BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF CIVIL ENGINEERING, KOLHAPUR

Vision

To develop qualified professionals, to meet growing demand of industry for betterment of society.

Mission:

- To impart knowledge to the students through effective teaching-learning methods.
- To sculpt readily adaptable engineers through experiential learning and collaboration with industry.
- To maintain social relationship with all stake holders for holistic development of students.
- To inculcate ethical values for prosperous and peaceful society.

Program Educational Objectives (PEOs)

- PEO1: Graduates will be able to analyze, design and propose a feasible solution to civil engineering problems by applying basic principles of mathematics, science and engineering.
- PEO2: Graduates will be trained to analyze and design practically sustainable civil engineering systems, which involve sound civil engineering skills, optimum and acceptable solutions to the society.
- PEO3: Graduates will be prepare to adapt to future changes in their discipline and also in multi disciplinary, as well as to have an in depth understanding of specialized area where they can better serve organization, industry and society.
- PEO4: Graduates will be developing skill for clear communication and responsible teamwork and inculcate professional attitude and ethics for overall development.
- PEO5: Graduates will be encouraged for higher education and research work, and entrepreneurship awareness.

Program Outcomes (POs)

a. **Engineering knowledge:** An ability to apply knowledge of mathematics, science and engineering fundamentals in the field of Civil engineering to the solution of engineering problems

b. **Problem analysis:** An ability to design experiments, identify, formulate, analyze, and interpret engineering problems in field of civil engineering

c. **Design & Development of Solutions:** An ability to design solutions for civil engineering problems and design a system, component, or process to meet desired needs within realistic constraints such as economic environmental, Social, Political, Ethical, Health and safety, Manufacturability and Sustainability

d. **Investigation of Complex Problem:** An ability to design methods, performs experiments, analyzes and interprets the outcomes data to arrive at valid conclusions

e. **Modern tool usage:** An ability to use the techniques, skills, and modern engineering tools and softwares necessary for Civil engineering practice

f. **Engineer and society:** The broad education necessary to understand the impact of Civil engineering solutions in a global, economic, environmental, and societal context

g. **Environment& sustainability:** An ability to understand the impact of engineering solutions in social and environmental contexts and demonstrate knowledge of the need for sustainable development

h. **Ethics:** An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice

i. **Individual and Team Work:** An ability to function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings

j. **Communication:** An ability to communicate effectively about their domain in both verbal and written form

k. **Project Management and Finance:** Demonstrate knowledge and understanding of Civil 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

l. **Life-long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life- long learning to survive in Company/Organization or independently

Programme Specific Outcomes (PSOs)

The curriculum must prepare graduates to

- To apply knowledge of Civil Engineering in benefit to Society and industry for sustainable development.
- To analyse issues in professional ethics also capably design and build civil engineering based systems in the context of environmental, economical and societal requirements.

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Vision

Enhancing lives by offering high quality education using cutting-edge technologies.

Mission

- To build industry-ready professionals, and entrepreneurs by offering advanced laboratory courses on innovative technology.
- To provide an ecosystem for high-quality research.
- To create an environment conducive to moral development and general growth.
- To progress beyond human knowledge horizons to create better citizens.

Program Educational Objectives (PEOs)

- **PEO1:** To provide students with core proficiency in Mathematical, Scientific and Basic Engineering fundamentals necessary to formulate, analyze and solve engineering problems and to prepare them for professional careers and advanced studies in the field of engineering
- **PEO2:** To provide the students thorough knowledge in core areas of computer science and related engineering, so as to analyze the requirements of software, design and synthesize data and technical concepts to create novel products and solutions for real life problems
- **PEO3:** To inculcate among students, high professionalism, ethical standards, effective oral and communication skills, good leadership qualities, diverse professional environments related engineering issues, global economy and emerging technologies
- **PEO4:** To explore innovative learning opportunities for application of knowledge to benefit society in promoting student awareness on lifelong learning

Program Outcomes (POs)

a. **Engineering knowledge:** An ability to apply knowledge of mathematics, science and engineering fundamentals in the field of Computer Science to the solution of engineering problems
b. **Problem analysis:** An ability to design experiments, identify, formulate, analyze & interpret engineering problems in the field of Computer Science

c. **Design & Development of Solutions:** An ability to design solutions for engineering problems and design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. **Investigation of Complex Problem:** An ability to design software, performs experiments, analyzes and interprets the outcomes data to arrive at valid conclusions
e. **Modern tool usage:** An ability to use the techniques, skills, and modern engineering tools and softwares necessary for engineering practice
f. **Engineer and society:** The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
g. **Environment& sustainability:** An ability to understand the impact of engineering solutions in social and environmental contexts and demonstrate knowledge of and need for sustainable development
h. **Ethics:** An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice
i. **Individual and Team Work:** An ability to function effectively as an individual, and as a member or leader in diverse teams and in multi disciplinary settings
j. **Communication:** An ability to communicate effectively about their domain in both verbal and written form
k. **Project Management and Finance:** Demonstrate knowledge and understanding of 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
l. **Life-long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life- long learning to survive in Company/Organization or independently

Programme Specific Outcomes (PSOs)

- Students should be able to understand the concepts and applications in the field of Computer Science & Engineering.
- Students should be able to use engineering practices, strategies and tactics for the development, operation and maintenance of softwares.

