Sardar Patel College of Engineering, Andheri (West), Mumbai 400 058

S.Y.B.Tech. in Mechanical Engineering
Course Credit System
Academic Year 2020-21

NOTES:

(1) Refer (i) Academic rules and regulations and (ii) Examination rules and regulations for further details.

(2) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: (i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal/Drawing sheet/Sketch book = 40%, (iii) MCQ/Oral/Test = 40%.

(3) Laboratory course is considered as a separate head of passing.

(4) The Mandatory courses are with Pass (P) and No Pass (NP) grades and offered institute wide, may be available in both semesters of year and must be passed before obtaining degree.

(5) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ and inform department by filling up registration form. After successful completion of the course and approval from the department UG committee, the course title can appear on the grade card of the student.

(6) Department will offer the Value Added courses in a semester subject to availability of resources and enrollment of minimum 20 students opting for the course. Upon successful completion of the Value Added course, the grades of the courses will appear in the grade card of the student.

(7) The contents of core courses are aligned with the latest GATE syllabus. The mapping between GATE syllabus topics and core courses is given in Table GATE-MAP.
The term work for these courses shall include evaluations along the pattern of GATE examinations, for example, part of the term work shall consist of MCQ similar to GATE examinations.

(8) The course contents, wherever appropriate, should include assessment based on Project Based Learning and a report of visit to an industry related to the course.

(9) One of the Course Outcome (CO), wherever applicable, shall include attainment of one of the essential skillsets: leadership skills, entrepreneurship skills, managerial skills, communication skills, collaborative skills.

(10) Students can optionally opt for Value Added Non Technical courses offered by Center for Continuing Education (CCE-SPCE). These courses are with zero credit and upon successful completion, the course titles will appear on student's grade card. The list of courses is given in Table-VNT

(11) L- Lecture, P- Laboratory, T-Tutorial.

Sardar Patel College of Engineering
Academic Year 2020-21
Courses Offered for Second Year B.Tech. in Mechanical Engineering (Semester III)

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work/Practical	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)		(Note 2)	
Core Courses													
1	Applied Mathematics – III	BS-BTM301	3	0	1	4	20	20	100	3	60%	25	125
2	Strength of Materials	PC-BTM302	3	0	0	3	20	20	100	3	60%	0	100
3	Thermodynamics	PC-BTM305	3	0	1	4	20	20	100	3	60%	25	125
4	Manufacturing Science	PC-BTM306	3	0	1	4	20	20	100	3	60%	25	125
5	Organizational Communication and Interpersonal Skills	HS-BTM307	2	0	1	3	20	20	100	3	60%	25	125
Laboratory Courses (Note 3)													
6	Strength of Materials Laboratory	PC-BTM352	0	2	0	1	0	0	0	0	0%	50	50
7	Machine Shop Practice	PC-BTM399	0	2	0	1	0	0	0	0	0%	50	50
Mandatory Courses (Note 4)													
8	Indian Traditional Knowledge	MC-BT002	3	0	0	0	20	20	100	3	60%	0	100
Online Courses (Note 5)													
9	Online Course	OL-BTM38x	0	0	0	0	0	0	0	0	0	0	0
Value Added Courses (Note 6)													
10	Introduction to Python Programming	VA-BTM391	0	2	0	0	0	0	0	0	0%	50	50
Value Added Non-Technical Courses (Note10)													
11	Refer Table-VNT	VN-BTxxx	Refer Table-VNT										
	TOTAL		**17**	**4**	**4**	**20**							

Sardar Patel College of Engineering
Academic Year 2020-21
Courses Offered for Second Year B.Tech. in Mechanical Engineering (Semester IV)

