BVB's Sardar Patel College of Engineering, Mumbai

Department of Electrical Engineering

Credit System (R18)

S. Y. B.Tech in Electrical Engineering

Academic Year 2023-24

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

Courses Offered for Second Year B.Tech. in Electrical Engineering (Semester III)
Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Theory Courses													
1	Applied Mathematics – III	BS-BTE301	3	-	1	4	20	20	100	3	60	25	125
2	Electronics Circuits	PC-BTE301	3	-	-	3	20	20	100	3	60	-	100
3	Electrical Networks	PC-BTE302	3	-	-	3	20	20	100	3	60	-	100
4	Digital Electronics	PC-BTE303	3	-	-	3	20	20	100	3	60	-	100
5	Organizational Communication and Interpersonal Skills	HSM-BTE301	2	--	1	3	20	20	100	3	60	25	125
Laboratory Courses													
6	Electrical Networks Laboratory	PC-BTE304	-	2	-	1	-	-	-	-	-	25	25
7	Electronics Circuits Laboratory	PC-BTE305	-	2	-	1	-	-	-	-	-	25	25
8	Digital Electronics Laboratory	PC-BTE306	-	2	-	1	-	-	-	-	-	25	25
	Total					19							
Value Added Courses													
9	Soft Computing 1	VA-BTE01	-	2	-	0	20	20	100	3	60	--	100
10	Introduction to Python	VA-BTE02	-	2	-	0	20	20	100	3	60	--	100
Non-technical Value Added Courses													
11	Non-technical value added course	VN-BTXXX		2		0	20	20	100	3	60	--	100
Online Courses													
12	Online Course	OL-BTE301	-	-	-	0	-	-	-	-	-	-	-
	TOTAL		**14**	**6**	**2**	**19**							**625**

L: Lecture P: Practical T: Tutorial

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

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

(3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

(4) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.

(5) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(7) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course, the course title shall appear on student's grade card.

(8) 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.

Table GATE MAP

Sr. No.	**Topics from GATE Syllabus**	**Related Core Courses in Electrical Engineering. Semester**
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics

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

Courses Offered for Second Year B.Tech. in Electrical Engineering (Semester IV)
Academic Year 2023-24

Sr. No.	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Theory Courses													
1	Applied Mathematics –IV	BS-BTE401	3	-	1	4	20	20	100	3	60	25	125
2	Analog Circuits	PC-BTE401	3	-	-	3	20	20	100	3	60	-	100
3	Electrical and Electronics Measurements	PC-BTE402	3	-	-	3	20	20	100	3	60	-	100
4	Signals and Systems	PC-BTE403	3	-	-	3	20	20	100	3	60	--	100
5	Microprocessor and Microcontroller	PC-BTE404	3	-	-	3	20	20	100	3	60	-	100
6	Electrical Machines I	PC-BTE405	3	-	-	3	20	20	100	3	60	-	100
Laboratory Courses													
7	Analog Circuits Laboratory	PC-BTE406	-	2	-	1	-	-	-	-	-	25	25
8	Electrical and Electronics Measurements Laboratory	PC-BTE407	-	2	-	1	-	-	-	-	-	25	25
9	Microprocessor and Microcontroller Laboratory	PC-BTE408	-	2	-	1	-	-	-	-	-	25	25
10	Electrical Machines I Laboratory	PC-BTE409	-	2	-	1	-	-	-	-	-	25	25
11	Signals and Systems Laboratory	PC-BTE410	-	2	-	1	-	-	-	-	-	25	25
	Total					24							
Value Added Courses													
10	PLC	VA-BTE03	1	2	--	2	20	20	100	3	60		100
11	Numerical Computations	VA-BTE04	1	2	--	2	20	20	100	3	60	-	100
Non-technical Value Added Courses													
12	Non-technical value added course	VN-BTXXX		2		0	20	20	100	3	60	--	100
Online Courses													
13	Online Course	OL-BTE401	-	-	-	0	-	-	-	-	-	-	-
Mandatory Courses													
14	Indian Traditional Knowledge	MC-BTE002	3	0	0	0	20	20	100	3	60		100
	TOTAL		**21**	**10**	**01**	**24**							**750**

L: Lecture P: Practical T: Tutorial

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

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

(3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

(4) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.

