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	Dr. Ram Joshi	Dr. R. K. Jain
BOS Chairman (Electrical)	Dean Academics	Director RSCOE, Pune

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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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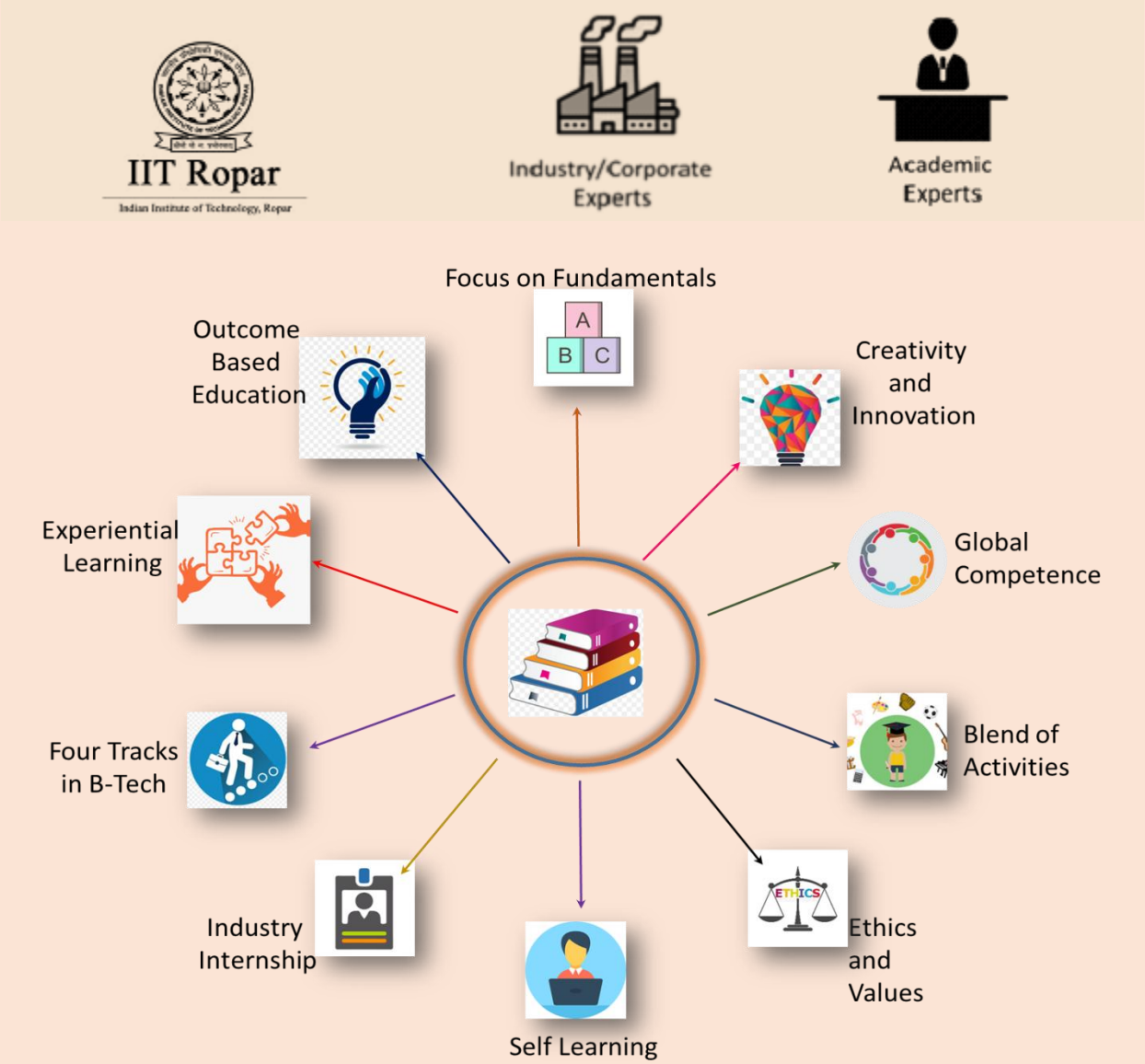
Highlights of the Syllabus

