



Govindrao Wanjari College of Engineering & Technology, Nagpur

DVV-Criterion- 02

2.6

Students Performance and Learning Outcomes



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| 2 | Vision, Mission statement and Program Outcomes of Institute | 2021-2022 |
| 3 | Photograph shows the Vision, Mission statements and Program Outcomes of Institute on display board, News Letter, Boucher and college website. | 2021-2022 |
| 4 | Vision, Mission statement and POs, PEOs, PSOs of Departments including COs of each subject. | 2021-2022 |
| 5 | Photograph shows the Vision, Mission statement and POs, PEOs, PSOs of Departments including COs of each subject on display board, News Letter, Boucher and college website. | 2021-2022 |

2.6.1 Teachers and students are aware of the stated programme and course outcomes of the programmes offered by the institution

The institute at central level, while finalizing the learning outcomes considers remarks of representative of all stakeholders which includes staff and students.

Students Awareness:

Program Outcomes (POs), Program Specific outcomes (PSOs), Program educational Objectives (PEOs) and course outcomes (Cos) are published and disseminated through various medias such as display boards in the corridors, laboratories, HOD cabin, institute website etc. Also, all the outcomes are disseminated to the stakeholders through parents meet and alumni meet.

Staff Awareness:

Special brain storming sessions are arranged and staff takes active participation in these sessions for further modification and to understand the concept of learning outcomes. Learning outcomes are disseminated through display board, circulars, pamphlets etc.

Outcomes: Vision and Mission Statements of department were defined by involving the different levels of outcomes.

- Outcomes are the abilities the students acquire at the end of the program
- Outcomes provide the basis for an effective interaction among stakeholders
- It is the results-oriented thinking and is the opposite of input-based education where the emphasis is on the educational process and where we are happy to accept whatever is the result”

Levels of Outcomes

Program Outcomes: POs are the statements that describe what the students learn from engineering programs and should be able to do after completion of the program.

Program Specific Outcomes: PSOs are the statements that describe what the students of a specific engineering program should be able to do after completion of the program.

Program educational Objectives: PEOs are the statements that describe what the graduates should be able to do after few years of completion of the program.

Course Outcomes: COs are the statements that describe what the students should be able to do at the end of a course

