

SCHEME & SYLLABUS

B. Tech (Electrical Engineering)

Choice Based Credit System



Department of Electrical Engineering
University Institute of Engineering and Technology
Sant Baba Bhag Singh University
2026

Course Scheme for B. Tech (Electrical Engineering)

SEMESTER-I

I. Theory Subjects (including Non- Credit Courses)

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	BS	CHM105	Engineering Chemistry	3	1	0	3	1	0	4	4
2.	BS	MAT171	Engineering Mathematics-I	4	0	0	4	0	0	4	4
3.	ES	ME101	Engineering Graphics and Design	2	0	4	2	0	2	6	4
4.	ES	EE102	Basic Electrical Engineering	4	0	0	4	0	0	4	4
5.	AEC	AEC0010	Communication Skills-I	2	0	0	2	0	0	2	2

II. Practical Subjects

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
6	BS	CHM107	Engineering Chemistry Practical	0	0	2	0	0	1	2	1
7.	ES	EE104	Basic Electrical Engineering Laboratory	0	0	2	0	0	1	2	1
8.	PT	PT101/ PT103/ PT105/	Physical Training-I (Sports and Yoga/NCC/NSS)	0	0	2	NC			2	NC
9.	EMC	EMC105	Entrepreneurship Mindset Curriculum-I	0	0	4	0	0	2	4	2

Total Contact Hours = 30

Total Credit Hours = 22

SEMESTER-II**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	ES	CSE111	Introduction to Programming in C	3	0	0	3	0	0	3	3
2.	BS	MAT172	Engineering Mathematics-II	4	0	0	4	0	0	4	4
3.	BS	PHY115	Engineering Physics	4	0	0	4	0	0	4	4
4.	VAC	EVS002	Environmental Sciences	3	0	0	NC			3	NC
5.	MDC	MDC023	Indian Knowledge System	3	0	0	3	0	0	3	3

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
6.	ES	CSE113	Programming in C Practical	0	0	2	0	0	1	2	1
7.	BS	PHY107	Engineering Physics Practical	0	0	2	0	0	1	2	1
8.	SEC	ME105	Workshop/ Manufacturing Practices Practical	0	0	6	0	0	3	6	3
9.	PT	PT102/ PT104/ PT106	Physical Training-II (Sports and Yoga/NCC/NSS)	0	0	2	NC			2	NC
10.	EMC	EMC112	Entrepreneurship Mindset Curriculum -II	0	0	4	0	0	2	4	2

Total Contact Hours = 33**Total Credit Hours = 21**

Note:- Students have to undergo a 4-week industrial/ institutional training after completion of the 2nd semester. Evaluation will be done in 3rd semester.

SEMESTER III**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PC	EE215	Electrical Circuit Analysis	3	0	0	3	0	0	3	3
2.	PC	EE217	Analog Electronics Circuits	3	0	0	3	0	0	3	3
3.	PC	EE219	Electrical Machines-I	3	0	0	3	0	0	3	3
4.	PC	EE221	Electromagnetic Fields	3	0	0	3	0	0	3	3
5.	ES	EE227	Basic Electronics Engineering	3	0	0	3	0	0	3	3
6.	BS	MAT271	Engineering Mathematics-III	3	1	0	3	1	0	4	4
7.	AEC	AEC0015	Effective Technical Communication Skills	2	0	0	2	0	0	2	2
8.	SI	EE229	Summer Internship undertaken after 2nd semester						3		3

II. Practical Subjects

S. No	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
9.	PC	EE223	Analog Electronics Circuits Laboratory	0	0	2	0	0	1	2	1
10.	PC	EE225	Electrical Machines-I Laboratory	0	0	2	0	0	1	2	1
11.	MC	PT201/ PT203/ PT205	Physical Training-III (Sports and Yoga /NCC/NSS)	0	0	2	NC			2	NC
12.	EMC	EMC205	Entrepreneurship Mindset Curriculum (EMC)-III: Business Model Canvas	0	0	4	0	0	2	4	2

Total Contact Hours = 31**Total Credit Hours = 28**

SEMESTER IV**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PC	EE216	Digital Electronics	3	0	0	3	0	0	3	3
2.	PC	EE218	Electrical Machines-II	3	0	0	3	0	0	3	3
3.	PC	EE220	Power Electronics	3	0	0	3	0	0	3	3
4.	PC	EE222	Signals and Systems	3	0	0	3	0	0	3	3
5.	MDC	MDC019	Universal Human Values: Understanding Harmony	3	0	0	3	0	0	3	3
6.	PC	EE230	Measurements and Instrumentation	2	0	0	2	0	0	2	2