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI & ML)

Vision:

To provide quality education that develops technologically strong and ethical Engineers into the challenging digital world

Mission:

- To educate students in the emerging technology of Artificial Intelligence and Machine Learning
- To inculcate holistic academic environment among the students
- To equip students with interdisciplinary skill sets to be able to build smart and intelligent systems

Program Educational Objectives (PEOs)

- **PEO1:** To provide students with core proficiency in engineering, mathematics, science and technology to establish successful career path in their life.
- **PEO2:** To provide the students thorough knowledge to plan, analyze, design, develop and test AI and ML based solutions for real world problems
- **PEO3:** To inculcate among students, professionalism, ethical standards, effective oral and communication skills, leadership qualities, diverse professional environments emerging technologies
- **PEO4:** To explore innovative learning opportunities for application of knowledge to benefit society

Program Outcomes (POs)

a. **Engineering knowledge:** An ability to apply knowledge of mathematics, science and engineering fundamentals in the field of Computer Science to the solution of engineering problems
b. **Problem analysis:** An ability to design experiments, identify, formulate, analyze & interpret engineering problems in the field of Computer Science
c. **Design & Development of Solutions:** An ability to design solutions for engineering problems and design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
d. **Investigation of Complex Problem:** An ability to design software, performs experiments, analyzes and interprets the outcomes data to arrive at valid conclusions
e. **Modern tool usage:** An ability to use the techniques, skills, and modern engineering tools and softwares necessary for engineering practice

f. **Engineer and society:** The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
g. **Environment& sustainability:** An ability to understand the impact of engineering solutions in social and environmental contexts and demonstrate knowledge of and need for sustainable development
h. **Ethics:** An ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice
i. **Individual and Team Work:** An ability to function effectively as an individual, and as a member or leader in diverse teams and in multi disciplinary settings
j. **Communication:** An ability to communicate effectively about their domain in both verbal and written form
k. **Project Management and Finance:** Demonstrate knowledge and understanding of 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
l. **Life-long Learning:** Recognize the need for and have the preparation and ability to engage in independent and life- long learning to survive in Company/Organization or independently

Programme Specific Outcomes (PSOs)

- Students should be able to understand the concepts and applications in the field of Computer Science Engineering (Artificial Intelligence and Machine Learning)
- Students should be able to use engineering practices, strategies and tactics for the development, operation and maintenance of softwares
- Students should posses the skills to communicate in both oral and written forms

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Vision:

To nurture students on advance technologies in the field of Electronics and Telecommunication Engineering.

Mission:

- To create professionals with sound knowledge of Electronics and Telecommunication Engineering through comprehensive and experiential learning.
- To empower budding engineers to meet the growing needs of industry and society.
- To enhance research culture to solve societal problem through engineering solutions.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To train students to maintain, operate and design various electronics and communication circuits/products by using fundamental and advance knowledge in Electronics and Telecommunication Engineering.

PEO2: To prepare and motivate students to invent new things in field of Research and Development and also to prepare students to excel in postgraduate programmes or to Succeed in industry/technical profession through global & rigorous education.

PEO3: To prepare students to adapt to future changes in their discipline and also in multidisciplinary, as well as to have an in-depth understanding of a specialized area where they can better serve organization, industry and society.

PEO4: To develop skills for clear communication and responsible teamwork, and to inculcate professional attitudes and ethics for student's overall development

Program Outcomes (POs)

a. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
b. **Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
c. **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.
d. **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.
e. **Modern Tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
f. **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.
g. **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.
h. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
i. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
j. **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.
k. **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.
l. **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.

Programme Specific Outcomes (PSOs)

At the end of successful completion of program, the students will be able to

1. Apply fundamental knowledge of Electronics & Communication Engineering to real time problems in Industry & society
2. To solve complex problems using latest electronics hardware & software tools to arrive cost effective and appropriate solutions

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF MECHANICAL ENGINEERING

Vision

- To develop technocrats who satisfies needs of society.

Mission

- To educate students beyond syllabus.
- To develop technocrats with practical skill needed by industry.
- To develop logical thinking of students.
- To carry out research oriented projects through constant interaction with research organizations and industry.

Program Educational Objectives (PEOs)

Graduates from the Mechanical Engineering program from BVCOEK are expected to attain or achieve the following Program Educational Objectives (PEOs):

- **PEO-I:** To train students to maintain, operate and design various mechanical process, systems and devices by using fundamental and advance knowledge in Mechanical Engineering.
- **PEO-II:** Expertise to accept future challenges in their discipline and acquire depth of knowledge and understanding a specialized area where they can better serve.
- **PEO-III:** To develop techno excellent students useful for peace of society through research and development, industry and technical professional education.
- **PEO-IV:** Capability to function ethically in professional mechanical engineering roles and exhibit good competency in their work culture.

Program Outcomes (POs)

a. **Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
b. **Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
c. **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.

d. **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.
e. **Modern Tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
f. **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.
g. **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.
h. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
i. **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
j. **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.
k. **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.
l. **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 (PSO's)

1. Our Mechanical Engineering graduates would be able to implement creative thinking in main areas such as design, manufacturing, thermal, and various research projects.
2. Our Mechanical Engineering graduates would be able to work in software industries as well as in core industries to improve in it for quality output.

BHARATI VIDYAPEETH'S COLLEGE OF ENGINEERING, KOLHAPUR

DEPARTMENT OF FIRST YEAR/ GENERAL ENGINEERING

Vision

To produce competent Engineers having solid foundation in the fundamentals of science, coupled with ethics and human value to progress consistently in their profession.

Mission

- To provide quality education in applied sciences and humanities.
- To create socially responsible students by instilling moral ethics.