Vision, Mission statement and Program Outcomes of Institute

VISION & MISSION OF INSTITUTE

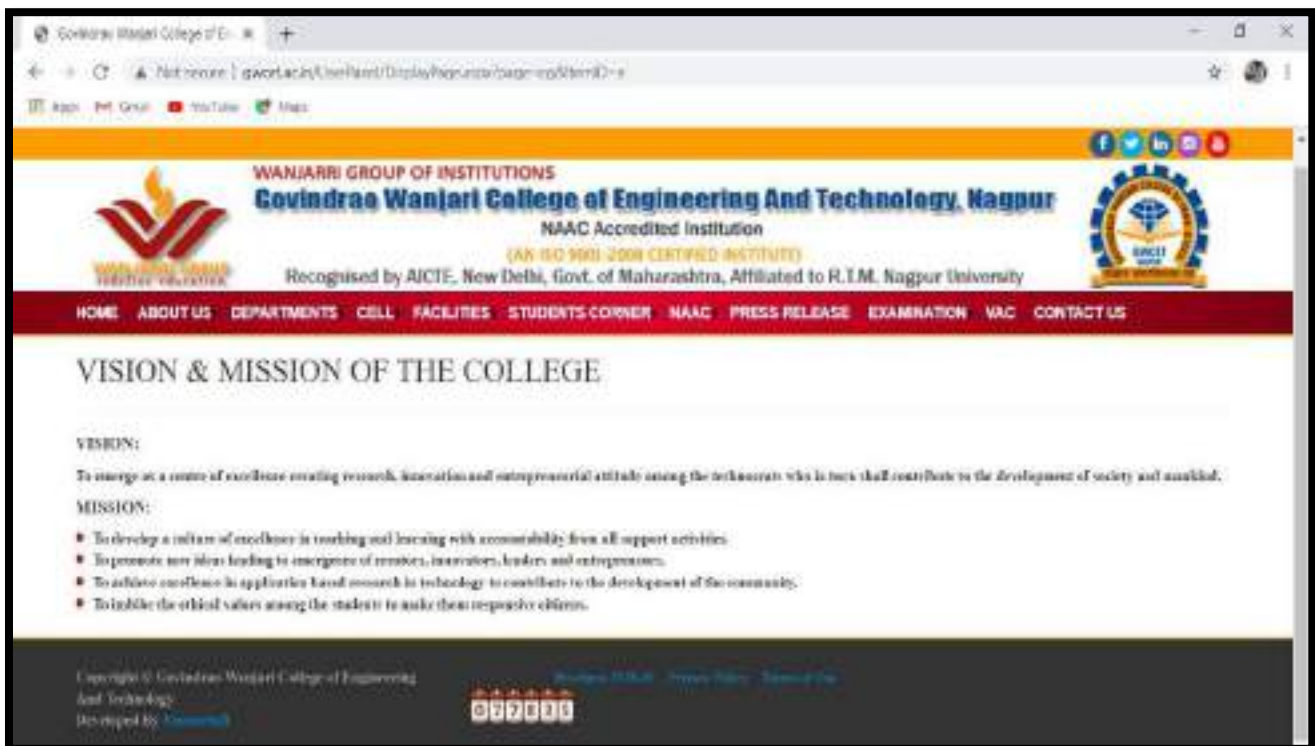
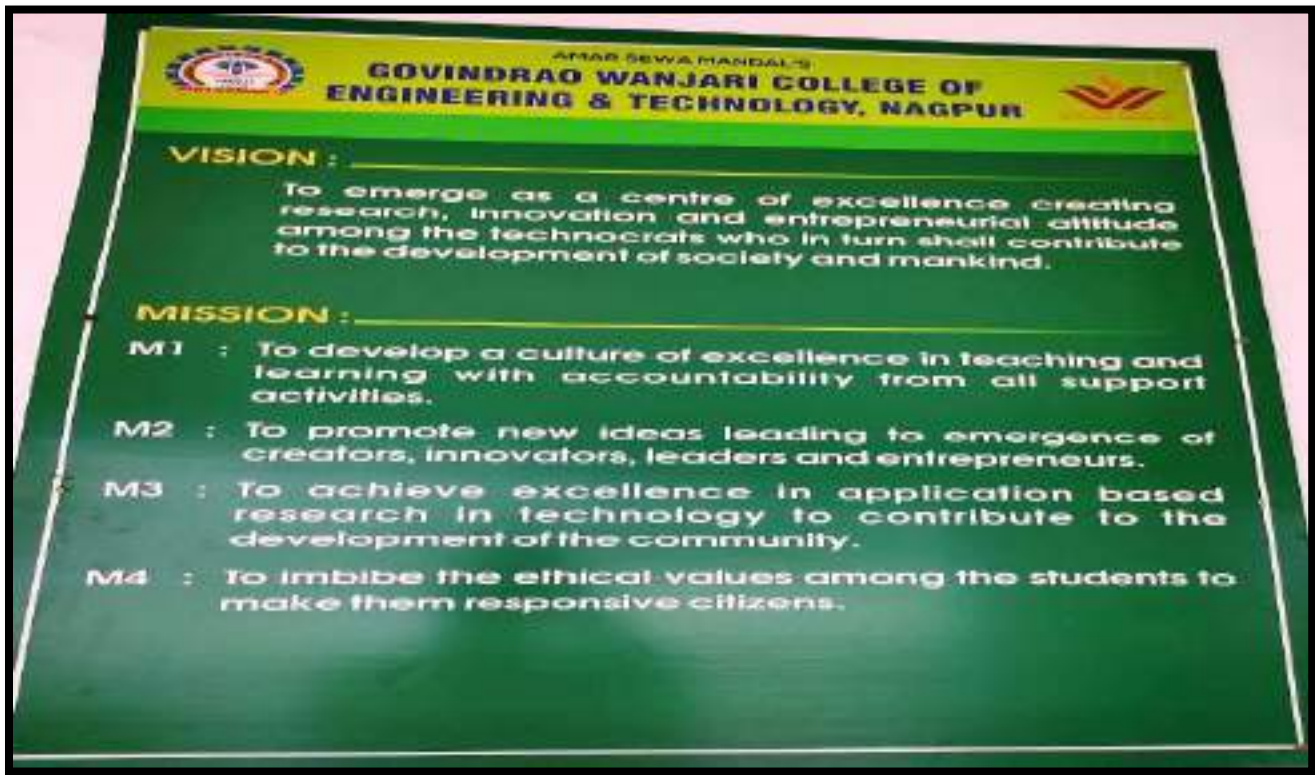
VISION:

To emerge as a center of excellence creating research, innovation and entrepreneurial attitude among the technocrats who in turn shall contribute to the development of society and mankind.

MISSION:

- To develop a culture of excellence in teaching and learning with accountability from all support activities.**
- To promote new ideas leading to emergence of creators, innovators, leaders and entrepreneurs.**
- To achieve excellence in application-based research in technology to contribute to the development of the community.**
- To imbibe the ethical values among the students to make them responsive citizens.**

Photograph shows the Vision, Mission statements and Program Outcomes of Institute on display board, News Letter, Boucher and college website.



Vision, Mission statement and POs, PEOs, PSOs of **Departments**

Department of Mechanical Engineering

VISION

The Mechanical Engineering Department endeavors to be recognized globally for outstanding education and research and successful in advanced fields to cater the ever changing industrial demands and social needs.

MISSION

- To provide state-of-the-art infrastructure to students in order to impart quality education in Mechanical Engineering.
- To enhance the overall academic performance of the students gradually, thereby increasing their placement potential.
- To develop the students for facing intellectual and ethical career challenges after graduation.
- To motivate for creative thinking, thereby enriching the teaching-learning experience and developing the research activity.
- To develop the Department of Mechanical Engineering as a centre of excellence in the field of 'Mechanical Design' as well as 'Thermal Engineering'.

PROGRAM OUTCOMES (POS)

Engineering Graduates will be able to:

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **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.
- **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.
- **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.
- **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.
- **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.
- **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.
- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- **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.
- **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.
- **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)

PSO1: An ability to identify, formulate and solve engineering problems in three core streams of Mechanical Engineering, i.e. design engineering, thermal and fluids engineering and manufacturing engineering.

PSO2: Graduates will be competent enough to learn managerial skills to work effectively in a team and in a society by following ethical and environmental practices

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

The Graduates of Mechanical Engineering will be able to

PEO1: Prepare for successful careers in industry that meets the needs of Industries.

PEO2: Develop the ability to synthesize data and technical concepts for application to product design

PEO3: Provide opportunity to work as part of teams on multi disciplinary projects

PEO4: Develop various soft skills in order to prepare them for pursuing diverse careers in industry

PEO5: Provide with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for graduate studies.

PEO6: Develop Techno-commercial skills like, Research Aptitude, Entrepreneurship and Creative efforts in Mechanical Engineering and aligned areas of Science and Technology.

Photograph shows the Vision, Mission statement and POs, PEOs, PSOs of Departments including COs of each subject on display board, News Letter, Boucher and college website.

Department of Mechanical Engineering





GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR



DEPARTMENT OF MECHANICAL ENGINEERING

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

The graduates of Mechanical Engineering will be able to :

- PEO1 : Prepare for successful careers in industry that meets the needs of industries.
- PEO2 : Develop the ability to synthesize data and technical concepts for application to product design.
- PEO3 : Provide opportunity to work as part of teams on multi disciplinary projects.
- PEO4 : Develop various soft skills in order to prepare them for pursuing diverse careers in industry.
- PEO5 : Provide with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for graduate studies.
- PEO6 : Develop Techno-commercial skills like Research Aptitude, Entrepreneurship and Creative efforts in Mechanical Engineering and aligned areas of Science and Technology.