(5) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(7) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course, the course title shall appear on student's grade card.

(8) 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.

Table GATE MAP

Sr. No.	**Topics from GATE Syllabus**	**Related Core Courses in Electrical Engineering. Semester**
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics

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

BVB's Sardar Patel College of Engineering, Mumbai

Department of Electrical Engineering

Credit System

R18

T. Y. B.Tech in Electrical Engineering

Academic Year 2023-2024

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

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

Courses Offered for Third Year B.Tech. in Electrical Engineering (Semester V)

Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Theory Courses													
1	Electromagnetic Fields and Waves	PC-BTE501	3	-	-	3	20	20	100	3	60	--	100
2	Control System	PC-BTE502	3	-	-	3	20	20	100	3	60	-	100
3	Electrical Machines II	PC-BTE503	3	-	--	3	20	20	100	3	60	--	100
4	Power System I	PC-BTE504	3	-	-	3	20	20	100	3	60	-	100
5	Power Electronics	PC-BTE505	3	-	-	3	20	20	100	3	60	--	100
Laboratory Courses													
6	Control System Laboratory	PC-BTE506	-	2	-	1	-	-	-	-	-	25	25
7	Electrical Machines II Laboratory	PC-BTE507	-	2	-	1	-	-	-	-	-	25	25
8	Power Electronics Laboratory	PC-BTE508	-	2	--	1	-	-	-	-	-	25	25
9	Electromagnetic Fields and Waves Laboratory	PC-BTE509	-	2	--	1	-	-	-	-	-	25	25
10	Power System I Laboratory	PC-BTE510	-	2	-	1	-	-	-	-	-	25	25
Professional Electives													
9	PE1	PE-BTE5XX	3	--	1	4	20	20	100	3	60	25	125
	Total					24							
Value Added Courses													
10	Soft Computing I	VA-BTE01	-	2	-	0	20	20	100	3	60	-	100
11	Introduction to Python	VA-BTE02	-	2	-	0	20	20	100	3	60	-	100
12	Finite Element Methods for Electrical Engineering	VA-BTE05	-	2	-	0	20	20	100	3	60	-	100
Non –technical Value Added Courses													
13	Non-technical value added course	VN-BTXX		2		0	20	20	100	3	60	--	100
Online Courses													
14	Online Course	OL-BTE501	-	-	-	0	-	-	-	-	-	-	-
	TOTAL		**18**	**10**	**1**	**24**							**750**

L:Lecture P: Practical T: Tutorial

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

Professional Electives (PE I): PE-BTE501: Digital Signal Processing
PE-BTE502: Computer Architecture

Value Added Courses by Industry

Non-technical value Added Courses

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

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

(10) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

(11) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.

(12) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(14) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course, the course title shall appear on student's grade card.

(15) 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.

Table GATE-MAP

Sr. No.	**Topics from GATE Syllabus**	**Related Core Courses in Electrical Engineering. Semester**
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics

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

Courses Offered for Third Year B.Tech. in Electrical Engineering (Semester VI)

Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Theory Courses													
1	Power System II	PC-BTE601	3	-	1	3	20	20	100	3	60	-	100
2	Switchgear and Protection	PC-BTE602	3	-	-	3	20	20	100	3	60	-	100
Laboratory Courses													
3	Switchgear and Protection Laboratory	PC-BTE603	-	2	-	1	-	-	-	-	-	25	25
4	Electrical Simulation Laboratory	PC-BTE604	-	2	-	1	-	-	-	-	-	25	25
5	Power System II Laboratory	PC-BTE605	-	2	-	1	-	-	-	-	-	25	25
Professional Electives													
5	PE2	PE-BTE6XX	3	--	1	4	20	20	100	3	60	25	125
Open Electives													
6	OE1	OE-BTX6XX	Refer Table OE 1			3	Refer Table OE 1						
7	OE2	OE-BTX6XX	Refer Table OE 2			3	Refer Table OE 2						
	Total					19							
Value Added Courses													
8	PLC	VA-BTE01	-	2	-	0	20	20	100	3	60	-	100
9	Soft computing II ETAP and WAMS	VA-BTE06	-	2	-	0	20	20	100	3	60	-	100
Non-Technical Value Added Courses													
10	Non-technical value added course	VN-BTXXX		2		0	20	20	100	3	60	--	100
Online Courses													
11	Online Course	OL-BTE601	-	-	-	0	-	-	-	-	-	-	-
Mandatory Courses													
12	Environmental Science *	MC-BTE003	3	0	0	0	20	20	100	3	60	-	100
	TOTAL					**19**							

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

L: Lecture P: Practical T: Tutorial
(*): The course MC-BTE003 may be offered by department for its completion in online mode on SWAYAM/NPTEL portal by registering for an equivalent course approved by the department. In such case, student must obtain online course completion certificate for passing the course.

Professional Electives (PE2): PE-BTE601: Electrical Machine Design I
PE-BTE602: Control Systems Design
PE-BTE603: Renewable Energy Sources and Grid Integration

Open Electives: Table OE 1

List of Open Electives (Semester VI) Academic Year 2023-24													
Sr. No	**Course Name**	**Code**	**Course Plan per Week (Hrs)**			**Credits**	**In semester Evaluation (Points)**		**End Semester Evaluation (Points)**		**End semester weightage (%)**	**Term work**	**Total Points**
			L	**P**	**T**		**T-I**	**T-II**	**Points**	**Time (Hrs)**			
1	Project Management	OE-BTE601	3	-	-	3	20	20	100	3	60	-	100
2	Artificial Intelligence	OE-BTE602	3	--	-	3	20	20	100	3	60	-	100
3	Linear Algebra and matrix Computation	OE-BTE605	3	--		3	20	20	100	3	60	-	100

Open Electives: Table OE 2

List of Open Electives (Semester VI) Academic Year 2023-24													
Sr. No	**Course Name**	**Code**	**Course Plan per Week (Hrs)**			**Credits**	**In semester Evaluation (Points)**		**End Semester Evaluation (Points)**		**End semester weightage (%)**	**Term work**	**Total Points**
			L	**P**	**T**		**T-I**	**T-II**	**Points**	**Time (Hrs)**			
1	Communication Engineering	OE-BTE603	3	-	-	3	20	20	100	3	60	-	100
2	VLSI circuits	OE-BTE604	3	--	-	3	20	20	100	3	60	-	100

Value Added Courses by Industry

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

Non-technical value Added Courses

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

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(3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

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(5) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(7) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course, the course title shall appear on student's grade card.

(8) 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.

(9) For Open Elective courses, students with C.P.I. higher than 8.5 can opt for obtaining the credits by completing an online course (approved by department) offered through SWAYAM or NPTEL portal instead of completing elective courses offered by department/institute. Upon successful completion of course, the score given on certificate issued by SWAYAM/NPTEL will be converted to letter grade as per applicable examination regulation.