II. Practical Subjects

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
7.	PC	EE224	Digital Electronics Laboratory	0	0	2	0	0	1	2	1
8.	PC	EE226	Electrical Machines-II Laboratory	0	0	2	0	0	1	2	1
9.	PC	EE228	Power Electronics Laboratory	0	0	2	0	0	1	2	1
10.	PC	EE232	Measurements and Instrumentation Laboratory	0	0	2	0	0	1	2	1
11.	MC	PT202/ PT204/ PT206	Physical Training-IV (Sports and Yoga/ NCC/ NSS)	0	0	2	NC			2	NC
12.	EMC	EMC206	Entrepreneurship Mindset Curriculum (EMC)-IV: Prototyping	0	0	4	0	0	2	4	2

Total Contact Hours =31**Total Credit Hours =23**

Note:- Students have to undergo a 4-week industrial/ institutional training after completion of the 4th semester. Evaluation will be done in 5th semester.

SEMESTER V**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PC	EE319	Power Systems-I (Apparatus and Modelling)	3	0	0	3	0	0	3	3
2.	PC	EE321	Control Systems	3	0	0	3	0	0	3	3
3.	PC	EE323	Microprocessors	3	0	0	3	0	0	3	3
4.	PE		Professional Elective-I	3	0	0	3	0	0	3	3
5.	OE		Open Elective-I	3	0	0	3	0	0	3	3
6.	MC	LAW005	Constitution of India	3	0	0	NC			3	NC
7.	MDC	MDC018	Gender, Culture and Development	3	0	0	3	0	0	3	3
8.	SI	EE339	Summer Internship undertaken after 4 th semester						3		3

II. Practical Subjects

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
9.	PC	EE325	Power Systems-I Laboratory	0	0	2	0	0	1	2	1
10.	PC	EE327	Control Systems Laboratory	0	0	2	0	0	1	2	1
11.	PC	EE329	Microprocessors Laboratory	0	0	2	0	0	1	2	1
12.	MC	PT301/303/305	Physical Training-V (NSO/NCC/NSS)	0	0	2	NC			2	NC
13.	EMC	EMC305	Entrepreneurship Mindset Curriculum (EMC)-V: Legal Procedures	0	0	4	0	0	2	4	2

III. Professional Elective-I

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE331	Electrical Machine Design	3	0	0	3	0	0	3	3
2.	PE	EE333	Foundation of Artificial Intelligence	3	0	0	3	0	0	3	3
3.	PE	EE341	Sensors and Actuators	3	0	0	3	0	0	3	3
4.	PE	EE343	Electrical Safety	3	0	0	3	0	0	3	3
5.	PE	EE345	Estimation and Costing in Electrical Engineering	3	0	0	3	0	0	3	3

Total Contact Hours = 33**Total Credit Hours = 26**

SEMESTER VI**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PC	EE330	Power Systems-II (Operation and Control)	3	0	0	3	0	0	3	3
2.	PC	EE334	Microcontroller	3	0	0	3	0	0	3	3
3.	PE		Professional Elective-II	3	0	0	3	0	0	3	3
4.	PE		Professional Elective-III	3	0	0	3	0	0	3	3
5.	OE		Open Elective-II	3	0	0	3	0	0	3	3
6.	HS	MGT007	Organizational Behaviour	3	0	0	3	0	0	3	3

II. Practical Subjects

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
7.	PC	EE336	Power Systems-II Laboratory	0	0	2	0	0	1	2	1
8.	PC	EE358	Microcontroller Laboratory	0	0	2	0	0	1	2	1
9.	PC	EE340	Electronics Design Laboratory	1	0	4	1	0	2	5	3
10.	MC	PT302/PT304/PT306	Physical Training-VI (NSO/NCC/NSS)	0	0	2	NC			2	NC
11.	EMC	EMC306	Entrepreneurship Mindset Curriculum (EMC)-VI: Plan Execution	0	0	4	0	0	2	4	2

III. Professional Elective-II

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE342	Control Systems Design	3	0	0	3	0	0	3	3
2.	PE	EE344	Power System Protection	3	0	0	3	0	0	3	3
3.	PE	EE346	Line Commutated and Active Rectifiers	3	0	0	3	0	0	3	3
4.	PE	EE354	Data Acquisition and Telemetry	3	0	0	3	0	0	3	3
5.	PE	EE360	Energy Storage Systems	3	0	0	3	0	0	3	3
6.	PE	EE362	Robotics and Automation	3	0	0	3	0	0	3	3

IV. Professional Elective-III

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE348	Computer Architecture	3	0	0	3	0	0	3	3

2.	PE	EE350	Computational Electromagnetics	3	0	0	3	0	0	3	3
3.	PE	EE352	Electromagnetic Waves	3	0	0	3	0	0	3	3
4.	PE	EE356	Biomedical Instrumentation	3	0	0	3	0	0	3	3

Total Contact Hours = 33

Total Credit Hours = 25

Note:- Students have to undergo a 4 week industrial/institutional training after completion of the 6th semester. Evaluation will be done in 7th semester



