JSPM's
RAJARSHI SHAHU COLLEGE OF ENGINEERING
TATHAWADE, PUNE-33
(An Autonomous Institute Affiliated to Savitribai Phule Pune University, Pune)

DEPARTMENT OF ELECTRICAL ENGINEERING

Department of Electrical Engineering
T.Y. B. Tech Structure
(2023 Pattern)
W.E.F 2025-26

DEPARTMENT OF ELECTRICAL ENGINEERING

Vision

To develop globally competent Electrical Engineers by providing an Industry oriented academic environment that inculcates professional skills and ethics for techno social benefits .

Mission

- To Transform students into successful professionals by inculcating comprehensive knowledge of Electrical Engineering
- To develop a conducive environment through creativity, innovation and industry institute interactions.
- To encourage and enable students for higher education , research and entrepreneurship.

Dr. S. L. Chavan
BOS Chairman (Electrical)

Dr. A. M. Badadhe
Dean Academics

Dr. S. P. Bhosle
Director RSCOE, Pune

DEPARTMENT OF ELECTRICAL ENGINEERING

Program Outcomes (POs)

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practices.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

At the end of this program, students will develop-
PSO1: To train students for identifying, analyzing, designing and providing solution related to control of electrical and electronic system using modern tool**.**
PSO2: To include professional ethics, teamwork, and multi-disciplinary approach for the benefits of society.
PSO3: To prepare students for applying knowledge in solving and managing challenges related to industry and entrepreneurship.

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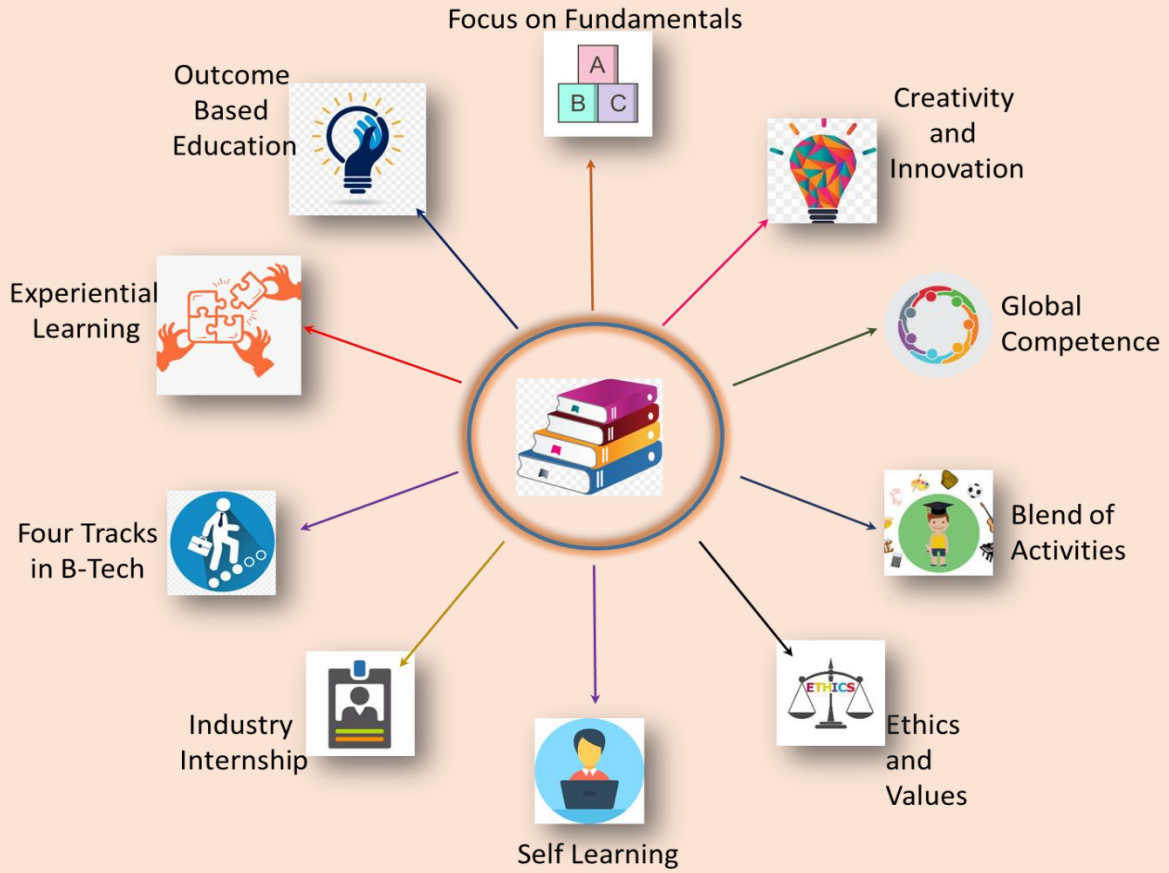
DEPARTMENT OF ELECTRICAL ENGINEERING

Highlights of the Syllabus

The Curriculum of UG Program of **Electrical Engineering** has been designed in association with **Indian Institute of Technology, Ropar** and **Experts from Academics, industries / Corporate & Distinguish Alumni.** Major features of the curriculum are presented in the following diagram.



