Scheme for Third Year B.Tech. in Mechanical Engineering with Minor in [****], (SEMESTER-V) 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	Heat and Mass Transfer	PC-BTM501	3	0	0	48	3	30	1.5	20	100	3	50%	100
2	Design of Machine Elements	PC-BTM502	3	0	1	64	4	30	1.5	20	100	3	50%	100
3	CAD/CAM/CIM	PC-BTM503	2	0	0	32	2	30	1.5	20	100	3	50%	100
4	Mechatronics & Automation	PC-BTM504	2	0	0	32	2	30	1.5	20	100	3	50%	100
Laboratory Courses														
5	Heat and Mass Transfer Laboratory	PC-BTM551	0	2	0	2	1	0	0	25	25	0	100%	50
6	CAD/CAM/CIM Laboratory	PC-BTM553	0	2	0	2	1	0	0	25	25	0	100%	50
7	Mechatronics and Automation Laboratory	PC-BTM554	0	2	0	2	1	0	0	25	25	0	100%	50
Professional Elective Course														
8	Professional Elective - I	PE-BTM5XX	3	0	1	64	4	30	1.5	20	100	3	50%	100
Minor Course														
9	Minor-2	MI-BT022	3	0	1	64	4	30	1.5	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.

Scheme for Third Year B.Tech. in Mechanical Engineering with Minor in [****], (SEMESTER-VI) 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	Refrigeration and Air-conditioning	PC-BTM601	3	0	0	48	3	30	1.5	20	100	3	50%	100
2	Thermal and Fluid Machines	PC-BTM602	3	0	0	48	3	30	1.5	20	100	3	50%	100
3	Manufacturing Planning and Control	PC-BTM603	3	0	1	64	4	30	1.5	20	100	3	50%	100
Laboratory Courses														
4	Refrigeration and Air-cond. Laboratory	PC-BTM651	0	2	0	2	1	0	0	25	25	0	100%	50
5	Thermal and Fluid Machines Laboratory	PC-BTM652	0	2	0	2	1	0	0	25	25	0	100%	50
Professional Elective Course														
6	Professional Elective -II	PE-BTMxxx	3	0	1	64	**4**	30	1.5	20	100	3	50%	100
Field Project/Community Engagement														
7	Field Project	FP-BTM601	2*+32				**2**			50	50		100%	100
Minor Course														
8	Minor-3	MI-BT023	3	0	1	64	**4**	30	1.5	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. ***Contact Hrs**

Tentative list of Professional Elective / Open Elective / Minor Courses Offered		
Professional Elective Coerces		
Professional Elective I:		
1.	PE-BTM511	Finite Element Methods
2.	PE-BTM512	Lean and Green Manufacturing
3.	PE-BTM513	Introduction to Cryogenics
4.	PE-BTM514	Compressible Fluid Flow
5.	PE-BTM515	Nature Inspired Design and Innovation
Professional Elective II:		
1.	PE-BTM611	Computational Fluid Dynamics
2.	PE-BTM612	Composite Materials
3.	PE-BTM613	Tool Engineering
4.	PE-BTM614	Mechanical Vibration

Exit Courses after Third year B.Tech. for 'B Vocational in Mechanical Engineering'		
Course 1	Advanced Excel, or	3 Credits
	Advanced Python Programming	
	MATLAB and its application in engineering	
	CNC Programming	
	Mechanical Analysis Software tool (ANSYS, ABAQUS etc.)	
Course 2	AC and Refrigeration Repair and Maintenance	3 Credits
	Piping Design using a Software	
	3D Printing and Design	
	Computational Fluid Dynamics Software	
	Electrical vehicle design and maintenance	

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.