PROGRAM SPECIFIC OUTCOMES (PSOs)

The students of Mechanical Engineering will be able to :

- PSO1 : Identify, formulate and solve engineering problems in core streams of Mechanical Engineering like Design Engineering, Thermal, Fluids, Mechanics and Manufacturing Engineering.
- PSO2 : Apply the knowledge to make successful career in private, public & government sector.



WANJARI GROUP OF INSTITUTIONS

Govindrao Wanjari College of Engineering And Technology, Nagpur

NAAC Accredited Institution

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Recognised by AICTE, New Delhi, Govt. of Maharashtra, Affiliated to R.T.M. Nagpur University



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Department of Mechanical Engineering

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- Placement Details
- Research Publication
- Mechanical Engineering Logo**

VISION

The Mechanical Engineering Department envisions to be recognized globally for outstanding education and research and successful in advanced fields to cater the ever changing industrial demands and social needs.

MISSION

- To provide state-of-the-art infrastructure to students in order to impart quality education in Mechanical Engineering.
- To enhance the overall academic performances of the students gradually, thereby increasing their placement potential.
- To develop the students for facing intellectual and ethical career challenges after graduation.
- To motivate for creative thinking, thereby enriching the teaching learning experience and developing the research activity.
- To develop the Department of Mechanical Engineering as a centre of excellence in the

DEPARTMENT NEWS

Ex-CADCAI members share their experience with Engineering students

QUICK LINKS



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Department of Mechanical Engineering

DEPARTMENT MENU

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Mechanical Engineering Logo

PROGRAM OUTCOMES (POs)

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- 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.
- Conduct investigations of complex problems: Use research-based knowledge and research

DEPARTMENT NEWS

Ex-CAD/CAD mentor shares his expertise with Engineering student



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PROGRAM SPECIFIC OUTCOMES (PSOs)

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GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR


DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN

NAME OF SUBJECT -> MECHANICAL MEASUREMENTS AND RETROFIT
 SUBJECT CODE -> BEME901
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|--|
| CO1 | Understand the basic concept of measuring error and quantified levels of errors in static and calibration. |
| CO2 | Study the characteristics of linear and angular displacement, speed, load, force, torque & power related mechanical systems. |
| CO3 | Study the characteristics of pressure, velocity, level, light and temperature transducers and their applications. |
| CO4 | Understand the basic concept of standards of measurement, requirement of metrological infrastructure of engineering systems. |
| CO5 | Study Linear & 2-Dimensional analysis, Design of test rig & metrological test. |
| CO6 | Understand the Use of digital sensors, optical profile projector and laser interferometry for calibration. |


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DEPARTMENT OF MECHANICAL ENGINEERING



COURSE PLAN

NAME OF SUBJECT -> DYNAMICS OF MACHINES
 SUBJECT CODE -> BEME902
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|--|
| CO1 | Understand the Concepts of motion, linear dynamics, D'Alembert's principle, Concept of Potential Energy, Couple & torque, effect on rotation, steady velocity. |
| CO2 | Apply the dynamic force analysis of the gear train using method, virtual work method, Case |
| CO3 | Understand the balancing of rotating masses, balancing of reciprocating mechanism. |
| CO4 | Study the kinematics of coupler of four bar, flywheel, vibration of spring mass system, two mass spring system, simple harmonic & damped vibration. |
| CO5 | Study the kinematics of epicyclic gear train for planetary system, free vibration of single degree of freedom. |
| CO6 | Understand the Engineering application of damping, Logarithmic decrement, Periodic variation of single degree of freedom system, relative freedom, stability of that of damped system. |


GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR


DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN

NAME OF SUBJECT -> HEAT TRANSFER
 SUBJECT CODE -> BEME903
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|--|
| CO1 | Recognize & understand different modes of Heat Transfer, Laws of Heat Transfer and Steady State Heat Transfer. |
| CO2 | Apply concept of convective heat transfer coefficient and heat transfer through extended surfaces. |
| CO3 | Understand the principle of convection and Empirical and analytical correlations for forced convection. |
| CO4 | Recognize and understand the empirical and practical relations for free convection systems. |
| CO5 | Apply the concept of radiation heat transfer to solve and without tabulation data. |
| CO6 | Apply radiation exchange equations. |


GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR


DEPARTMENT OF MECHANICAL ENGINEERING



COURSE PLAN

NAME OF SUBJECT -> DESIGN OF MACHINE ELEMENTS
 SUBJECT CODE -> BEME904
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|--|
| CO1 | Recognize Machine Design and To Analyse & Evaluate Critical Joint, Knuckle Joint, Bracket joint. |
| CO2 | Evaluate factor for design of Pressure Vessels. |
| CO3 | Evaluate Shaft Design and Spring Design. |
| CO4 | Evaluate Pin or Screws and Clutches & Brakes. |


GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR


DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN

NAME OF SUBJECT -> ADVANCED PRODUCTION PROCESSES
 SUBJECT CODE -> BEME905
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|--|
| CO1 | Study the Different types of non-conventional machining processes and its application in industry. |
| CO2 | Explain the Advantages and Disadvantages, to characterize and set up in various industries. |
| CO3 | Understand the Advantages and Disadvantages, to design and application in industry. |
| CO4 | Understand the Die casting operations, cast stress in industrial working. |
| CO5 | Study the Principle of optical fibers, its fabrication and application in industry. |
| CO6 | Study the Principle of laser cutting process, advantages and disadvantages and application in LASER manufacturing process. |


GOVINDRAO WANJARI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR


DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN

NAME OF SUBJECT -> INDUSTRIAL ENGINEERING CLASS ENTREPRENEURSHIP DEVELOPMENT
 SUBJECT CODE -> BEME906
 SEMESTER -> V

COURSE OUTCOMES

After completion of the course students will be able to:

| | |
|-----|---|
| CO1 | Understand the basic concepts of Industrial Engineering & understand the use of standard & non-standard methods to solve. |
| CO2 | Understand the Characteristics of production, Types of Job & contract, Characteristics of Industrial Engineering. |
| CO3 | Study the Influence of cost factors, Material selection, Types of Companies, their Product & its characteristics. |
| CO4 | Understand the Advantages and Disadvantages, to Design, development, IP, Trade & Sales contract in Industry. |
| CO5 | Understand the Concept & application of Entrepreneurship, Government, Government policy, various activities, Market Development, the role of Entrepreneurial system of IIT. |
| CO6 | Understand the Professionalism of entrepreneurs in various stages of Business Development. |

Department of Civil Engineering

VISION

To achieve excellent standards of quality education in Civil Engineering by keeping pace with rapidly changing technologies & to create technical manpower of global standards in Civil Engineering with capabilities of accepting new challenges.

To emerge as a cube of quality technical education to competent engineers technologies.

To create technical manpower of global standards in civil engineering with capabilities of accepting new challenges.

MISSION

To create competent professionals who are trained in the design and implementation of Civil Engineering systems

To impart quality education in civil engineering to raise satisfaction level of all stake holders.

To serve society and the nation by providing professional civil engineering leadership to find solution to community, regional and global problems and accept new challenges in rapidly changing technology.

To create competent professionals who are trained in the design and development of civil engineering systems and contribute towards research & development activities.

Programme Outcomes (PO's):

The students of civil engineering will be able to:-

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. 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.

PO3. 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.

PO4. 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.

PO5. 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.

PO6. 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.

PO7. 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.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. 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.

PO11. 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.

PO12. 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 Objective (PSO's):

PSO 1. Students shall have abilities to work on projects towards infrastructure development, environment and sustainability.

PSO 2. Students shall have contemporary knowledge in Civil Engineering to provide sustainable solutions to the societal problems.

Programme Educational Objectives (PEOs):

- **The graduates of civil engineering will be able to apply fundamental technical knowledge and skills to find creative solutions to technological challenges and problems in various areas of basic sciences and engineering.**
- **Analyze, design and use skills in order to formulate and solve civil engineering problems.**
- **Practice civil engineering in a responsible, professional and ethical manner and implement eco- friendly sustainable technologies for the benefit of industry and society.**
- **Engage in research and development in civil engineering and allied areas of science and technology.**

Department of Civil Engineering