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Unique Features of the Curriculum

1. **Curriculum centered at Outcome Based Education:**
   The new Curriculum is based on student-centered instruction models that focus on measuring student performance through outcomes. The outcomes include subject knowledge, industry required skills and attitudes.
2. **Emphasize on Fundamentals:**
   The nature of the new curriculum is rigorous and well prescribed so that the students can spend more time on preparation and self-study. The students have to learn core subjects, solve practical based assignments and must attempt periodical quizzes. This will benefit them to grasp and keep a strong hold on fundamentals of Engineering in the most effective way.
3. **Experiential Learning:**
   The curriculum emphasizes on hands-on sessions along with theoretical information. The new curriculum considers Problem Based Learning (PBL) as a teaching pedagogy and includes different subjects that encourage the students for hands on learning through virtual labs, mini-projects, etc. Accordingly, the curriculum maintains good balance between theory and laboratory credits.
4. **Promote Creativity and Innovation:**
   Along with experiential learning, the curriculum also motivates the students to inculcate creativity and innovation. Apart from conventional lab, the curriculum provides a freedom for students to perform industry assignments, pilot projects, innovative development, etc.
5. **Inculcating Ethics and Values:**
   To improvise student's behaviour, the curriculum has included systematic courses on ethics and values. The moral principles can help students to make right decisions, lead their professional lives and become ethical citizen.
6. **Blend of Curricular and Extracurricular Activities**
   The curriculum also gives importance of different activities like co-curricular, extra-curricular, sports, culture, etc. This will help to do all round development of students in all possible ways.
7. **Four Tracks in B-Tech:**
   By offering various courses/electives, flexibility in choosing work in specified field as:
   I. Industry Internship II. Entrepreneur
   III. Higher Studies and Research

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Department of Electrical Engineering

Course Type Abbreviations

BSC: Basic Science Course

ESC: Engineering Science Course

PCC: Programme Core Course

PEC: Programme Elective Course

MD M: Multidisciplinary Minor

OE: Open Elective

VSEC: Vocational and Skill Enhancement Course

HSSM: Humanities Social Science and Management

AEC: Ability Enhancement Course

IKS: Indian Knowledge System

VEC: Value Education Course

CEP: Comm. Engg. Project

FP: Field Project

CC: Co-curricular Courses

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T. Y. B. Tech (Electrical Engineering)
Academic Year -2025-2026 (Semester –V)
Proposed Structure Semester –V
(Level 5- UG-Diploma/ Diploma-Eng)- Semester –V

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr	C	ISE	MSE	ESE		
PCC	EE3201T	Power System analysis	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE3201L	Power System analysis Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
PCC	EE3202T	Control Systems	2	-	-	2	2	20	30	50	100	Electrical
PCC	EE3202L	Control Systems Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
PCC	EE3203T	Electrical Machines-II	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE3203L	Electrical Machines-II Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
PEC	EE3204T	Professional Elective-I	3	-	-	3	3	20	30	50	100	Electrical
PEC	EE3204L	Professional Elective-I Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
OE	EEO3201T	Open Elective -I	3	-	-	3	3	20	30	50	100	Electrical
MDM	EEM3201T	Multidisciplinary Minor - II	3	-	-	3	3	20	30	50	100	Other Department
MDM	EEM3201L	Multidisciplinary Minor – II Laboratory	-	-	2	2	1	ISCE: 30		20	50	Other Department
	Total		17		10	27	22			400	850	

L – Lecture, T – Tutorial, P – Practical, Hr – Hours, C – Credits, TuT – Tutorial, ISE – In Semester Evaluation, MSE – Mid Semester Evaluation, ESE – End Semester Evaluation

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Notes:

1. For Theory courses: There shall be MSE, ISE and ESE. The ESE is a separate head of passing.
2. For Lab courses: There shall be continuous assessment (ISCE consists of ISE and MSE). The ESE is a separate head of passing.

