Regulation -23

(Under New Education Policy)

Academic Course Credit System and Evaluation Scheme of Second Year

B.Tech. Mechanical Engineering Program

DEPARTMENT OF MECHANICAL ENGINEERING

Sardar Patel College of Engineering, Mumbai

Courses Offered to Second Year B.Tech. in Mechanical Engineering (SEMESTER-III) under Regulation-23													
Sr. No.	**Course Name**	**Code**	**Course Plan per Week (Hrs)**			**Credits**	**In semester Evaluation (Points)**			**End Semester Evaluation (Points)**		**End semester weightage**	**Total Points**
			L	**P**	**T**		**T-I**	**T-II**	**IE**	**Points**	**Time (Hrs)**		
Core Courses													
1	Linear Algebra and Vector Calculus	ES-BTM301	2	0	1	3	15	15	20	100	3	50%	100
2	Thermodynamics	PC-BTM302	3	0	1	4	15	15	20	100	3	50%	100
3	Material and Manufacturing Science	PC-BTM303	3	0	0	3	15	15	20	100	3	50%	100
4	Strength of Materials	PC-BTM304	3	0	0	3	15	15	20	100	3	50%	100
5	Computer-Aided Mechanical Drawing	PC-BTM305	1	0	3	4	15	15	20	100	3	50%	100
Laboratory Courses													
6	Material and Manufacturing Science Laboratory	PC-BTM353	0	2	0	1	0	0	25	25	0	100%	50
7	Strength of Materials Laboratory	PC-BTM354	0	2	0	1	0	0	25	25	0	100%	50
8	Machine Shop Practice	PC-BTM355	0	2	0	1	0	0	25	25	0	100%	50
Value Education Course													
9	Health Safety and Sustainable Environment	VE-BTM001	2	0	0	2	15	15	20	50	3	100%	100
	TOTAL					**22**							

Note: Refer to (I) the Academic book and (II) Examination rules for further details.

Courses Offered to Second Year B.Tech. in Mechanical Engineering (SEMESTER-IV) under Regulation-23													
Sr. No.	**Course Name**	**Code**	**Course Plan per Week (Hrs)**			**Credits**	**In semester Evaluation (Points)**			**End Semester Evaluation (Points)**		**End semester weightage (%)**	**Total Points**
			L	**P**	**T**		**T-I**	**T-II**	**IE**	**Points**	**Time (Hrs)**		
Core Courses													
1	Statistics, Probability and Laplace Transform	ES-BTM401	2	0	1	3	15	15	20	100	3	50%	100
2	Fluid Mechanics	PC-BTM402	3	0	0	3	15	15	20	100	3	50%	100
3	Mechanical Measurement and Control	PC-BTM403	3	0	0	3	15	15	20	100	3	50%	100
4	Kinematics of Machinery	PC-BTM404	3	0	1	4	15	15	20	100	3	50%	100
5	Dynamics of Machinery	PC-BTM405	3	0	0	3	15	15	20	100	3	50%	100
Laboratory Courses													
6	Fluid Mechanics Lab.	PC-BTM452	0	2	0	1	0	0	25	25	0	100%	50
7	Mechanical Measurements and Control Lab.	PC-BTM453	0	2	0	1	0	0	25	25	0	100%	50
8	Dynamics of Machinery Lab.	PC-BTM455	0	2	0	1	0	0	25	25	0	100%	50
9	Assembly Shop Practice	PC-BTM456	0	2	0	1	0	0	25	25	0	100%	50
Minor Course													
10	Minor-1	MI-BT021	2	0	0	2	15	15	20	100	3	50%	100
	TOTAL					**22**							

Note: Refer to (I) the Academic book and (II) Examination rules for further details.

Exit Courses under B.Tech. in Mechanical Engineering Program (Regulation-23)		
Sr. No.	**Course Name**	**Credits**
First Year of Engineering		
1	MS Office, or	3
	Solid Modeling and Drafting (AutoCAD, CATIA, SolidWorks etc.), or	
	Programming Language (Python, C or C++)	
2	Machinist	3
	Advanced Carpentry	
	CNC Machine Operation and Maintenance, or	
	Pipe Fitting and Plumbing Operations, or	
	Advanced Welding Techniques	
	Three-week internship in a manufacturing industry	

Note: The student needs to select one course from each group (1) and (2) as an exit course.

Second Year of Engineering		
1	Advanced Excel, or	3
	Advanced Python Programming	
	CATIA (Assembly and Manufacturing Simulations)	
	Mechanical Analysis Software tool (ANSYS, ABAQUS etc.)	
	LabVIEW software	
	CNC Programming	
2	Instrument Calibration and Characterization	3
	3D printing operation	
	Simulink for System Modeling	
	CNC Machine Operation and Maintenance,	
	Advanced Welding Techniques	
	Solar System Installation and Grid Integration	
	Three-week internship in a manufacturing industry	

Note: The student needs to select one course from each group (1) and (2) as an exit course.

Evaluation for R23: S.Y. B. Tech

1. **T1, T2:** For the courses under the category "Theory courses", the evaluation is based on a Test of 15 points each for a one-hour duration. Tentatively, the first two modules of the course content will be covered in T1, and the third and fourth modules of the course content will be covered in T2. Any change in the same will be informed by the course instructor.

   For the courses under the category **"Skill Enhancement"** & **"Value Education"**, the evaluation is based on an activity (Presentation, Test, Mini project, Field project, Practical Examination) of 15 points each.
2. **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 a minimum of three of the following activities decided by the course instructor. The maximum number of points that can be assigned to one activity will be 07. The course instructor needs to inform the students and the head of the department about the activities that will be considered for IE and the points assigned to them in the first week of the semester. The course instructor will submit the internal evaluation points (out of 20 with activity-wise break up) to the examination section before the beginning of the End Semester examination.

   List of Activities: 1. Class Involvement, 2. Assignments, 3. Problem Solving, 4. Mini project, 5. Quizzes, 6. Presentation, and 7. Oral

3. **End Semester Evaluation:** For the courses under the category "Theory courses", the evaluation is based on an End semester examination of 100 points. **The end semester examination will cover all the modules of the course content.**

   For the courses under the category **"Skill Enhancement"** and **"Value Education"**, the evaluation is based on activity (Presentation, Test, Mini project, Field project, Practical Examination) of 100 points
4. 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 the End semester evaluation is based on [25 points: Quizzes/ Presentation/ Practical Examination/ Mini project/Oral may be any two activities]
5. 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.

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