SEMESTER VII**I. Theory Subjects (including Non- Credit Courses)**

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE		Professional Elective – IV	3	0	0	3	0	0	3	3
2.	PE		Professional Elective – V	3	0	0	3	0	0	3	3
3.	PE		Professional Elective – VI	3	0	0	3	0	0	3	3
4.	OE		Open Elective – III	3	0	0	3	0	0	3	3
5.	SI	EE411	Summer Internship undertaken after 6 th semester						3		3

II. Practical Subjects

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
6.	PROJ	EE413	Project Work	0	0	6	0	0	3	6	3
7.	EMC	EMC405	Entrepreneurship Mindset Curriculum (EMC)-VII: Growth	0	0	4	0	0	2	4	2

III. Professional Elective-IV

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE415	Wind and Solar Energy Systems	3	0	0	3	0	0	3	3
2.	PE	EE417	HVDC Transmission Systems	3	0	0	3	0	0	3	3
3.	PE	EE419	Power Quality and FACTS	3	0	0	3	0	0	3	3
4.	PE	EE421	High Voltage Engineering	3	0	0	3	0	0	3	3
5.	PE	EE451	DSP based Control of Drives	3	0	0	3	0	0	3	3
6.	PE	EE443	Smart Grid	3	0	0	3	0	0	3	3

IV. Professional Elective-V

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE423	Digital Control Systems	3	0	0	3	0	0	3	3
2.	PE	EE425	Electrical Energy Conservation and Auditing	3	0	0	3	0	0	3	3
3.	PE	EE427	Industrial Electrical Systems	3	0	0	3	0	0	3	3
4.	PE	EE429	Electrical Drives	3	0	0	3	0	0	3	3
5.	PE	EE439	Optimization Techniques	3	0	0	3	0	0	3	3
6.	PE	EE447	PLC & SCADA	3	0	0	3	0	0	3	3
7.	PE	EE449	Power Generation and Economics	3	0	0	3	0	0	3	3

V. Professional Elective-VI

S. No.	Type	Subject Code	Subject Name	Contact Hours			Credits			Total Contact Hours	Total Credit Hours
				L	T	P	L	T	P		
1.	PE	EE431	Digital Signal Processing	3	0	0	3	0	0	3	3
2.	PE	EE433	Electrical and Hybrid Vehicles	3	0	0	3	0	0	3	3
3.	PE	EE435	Power System Dynamics and Control	3	0	0	3	0	0	3	3
4.	PE	EE437	Advanced Electric Drives	3	0	0	3	0	0	3	3
5.	PE	EE441	Instrumentation in Power System	3	0	0	3	0	0	3	3
6.	PE	EE445	Distributed Generation	3	0	0	3	0	0	3	3

Total Contact Hours = 22**Total Credit Hours = 20**

SEMESTER VIII**II. Practical Subjects**

S. No.	Type	Subject Code	Subject Name	Credits			Total Credit Hours
				L	T	P	
1.	SI	EE416	Six Months Industrial Training	0	0	20	20

Total Credit Hours = 20**Total Credits=185**

DETAILS OF B. TECH (EE) COURSES

Course	Credit			Total
	Lecture	Tutorial	Practical	
	(#Subject * Credit)	(#Tutorial * Credit)	(#Practical * Credit)	
I. PC	13x3=39 1x2=2		11x1=11 1x3=3	55
II. PE	6x3=18			18
III. ES	2x4=8 2x3=6		2x1=2 1x2=2	18
IV. BS	2x2=4 3x4=12	2x1=2	2x1=2	20
V. HS	1x3=3			3
VI. OE	3x3=9			9
VII. SI			3x3=9 1x20=20	29
VIII. AEC	2x2=4			4
IX. VAC				
X. MDC	3x3=9			9
XI. SEC			1x3=3	3
XII. EMC			7x2=14	14
XII. PROJ			1x3=3	3
Total				185

SUMMARY OF SCHEME

Sem	L	T	P	Contact hrs/wk	Credits	HS	BS	ES	PC	PE	OE	Project	SI	MDC	AEC	VAC	SEC	EMC	MC
1	15	1	14	30	22		9	9							2			2	1unit(NC)
2	17	0	16	35	21		11	4						3			3	2	1unit(NC)
3	20	1	10	31	28		4	3	14				3		2			2	1unit(NC)
4	17	0	14	31	23				18					3				2	1unit(NC)
5	21	0	12	33	26				12	3	3		3	3				2	2units(NC)
6	19	0	14	33	25	3			11	6	3							2	1unit(NC)
7	12	0	10	22	20					9	3	3	3					2	
8	0	0	40	40	20								20						
Total	121	2	130	255	185	3	24	16	55	18	9	3	29	9	4	0	3	14	7units(NC)