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work/Practical	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)		(Note 2)	
Core Courses													
1	Applied Mathematics -IV	BS-BTM401	3	0	1	4	20	20	100	3	60%	25	125
2	Fluid Mechanics	PC-BTM403	3	0	0	3	20	20	100	3	60%	0	100
3	Mech. Engineering Measurement	PC-BTM404	3	0	0	3	20	20	100	3	60%	0	100
4	Material Science	PC-BTM406	3	0	0	3	20	20	100	3	60%	0	100
5	Kinematics of Machinery	PC-BTM412	2	0	1	3	20	20	100	3	60%	25	125
6	Solid Mechanics	PC-BTM415	2	0	1	3	20	20	100	3	60%	25	125
Laboratory Courses (Note 3)													
7	Fluid Mechanics Laboratory	PC-BTM453	0	2	0	1	0	0	0	0	0	50	50
8	Mechanical Engineering Measurements Laboratory	PC-BTM454	0	2	0	1	0	0	0	0	0	50	50
9	Material Science Laboratory	PC-BTM456	0	2	0	1	0	0	0	0	0	50	50
10	Assembly Shop Practice	PC-BTM499	0	2	0	1	0	0	0	0	0	50	50
Online Courses (Note 5)													
11	Online Course	OL-BTM48x	0	0	0	0	0	0	0	0	0	0	0
Value Added Courses (Note 6)													
12	COBOTS - Collaborative Robots	VA-BTM491	2	0	0	0	20	20	100	0	60%	0	100
Value Added Non-Technical Courses (Note 10)													
13	Refer Table-VNT	VN-BTxxx	Refer Table-VNT										
	TOTAL		**16**	**8**	**3**	**23**							

Sardar Patel College of Engineering
Academic Year 2020-21
TABLE VNT: Value Added Non-Technical Courses for B.Tech. and M.Tech. Programmes

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work/Practical	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Professional Elective Courses I and II													
1	UBUNTU	VN-BT001	Refer to Course Contents			0	Refer to Course Contents						
2	Performing Arts and Script Writing	VN-BT002				0							
3	Financial Literacy	VN-BT003				0							
4	Self Defense Training	VN-BT004				0							
5	Yoga Health Technology for Self Management	VN-BT005				0							
6	Integrated Self Management	VN-BT006				0							
7	Photography	VN-BT007				0							

Table GATE-MAP: Alignment of Course Content with GATE Syllabus

B.Tech. in Mechanical Engineering

No.	Section	Core courses in SPCE Curriculum 2020-21	Topics From GATE Syllabus
1	D	Machine Design	Machine Design
2	D	Design of Machines and Mech. Systems	Machine Design
3	D	Kinematics of Machinery	Theory of Machines
4	D	Dynamics of Machinery	Theory of Machines, Vibrations
5	D	Solid Mechanics	Mechanics of Materials
6	D	Strength of Materials	Mechanics of Materials
7	D	Computer Aided Machine Drawing	Machine Design
8	M	CAD/CAM/CIM	Computer Integrated Manufacturing
9	M	Mechanical Engineering Measurements	Metrology and Inspection
10	M	Manufacturing Science	Casting, Forming and Joining Processes; Machining and machine tool operations
11	M	Manufacturing Planing and Control	Production Planning and Control, Inventory Control, Operations Research
12	M	Mechatronics	Computer Integrated Manufacturing
13	M	Ind. Engg. And Proj./Fin. Mgmt.	Production Planning and Control, Operations Research
14	M	Material Science	Engineering materials
15	T	Thermal Systems	Applications of Fluid mechanics and Thermal sciences
16	T	Fluid Mechanics	Fluid Mechanics
17	T	Heat and Mass Transfer	Heat-Transfer
18	T	Refrigeration and Air-conditioning	Applications of Fluid mechanics and Thermal sciences
19	T	Thermodynamics	Thermodynamics
20	T	Internal Combustion Engine	Applications of Fluid mechanics and Thermal sciences
21	MATH	Applied Mathematics, I, II, III, IV	Linear Algebra, Calculus, Differential Equations, Complex variables, Probability and Statistics, Numerical Methods

Note: Sections are: D - Applied Mechanics and Design, M -Materials, Manufacturing and Industrial Engineering, T - Fluid Mechanics and Thermal Sciences, MATH - Engineering Mathematics