Professional Elective-I (Theory)	
Course Code	**Title**
EE3204T-A	Signals and Systems
EE3204T-B	Introduction to Electric Vehicle
EE3204T-C	Electro-magnetic
EE3204T-D	Energy audit and demand side management

Professional Elective-I (Laboratory)	
Course Code	**Title**
EE3204L-A	Signals and Systems Laboratory
EE3204L-B	Introduction to Electric Vehicle Laboratory
EE3204L-C	Electro-magnetic Laboratory
EE3204L-D	Energy audit and demand side Management Laboratory

Open Elective–I (Offered to other Department)

Open Elective–I	
Course Code	**Title**
EEO3201T	Electric and Hybrid Vehicle Technology

Multi-disciplinary Minor – II (Offered to other Department)

Course Code	Multi-disciplinary Minor - II
EEM3201T	Renewable energy Sources
EEM3201L	Renewable energy Sources Laboratory

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T. Y. B. Tech (Electrical Engineering)
Academic Year -2025-2026 (Semester –VI)
Proposed Structure Semester –VI
(Level 5- UG-Diploma/ Diploma-Eng)- Semester –VI

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr	C	ISE	MSE	ESE		
PCC	**EE3205T**	Power System operation and control	3	-	-	3	**3**	20	30	50	**100**	Electrical
PCC	**EE3205L**	Power System operation and control Laboratory	-	-	2	2	**1**	ISCE: 30		20	**50**	Electrical -
PCE	**EE3206T**	Professional Elective-II	3	-	-	3	**3**	20	30	50	**100**	Electrical
PCE	**EE3207T**	Professional Elective-III	3	-	-	3	**3**	20	30	50	**100**	Electrical
PCE	**EE3207L**	Professional Elective-III Laboratory			2	2	**1**	ISCE: 30		20	**50**	Electrical
PCC	**EE3208L**	PLC and SCADA Lab	-	2	2	2	**2**	ISCE: 60		40	**100**	Electrical
OE	**EEO3202T**	Open Elective-II	3	-	-	3	**3**	20	30	50	**100**	Other Department
CEP	**EE3209**	Project stage I	-	-	4	4	**2**	ISCE: 60		40	**100**	Electrical
CC	**EE3210**	Co-curricular Courses	-	-	-	2	**1**	ISCE: 50		-	**50**	Electrical
MDM	**EEM3202T**	Multidisciplinary Minor – III	3	-	-	3	**3**	20	30	50	**100**	Electrical
	Total		**15**	**-**	**10**	**27**	**22**			**370**	**850**	

L – Lecture, T – Tutorial, P – Practical, Hr – Hours, C – Credits, TuT – Tutorial, ISE – In Semester Evaluation, MSE – Mid Semester Evaluation, ESE – End Semester Evaluation

Notes:

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Department of Electrical Engineering

	Professional Elective-II		Professional Elective-III
Course Code	**Title**	**Course Code**	**Title**
EE3206T- A	Electrical Installation, Maintenance and Testing	**EE3207T- A**	Wind and Solar systems
EE3206T-B	High Voltage Engineering	**EE3207T-B**	Digital signal Processing
EE3206T-C	Industrial Management	**EE3207T-C**	Robotics and Automation
EE3206T-D	Introduction to smart grid	**EE3207T-D**	Electric Vehicle Technology

Professional Elective-III Laboratory	
Course Code	**Title**
EE3207L- A	Wind and Solar systems Laboratory
EE3207L-B	Digital signal Processing Laboratory
EE3207L-C	Robotics and Automation Laboratory b
EE3207L-D	Electric Vehicle Technology Laboratory

Open Elective–II (Offered to other Department)

Course Code	Open Elective–II
EEO3202T	**Introduction to Wind and Solar Energy System**

Multi-disciplinary Minor – III (Offered to other Department)

Course Code	Multi-disciplinary Minor - III
EEM3202T	Electric and Hybrid vehicle

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Department of Electrical Engineering

List of Exit Courses after completion of Semester V and VI

1. Exit option is available for students those who have earned the total 132 credits at the End of sixth Semester.
2. Student who wants to avail the exit option after third year have to earn additional 8 credits from the list of courses shown below.
3. These courses student have to complete within summer vacation after 3rd Year.
4. After fulfillment as mentioned in 1 to 3 above, Students can earn **B.Voc./ B.Sc. Engg** and same will be issued by the Institute.