Table GATE- MAP

Sr. No.	Topics from GATE Syllabus	Related Core Courses in Electrical Engineering. Semester
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics

BVB's Sardar Patel College of Engineering, Mumbai

Department of Electrical Engineering

Credit System

B.Tech in Electrical EngineeringAcademic Year 2023-2024

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

Courses Offered for B.Tech. in Electrical Engineering (Semester VII)
Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
Theory Courses													
1	Electric Drives	PC-BTE701	3	-	-	3	20	20	100	3	60	-	100
Laboratory Courses													
2	Electric Drives Laboratory	PC-BTE702	-	2	-	1	-	-	-	-	-	25	25
Professional Electives													
3	PE3	PE-BTE7XX	3	--	1	4	20	20	100	3	60	25	125
4	PE4	PE-BTE7XX	3	--	1	4	20	20	100	3	60	25	125
Open Electives													
5	OE3	OE-BTX7XX	Refer Table OE 3			3	Refer Table OE 3						
Project													
6	Project Stage 1	PR-BTE701	0	(2+8)$	0	4						50**##	50
	Total					19							
Value Added Courses													
7	Soft Computing I MATLAB/SCILAB	VA-BTE01	-	2	-	0	20	20	100	3	60	-	100
8	Introduction to Python	VA-BTE02	-	2	-	0	20	20	100	3	60	-	100
Non-technical Value Added Courses													
9	Non-technical value added course	VN-BTXXX		2		0	20	20	100	3	60	--	100
Online Courses													
10	Online Course	OL-BTE701	-	-	-	0	-	-	-	-	-	-	-
	TOTAL					**19**							

L: Lecture P: Practical T: Tutorial

Professional Electives: PE3

PE-BTE702	Electrical Machine Design II
PE-BTE703	Design Management and Auditing of Electrical Systems
PE-BTE704	Digital Control Design
PE-BTE709	Electric Vehicle System Design

PE4

PE-BTE705	Restructuring and Deregulation of Power System
PE-BTE706	High Voltage Engineering
PE-BTE707	Power Electronics Applications in Power System
PE-BTE708	Computer Aided Power System Analysis

Open Electives: Table OE 3

List of Open Electives (Semester VII)
Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
1	Computer Network	OE-BTE701	3	-	-	3	20	20	100	3	60	-	100
2	Engineering Economics	OE-BTE702	3	--	-	3	20	20	100	3	60	-	100
3	Embedded System	OE-BTE703	3	--	--	3	20	20	100	3	60	-	100
4	Internet of Things	OE-BTE704	3	--	--	3	20	20	100	3	60	-	100

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

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

(17) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

(18) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.

(19) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(21) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course , the course title shall appear on student's grade card.

(22) 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.

(23) For Open Elective courses, students with C.P.I. higher than 8.5 can opt for obtaining the credits by completing an online course (approved by department) offered through SWAYAM or NPTEL portal instead of completing elective courses offered by department/institute. Upon successful completion of course, the score given on certificate issued by SWAYAM/NPTEL will be converted to letter grade as per applicable examination regulation.

(24) For Project course: $ contact hours = 2 and self-learning hours =8. For project course, in-semester evaluation shall include one or more in-semester presentation. ## Report, ** Presentation and Viva Voce, ** Examined by supervisor and one internal examiner.

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

Table GATE-MAP

Sr. No.	Topics from GATE Syllabus	Related Core Courses in Electrical Engineering. Semester
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics

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

Courses Offered for B.Tech. in Electrical Engineering (Semester VIII) Academic Year 2023-24													
Sr. No	**Course Name**	**Code**	**Course Plan per Week (Hrs)**			**Credits**	**In semester Evaluation (Points)**		**End Semester Evaluation (Points)**		**End semester weightage (%)**	**Term work**	**Total Points**
			L	**P**	**T**		**T-I**	**T-II**	**Points**	**Time (Hrs)**			
Laboratory Courses													
1	Electronic Design Laboratory	PC-BTE801	2	2	-	3	--	--	--		--	50	50
Professional Electives													
2	PE5	PE-BTE8XX	3	--	1	4	20	20	100	3	60	25	125
3	PE6	PE-BTE8XX	3	--	1	4	20	20	100	3	60	25	125
Open Electives													
4	OE4	OE-BTX8XX	Refer Table OE 4			3	Refer Table OE 4						
Project													
5	Project Stage 1I	PR-BTE801	0	(2+14)$	0	7						100**##	100
	Total					21							
Value Added Courses													
6	Soft Computing I MATLAB/SCILAB	VL-BTE01	-	2	-	0	20	20	100	3	60	-	100
7	Introduction to Python	VL-BTE02	-	2	-	0	20	20	100	3	60	-	100
9	Non-technical value added course	VN-BTXXX				0	20	20	100	3	60	--	100
Online Courses													
10	Online Course	OL-BTE801	-	-	-	0	-	-	-	-	-	-	-
	TOTAL					**21**							