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

Course	Course Code	Course Title	Teaching Plan				Credit	Examination Scheme				Total Marks	Ownership
			L	T	P	Hr.	C	ISE	MSE	ESE	TW		
BSC	ES2204T	Engineering Mathematics- III	3	1	-	4	4	20	30	50	50	150	Mathematics
PCC	EE2201T	Analog and Digital Circuits	3	-	-	3	3	20	30	50		100	Electrical
PCC	EE2201L	Analog and Digital Circuits Laboratory	-	-	2	2	1	ISCE: 30		20		50	Electrical
PCC	EE2202T	PIC Microcontroller	3	-	-	3	3	20	30	50		100	Electrical
PCC	EE2202L	PIC Microcontroller Laboratory	-	-	2	2	1	ISCE: 30		20		50	Electrical
PCC	EE2203T	Network Analysis	3	-	-	3	3	20	30	50		100	Electrical
PCC	EE2204L	Electrical Measurement and Instrumentation Laboratory	-	-	2	2	1	ISCE: 30		20		50	Electrical
PCC	EE2205L	Tinkering Laboratory	-	-	2	2	1	ISCE: 30		20		50	Electrical
ESC	ES2206T	Environment Science and Engineering	2	-		2	2	20	30	50		100	Humanities
PCC	EE2206T	Innovation and Entrepreneurship	2	-		2	2	20	30	50		100	Electrical
VSEC	HS2206L	Soft Skills	-	-	2	2	1	ISCE: 30		20		50	Electrical
	Total		16	1	10	27	22	450		400	50	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.
2. For Lab courses: There shall be continuous assessment (ISCE consists of ISE and MSE). The ESE is a separate head of passing.

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

Course	Course Code	Course	Teaching Plan				Credit	Examination Scheme			Total Marks	Ownership
			L	T	P	Hr.	C	ISE	MSE	ESE		
PCC	EE2207T	Introduction to power system	3		-	3	3	20	30	50	100	Electrical
PCC	EE2208T	Electrical Machines-I	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE2208L	Electrical Machines-I Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
PCC	EE2209T	Power Electronics	3	-	-	3	3	20	30	50	100	Electrical
PCC	EE2209L	Power Electronics Laboratory	-	-	2	2	1	ISCE: 30		20	50	Electrical
HSSM	HS2205T	Economics	2	-	-	2	2	20	30	50	100	Humanities
VEC	HS2203T	Universal values and Ethics	2	-	-	2	2	20	30	50	100	Humanities
VSEC	EE2210L	Introduction to Python Programming & Data Science Laboratory	-	-	4	4	2	ISCE: 60		40	100	Electrical
CEP	EE2211L	Engineering design and Innovation	-	-	2	2	1	ISCE: 50		-	50	Electrical
CC	EE2212L	Co-curricular course -II	-	-	2	2	1	ISCE: 50		-	50	Electrical
MDM	EEM2201T	Multi-disciplinary Minor - I	3	-	-	3	3	20	30	50	100	Other Department
	Total		16		12	28	22	520		380	900	

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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Notes:

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Multi-disciplinary Minor – I (offered to other department)

Course Code	Multi-disciplinary Minor - I
EEM2201T	Electrical Motors

Department of Electrical **Engineering**

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List of Exit Courses after completion of Semester III and IV

1. Exit option is available for students those who have earned the total 88 credits at the End of fourth Semester.
2. Student who wants to avail the exit option after second 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 2nd Year.
4. After fulfillment as mentioned in 1 to 3 above, Students can earn UG-Diploma/ Diploma-engg. and same will be issued by the Institute.

Sr. No.	Course code	Name	Credits
1.	EX-EE2201	Certificate course in measuring instrument for Electrical Engineering	2
2.	EX-EE2202	Certificate course in semiconductor devices	2
3.	EX-EE2203	Certificate course in Electrical equipment maintenance, Testing and troubleshooting	2
4.	EX-EE2204	Certificate course in ultimate electrical machines for Electrical Engineers	2
5.	EX-EE2205	Certificate course in microcontrollers for industrial Applications	2
6.	EX-EE2206	Certificate course in fundamental programming in Python	2

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