Sr. No.	Course code	Name	Credits
1.	EX-EE3201	Certificate course in Programming in MATLAB for Electrical Engineers	2
2.	EX-EE3202	Certificate course in substation and grounding	2
3.	EX-EE3203	Certificate course in Programmable Logic Controller(PLC)	2
4.	EX-EE3204	Certificate course in Solar Energy Technology	2
5.	EX-EE3205	Certificate course in Electrical AUTOCAD	2
6.	EX-EE3206	Certificate course in Modeling and Simulation for Electrical Engineering	2

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DEPARTMENT OF ELECTRICAL ENGINEERING

Department of Electrical Engineering
Final year B. Tech Structure
(2023 Pattern)
W.E.F 2026-27

DEPARTMENT OF ELECTRICAL ENGINEERING

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DEPARTMENT OF ELECTRICAL ENGINEERING

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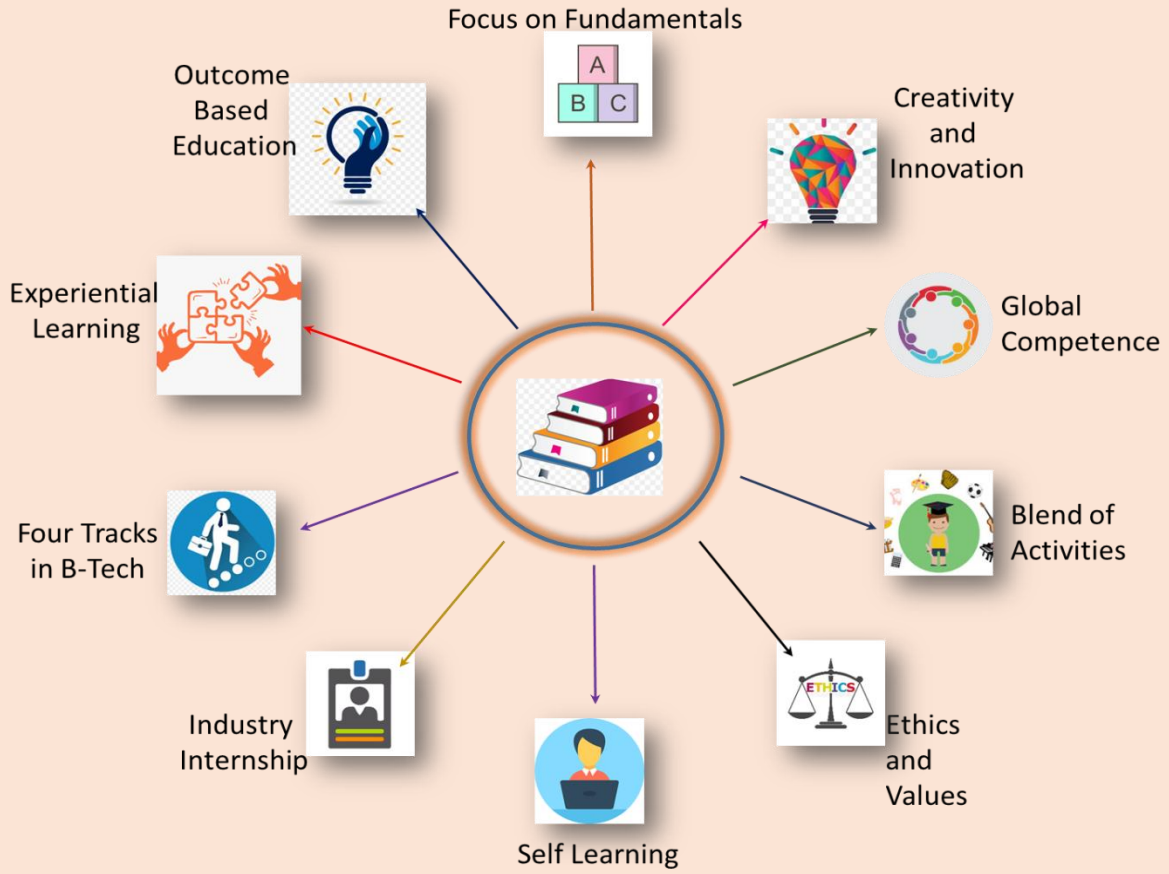

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Unique Features of the Curriculum

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Department of Electrical Engineering

Course Type Abbreviations

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Final Year B. Tech (Electrical Engineering)
Academic Year -2026-2027 (Semester –VII)
Proposed Structure Semester –VII
(Level 5- UG-Diploma/ Diploma-Eng)- Semester –VII