L: Lecture P: Practical T: Tutorial

Professional Electives: PE5

PE-BTE801	Power System Dynamics and Control
PE-BTE804	Power Quality and FACTS
PE-BTE806	Industrial Automation
PE-BTE808	Advanced Techniques in Power System Protection

PE6

PE-BTE802	Smart Grid
PE-BTE803	HVDC Transmission System
PE-BTE805	Advanced Electric Drives
PE-BTE807	Industrial Electrical Systems
PE-BTE809	Non-linear control system

Open Electives: Table OE 4

List of Open Electives (Semester VIII)
Academic Year 2023-24

Sr. No	Course Name	Code	Course Plan per Week (Hrs)			Credits	In semester Evaluation (Points)		End Semester Evaluation (Points)		End semester weightage (%)	Term work	Total Points
			L	P	T		T-I	T-II	Points	Time (Hrs)			
1	Robotics	OE-BTE801	3	-	-	3	20	20	100	3	60	-	100
2	Power Plant Engineering	OE-BTE802	3	--	-	3	20	20	100	3	60	-	100
3	Electrical Engineering Materials	OE-BTE803	3	--	--	3	20	20	100	3	60	-	100
4	Medical Electronics	OE-BTE804	3	--	--	3	20	20	100	3	60	-	100
5	Image Processing	OE-BTE805	3	--	--	3	20	20	100	3	60	-	100

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

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

(3) Assessment criteria for laboratory/Tutorial work. i.e. weightage for assessment shall be as follows: i) Attendance in Laboratory/Tutorial = 20%, (ii) Journal= 40%, (iii) Practical Examination (and/or) Mini project (and/or) Quiz (and/or) Seminar (and/or) Oral (and/or) Industry visit report= 40%.

(4) Student can opt for an online course available on https://swayam.gov.in/ or https://onlinecourses.nptel.ac.in/ subject to approval from the department. After successful completion of the course, the course title can appear on the grade card of student.

(5) The Mandatory courses are with Pass (P) and No Pass (NP) grades

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

(7) Students can optionally opt for Non-Technical Value Added courses offered by Center for Continuing Education (CCE-SPCE) . Upon successful completion of the course , the course title shall appear on student's grade card.

(8) 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.

(9) For Project course: $ contact hours = 2 and self-learning hours =8. For project course, in-semester evaluation shall include one or more in-semester presentation. ## Report, ** Presentation and Viva Voce, ** Examined by supervisor and one internal examiner.

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

Table GATE-MAP

Sr. No.	Topics from GATE Syllabus	Related Core Courses in Electrical Engineering. Semester
1	Section 1 Engineering Mathematics	Applied Mathematics I, II, III,IV
2	Section 2 Electric Circuits	Electrical Networks
3	Section 3 Electromagnetic Fields	Electromagnetic Fields and Waves
4	Section 4 Signals and Systems	Signals and Systems
5	Section 5 Electrical Machines	Electrical Machines I and II
6	Section 6 Power Systems	Power System I and II
7	Section 7 Control Systems	Control System
8	Section 8 Electrical and Electronic Measurements	Electrical and Electronics Measurements
9	Section 9 Analog and Digital Electronics	Electronic Circuits, Digital Electronics, Analog Circuits
10	Section 10 Power Electronics	Power Electronics