.Tech. in Mechanical Engineering with Minor in [****], (SEMESTER-III) under Regulation-23

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			SL/Sem. (Hrs)	Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage	Total Points
			L	P	T			Mid term	Time (Hrs)	IE	Points	Time (Hrs)		
Core Courses														
1	Linear Algebra and Vector Calculus	ES-BTM301	2	0	1	48	3	30	1.5	20	100	3	50%	100
2	Thermodynamics	PC-BTM302	3	0	1	64	4	30	1.5	20	100	3	50%	100
3	Material and Manufacturing Science	PC-BTM303	3	0	0	48	3	30	1.5	20	100	3	50%	100
4	Strength of Materials	PC-BTM304	3	0	0	48	3	30	1.5	20	100	3	50%	100
5	Computer-Aided Mechanical Drawing	PC-BTM305	1	0	3	64	4	30	1.5	20	100	3	50%	100
Laboratory Courses														
6	Material and Manufacturing Science Lab	PC-BTM353	0	2	0	2	1	0	0	25	25	0	100%	50
7	Strength of Materials Laboratory	PC-BTM354	0	2	0	2	1	0	0	25	25	0	100%	50
8	Machine Shop Practice	PC-BTM355	0	2	0	2	1	0	0	25	25	0	100%	50
Value Education Course														
9	Health Safety and Sustainable Environment	VE-BTM001	2	0	0	32	2	30	1.5	20	50	3	100%	100
	TOTAL						**22**							

L: Lecture, T: Tutorial, P: Practical, SL: Self Learning

1 credit corresponds to 30 Hours of student engagement in a semester. Apart from actual contact hours (L T P), the remaining hours are used for term wok and self-learning by students.

Note:

1. Refer to (I) the Academic book and (II) Examination rules for further details.
2. Refer Evaluation Guidelines for details.

Scheme for Second Year B.Tech. in Mechanical Engineering with Minor in [****], (SEMESTER-IV) under Regulation-23

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			SL/Sem. (Hrs)	Credits	In semester Evaluation (Points)			End Semester Evaluation (Points)		End semester weightage (%)	Total Points
			L	P	T			Mid Term	Time (Hrs)	IE	Points	Time (Hrs)		
Core Courses														
1	Statistics, Probability and Laplace Transform	ES-BTM401	2	0	1	48	3	30	1.5	20	100	3	50%	100
2	Fluid Mechanics	PC-BTM402	3	0	0	48	3	30	1.5	20	100	3	50%	100
3	Mechanical Measurement and Control	PC-BTM403	3	0	0	48	3	30	1.5	20	100	3	50%	100
4	Kinematics of Machinery	PC-BTM404	3	0	1	64	4	30	1.5	20	100	3	50%	100
5	Dynamics of Machinery	PC-BTM405	3	0	0	48	3	30	1.5	20	100	3	50%	100
Laboratory Courses														
6	Fluid Mechanics Lab.	PC-BTM452	0	2	0	2	1	0	0	25	25	0	100%	50
7	Mechanical Measurements and Control Lab.	PC-BTM453	0	2	0	2	1	0	0	25	25	0	100%	50
8	Dynamics of Machinery Lab.	PC-BTM455	0	2	0	2	1	0	0	25	25	0	100%	50
9	Assembly Shop Practice	PC-BTM456	0	2	0	2	1	0	0	25	25	0	100%	50
Minor Course														
10	Minor-1	MI-BT021	2	0	0	32	2	15	15	20	100	3	50%	100
	TOTAL						**22**							

L: Lecture, T: Tutorial, P: Practical, SL: Self Learning (**1 credit corresponds to 30 Hours of student engagement in a semester.)**
Apart from actual contact hours (L T P), the remaining hours are used for term wok and self-learning by students.

Note:

1. Refer to (I) the Academic book and (II) Examination rules for further details.
2. Refer Evaluation Guidelines for details.
3. The student has to choose a domain of minor courses from the minors offered by the institute. Each minor will have a bundle of four courses.

Exit Courses after First year B.Tech. for 'Certificate in Mechanical Engineering'		
Course 1	MS Office, or	3 Credits
	Solid Modeling and Drafting (AutoCAD, CATIA, SolidWorks etc.), or	
	Programming Language (Python, C or C++)	
Course 2	Machinist	3 Credits
	Advanced Carpentry	
	CNC Machine Operation and Maintenance, or	
	Pipe Fitting and Plumbing Operations, or	
	Advanced Welding Techniques	

Exit Courses after Second year B.Tech. for 'U G Diploma in Mechanical Engineering'		
Course 1	Advanced Excel, or	3 Credits
	Advanced Python Programming	
	CATIA (Assembly and Manufacturing Simulations)	
	Mechanical Analysis Software tool (ANSYS, ABAQUS etc.)	
	LabVIEW software	
	CNC Programming	
Course 2	Instrument Calibration and Characterization	3 Credits
	3D printing operation	
	Simulink for System Modeling	
	CNC Machine Operation and Maintenance,	
	Advanced Welding Techniques	
	Solar System Installation and Grid Integration	

Note: The student needs to select one course from each group of **course 1** and **course 2**.

Evaluation Guidelines under R23:

1. The Evaluation of any course shall be such that all Course Outcomes are uniformly mapped.

2. **Mid Term:** The courses under the category "Theory courses", the evaluation is based on Mid Term of 30 points for 1.5 hours duration. Tentatively the first four modules of the course content will be covered in Mid Term. Any change in the same will be informed by the course instructor. The courses under the category "Skill Enhancement", "Value Education", the evaluation is based on activity (Presentation, Test, Mini project, Field project, Practical Examination) of 30 points each.

3. **Internal Evaluation (IE):** Internal Evaluation will be carried out by the course instructor for 20 points. It is the continuous evaluation throughout the semester. The evaluation will be based on minimum three of the following activities decided by course instructor. The maximum points that can be assigned to one activity will be 07. The course instructor needs to inform the students and head of the department about the activities those will be considered for IE and the points assigned to them in first week of semester. The course instructor will submit the internal evaluation points (out of 20 with activity wise break up) to examination section before the beginning of End Semester examination. List of Activities: 1. Class Involvement 2. Assignments 3. Problem Solving 4. Mini project 5. Quizzes 6. Presentation 7. Oral.

4. **End semester evaluation:** The course under the category "Theory courses", the evaluation is based on End semester examination of 100 points. The end semester examination will cover all the modules of the course content. The courses under the category "Skill Enhancement", "Value Education", the evaluation is based on activity (Presentation, Test, Mini project, Field project, Practical Examination) of 50/100 points.

5. The evaluation of the laboratory courses includes internal evaluation IE of 25 points and End semester evaluation of 25 points.The internal evaluation is based on [10 points: Laboratory Attendance, 15 points: Laboratory work] and End semester evaluation is based on [25 points: Quizes/ Presentation/ Practical Examination/ Mini project/Oral may be any two activities]

6. The co-curricular course credits in semester VIII can be earned through participation in various activities during his/ her graduation. The co-curricular course credits are not considered for CPI calculation.

7. The evaluation of Field project/ Project/ Internship shall be as mentioned in Academic Rules.

Note: Refer Academic and Examination rules and regulations for further details.