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr.	C	ISE	MSE	ESE		
PCC	EE4201T	Switchgear and protection	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE4201L	Switchgear and protection Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
PEC	EE4202T	Professional Elective-IV	3	-	-	3	3	20	30	50	100	Electrical
PEC	EE4202L	Professional Elective-IV Laboratory	--	-	2	2	1	ISCE: 30		20	50	Electrical
PCC	EE4203T	Electric Drives & Control	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE4203L	Electric Drives & Control Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
HSSM	EE4204T	Industrial Psychology	2	-	-	2	2	20	30	50	100	Electrical
CEP	EE4205	Project Stage II	-	-	8	8	4	-	-	-	200	Electrical
MDM		Multidisciplinary Minor – IV	3	-	-	3	3	20	30	50	100	Other Department
MDM		Multidisciplinary Minor – IV Laboratory	-	-	2	2	1	ISCE: 30		20	50	Other Department
		Total	**14**	**-**	**16**	**30**	**22**	-	-	**330**	**900**	

L – Lecture, T – Tutorial, P – Practical, Hr. – Hours, C – Credits, TuT. – Tutorial, ISE – In Semester Evaluation, MSE – Mid Semester Evaluation, ESE – End Semester Evaluation

Notes:

1. For Theory courses: There shall be MSE, ISE and ESE. The ESE is a separate head of passing.
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DEPARTMENT OF ELECTRICAL ENGINEERING

Course Code	Professional Elective-IV
EE4202T -A	Power Quality
EE4202T -B	Advance Power Electronics
EE4202T -C	Advanced Control Systems
EE4202T -D	HVDC and FACTs

Course Code	Professional Elective-IV lab
E4202L-A	Power Quality Laboratory
E4202L-B	Advance Power Electronics Laboratory
E4202L-C	Advanced Control Systems Laboratory
E4202L-D	HVDC and FACTs Laboratory

Multi-disciplinary Minor – IV (Offered to other Department)

Course Code	Multi-disciplinary Minor - IV
EEM4201T	Energy audit and management

Multi-disciplinary Minor – IV Lab (Offered to other Department)

Course Code	Multi-disciplinary Minor – IV Lab
EEM4201L	Energy audit and management laboratory

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Final Year B. Tech (Electrical Engineering)
Academic Year -2026-2027 (Semester –VIII)
Proposed Structure Semester –VIII
(Level 5- UG-Diploma/ Diploma-Eng)- Semester –VIII
Track I - (Regular Track)

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr.	C	ISE	MSE	ESE		
PEC	EE4207T	Professional Elective -V	3	-	-	3	3	20	30	50	100	Electrical
PEC	EE4207L	Professional Elective –V Lab	-	-	2	2	1	ISCE: 30		20	50	Electrical
RM	EE4208T	Research Methodology	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE4207T	Distributed Generation and Microgrid	3	-	-	3	3	20	30	50	100	Electrical
VSEC		Skill Based Course (NPTEL, MOOC etc.)	2	-	-	-	2	-	-	-	100	Electrical
VSEC		Skill Based Course (NPTEL, MOOC etc.)	2	-	-	-	2	-	-	-	100	Electrical
CEP	EE4208	Comprehensive Evaluation	-	-	4	2	2	-	-	-	100	Electrical
	Total		13	-	6	13	16			170	650	

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Notes:

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Professional Elective –V (Theory)	
Course Code	**Title**
EE4207T-A	Computer aided design in power system
EE4207T -B	Energy storage systems
EE4207T -C	Automotive Electronics
EE4207T -D	Electric Vehicle Battery management system

Professional Elective –V (Lab)	
Course Code	**Title**
EE4207L-A	Computer aided design in power system Laboratory
EE4207L -B	Energy storage systems Laboratory
EE4207L -C	Automotive Electronics Laboratory
EE4207L -D	Electric Vehicle Battery management system

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JSPM's
RAJARSHI SHAHU COLLEGE OF ENGINEERING
TATHAWADE, PUNE-33
(An Autonomous Institute Affiliated to Savitribai Phule Pune University, Pune)

Final Year B. Tech (Electrical Engineering)

Academic Year -2026-2027 (Semester –VIII)

Proposed Structure Semester –VIII

(Level 5- UG-Diploma/ Diploma-Eng)- Semester –VIII

Track II -Internship Track/ Start-up / Training

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr.	C	ISE	MSE	ESE		
Internship	**EE4209**	Industrial Internship /Start-up / Training	-	-	24	**24**	**12**	-	-	450	**450**	Electrical
VSEC		Skill Based Course (NPTEL, MOOC etc.)	-	-	-		**2**	-	-	-	**100**	Electrical
CEP	**EE4208**	Comprehensive Evaluation	-	-	-		**2**	-	-	-	**100**	Electrical
	Total		-	-	**24**	**24**	**16**	-	-	-	**650**	

Abbreviations:

L – Lecture, T – Tutorial, P – Practical, Hr – Hours, C – Credits, TuT – Tutorial, ISE – In Semester Evaluation, MSE – Mid Semester Evaluation, ESE – End Semester Evaluation

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