



### Vision and Mission of Department

#### VISION:

To be an Electrical Engineering program of the first choice by the aspiring students and prospective employers by implementing world class education practices.

#### MISSION:

To implement Outcome Based Education Philosophy effectively by,

1. Adopting dynamic academic curricula and implementing innovative teaching learning processes and research practices.
2. Providing opportunities to the students for the development of professional skills.
3. Nurturing critical thinking and creativity in students.
4. Inculcating in students the life-long learning attitude with sensitivity towards society and environment.

#### Objectives:

1. To prepare the students to be capable of handling the requirements of industry/technical profession with the use of advanced teaching tools and technology.
2. To prepare a strong analytical background with a sound foundation in Mathematics and core areas in Electrical Engineering to enable them to identify the problems and propose the solutions.
3. To train the students with good scientific and engineering breadth so as to comprehend, analyze, design, and create novel products and give solutions for the real life problems.
4. To inculcate in students professional and ethical attitude, effective communication skills, teamwork skills, multidisciplinary approach and ability to relate engineering issues to broader social context.

  
Dr. V. P. Mohale  
H.O.D.  
Electrical Engg.  
W.C.E., Sangli



### B. Tech. Electrical Engineering

#### Program Educational Objectives (PEOs)

Graduates of Electrical Engineering Programme within a span of few years of their Graduation will:

<b>PEO1</b>	Pursue successful career in diversified sectors like industry, government organizations, entrepreneurship and / or higher education in Electrical Engineering or other fields of their interest.
<b>PEO2</b>	Contribute as active members of the society as an individual or in a team, to analyse, design and implement solutions to solve real life problems with due concern for the environment
<b>PEO3</b>	Exhibit leadership skills, effective communication skills and life-long learning needed to succeed in a multidisciplinary environment with commitment to ethical standard.

#### Program Outcomes (POs)

The students after successfully completing this programme will have an ability to:

**PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.

**PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)

**PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet



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identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

**PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

**PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)

**PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).

**PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

**PO8: Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.

**PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.

**PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.



**PO11: Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

### Program Specific Outcomes (POs)

**PSO1:** Critically understand and apply the concepts of generation, transmission and distribution for Electrical Power System Operation, Control and Protection.

**PSO2:** Gain in-depth knowledge and use advanced techniques to operate/ control electrical machines/ drives used in various industries.

### Knowledge and Attitude Profile (WK)

**WK1:** A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.

**WK2:** Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.

**WK3:** A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

**WK4:** Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

**WK5:** Knowledge, including efficient resource use, environmental impacts, whole-life cost, re use of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.

**WK6:** Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

**WK7:** Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.

**WK8:** Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.

**WK9:** Ethics, inclusive behavior and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for



# Walchand College of Engineering, Sangli

## Department of Electrical Engineering



diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes.

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Dr. V. P. Mohale  
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W.C.E., Sangli



### M. Tech. Power System Engineering

#### Program Educational Objectives (PEOs)

Graduate of PG programme within three to five years of their graduation in Electrical Power Systems Engineering will...

**PEO1:** Demonstrate the domain expertise and technical leadership with good communication and professional skills to analyze, synthesize, evaluate and execute real life projects in electrical and allied fields.

**PEO2:** Contribute individually or in team, to the development of engineering technology leading to innovation in various domains of electrical Power systems engineering using modern tools.

**PEO3:** Exhibit lifelong learning attitude, ethical behavior and societal responsibility.

#### Programme Outcomes (POs)

Post graduates on successful completion of the programme will be able to:

**PO1:** Apply appropriate research methodologies and demonstrate higher order skill individually, in groups to the development works in the domain of Power System Engineering to solve practical problems. (Research Skill)

**PO2:** Communicate with engineering community and society at large, confidently and effectively, through technical report, documentation and presentation, by adhering to appropriate standards. (Communication)

**PO3:** Demonstrate degree of mastery in Power System Engineering at a level higher than the requirements in the appropriate bachelor program. (Scholarship of Knowledge)

**PO4:** Analyze complex problems in Power System Engineering with an ability to compare, contrast, predict and evaluate wide range of potential solutions theoretically and practically with the aid of modern engineering techniques/tools.



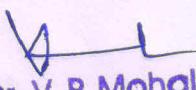
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(Critical Thinking and Problem Solving)

**PO5:** Demonstrate ethical behavior with professional code of conduct, life-long learning, effective managerial skills, and contribute to sustainable development of society (Ethical Practices, Social responsibility, managerial skills and Life-long learning)

**PO6:** Demonstrate proficiency in latest trends and technologies as applied to the field of power system engineering and contribute to innovation. (Programme specific outcome)

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Dr. V. P. Mohale  
H.O.D.  
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### M. Tech. Control and Instrumentation

#### Program Educational Objectives (PEOs)

Graduate of PG programme within three to five years of their graduation in Electrical Control and Instrumentation will.....

**PEO1:** Demonstrate the domain expertise and technical leadership with good communication and professional skills to analyze, synthesize, evaluate and execute real life projects in electrical and allied fields.

**PEO2:** Contribute individually or in team, to the development of engineering technology leading to innovation in various domains of Electrical Control and Instrumentation using modern tools.

**PEO3:** Exhibit lifelong learning attitude, ethical behavior and societal responsibility.

#### Programme Outcomes (POs)

Post graduates on successful completion of the programme will be able to:

**PO1:** Apply appropriate research methodologies and demonstrate higher order skill individually, in groups to the development works in the domain of Control and Instrumentation to solve practical problems. (Research Skill)

**PO2:** Communicate with engineering community and society at large, confidently and effectively, through technical report, documentation and presentation, by adhering to appropriate standards. (Communication)

**PO3:** Demonstrate degree of mastery in Control and Instrumentation at a level higher than the requirements in the appropriate bachelor program. (Scholarship of Knowledge)

**PO4:** Analyze complex problems in Control and Instrumentation with an ability to compare, contrast, predict and evaluate wide range of potential solutions



theoretically and practically with the aid of modern engineering techniques/tools.  
(Critical Thinking and Problem Solving)

**PO5:** Demonstrate ethical behavior with professional code of conduct, life-long learning, effective managerial skills, and contribute to sustainable development of society (Ethical Practices, Social responsibility, managerial skills and Life-long learning)

**PO6:** Demonstrate proficiency in latest trends and technologies as applied to the field of Control and Instrumentation and contribute to innovation. (Programme specific outcome)

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