

**MAR BASELIOS COLLEGE OF ENGINEERING AND TECHNOLOGY
THIRUVANANTHAPURAM**

PROGRAMME OUTCOMES (POs) – Common to all BTech Programmes

Engineering Graduates will be able to:

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 practice.
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.

DEPARTMENT OF CIVIL ENGINEERING

VISION

To be a Centre of Excellence in Civil Engineering education with a global perspective, creating ethically strong engineers for the service of society.

MISSION

To provide engineering education which can create exemplary professional Civil Engineers of high ethics with strong conceptual foundation coupled with practical insight, to serve the industry and community.

BTech Programme: Civil Engineering

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- I. Graduates of the Programme will have a successful career as Civil Engineering practitioners, entrepreneurs or professionals, addressing the needs of the industry with a global perspective.
- II. They will contribute to society as ethical and responsible citizens with proven expertise.
- III. They will engage in continuous professional development and advance to leadership roles in their chosen career.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Engineering Graduates will be able to:

1. Provide feasible and sustainable solutions to problems in various Civil Engineering disciplines such as Structural, Environmental, Geotechnical, Transportation and Construction Engineering.
2. Apply the principles, methods, software and codes of practices to design various Civil Engineering Systems.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION

To be a Centre of Excellence in Computer Science and Engineering providing quality education and research for the betterment of the society.

MISSION

To impart sound knowledge in theoretical and applied foundations of Computer Science and Engineering, and to train the students to solve real life issues to effectively define and shape life.

BTech Programme: Computer Science and Engineering

PROGRAMME EDUCATIONAL OBJECTIVES

- I. Graduates will be successful professionals in Industries of core or interdisciplinary nature or entrepreneurs, demonstrating effective leadership and excellent team work.
- II. Graduates will expand the horizon of knowledge through higher education or research, leading to self-directed professional development.
- III. Graduates will demonstrate professional attitude and ethics while providing solutions in societal and environmental contexts.

PROGRAMME SPECIFIC OUTCOMES

Engineering Graduates will be able to:

1. Apply Algorithmic Principles, Programming Skills and Software Engineering Principles to design, develop and evaluate Software Systems of varying complexities.
2. Apply knowledge of System Integration to design and implement computer-based systems.
3. Solve real world and socially relevant problems with the knowledge in recent and advanced Computing Technologies.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VISION

To be a Centre of Excellence in Electronics and Communication Engineering Education and Research for the service of humanity.

MISSION

To provide quality Engineering Education and to carry out Research in the field of Electronics and Communication Engineering addressing the challenges faced by the society.

BTech Programme: Electronics and Communication Engineering

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

- I. The graduates of the Programme will have a successful career as Professionals in Industry or as Entrepreneurs, encompassing a broad spectrum of areas related to Electronics and Communication Engineering.
- II. They will be able to adapt to the changing needs of Industry and Academia through continuous learning and professional upgrading.
- III. They will exhibit social responsibility in their pursuit for technical excellence.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

Engineering Graduates will be able to:

1. Design Electronic Circuits and Systems for Communication, Monitoring and Control Applications.
2. Demonstrate the knowledge, in Electronics, Signal Processing, Embedded Systems and Communication Engineering, required for providing technical solutions to real world problems.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION

To be a Centre of Excellence in Electrical & Electronics Engineering Education, Research and Application of knowledge to benefit the society at large.

MISSION

To mould quality Electrical Engineers, fostering creativity and innovation to address global issues.

BTech Programme: Electrical and Electronics Engineering

PROGRAMME EDUCATIONAL OBJECTIVES

1. Graduates will succeed as Professionals in Industry or as Entrepreneurs in Electrical and Electronics Engineering and related disciplines.
2. Graduates will be able to adapt to the advances in Technology by continuously acquiring knowledge and skills, with an urge for innovation.
3. Graduates will be socially committed individuals, exhibiting professional ethics in addressing technical and engineering challenges.

PROGRAMME SPECIFIC OUTCOMES

Engineering Graduates will be able to:

1. To apply the knowledge in Electrical and Electronics Engineering for the design of Power Generation, Transmission, Distribution and Utilization systems.
2. To demonstrate the knowledge required to design, develop, test, and implement Electrical & Electronics systems.

DEPARTMENT OF MECHANICAL ENGINEERING

VISION

To be a Centre of Excellence in Education and Research, imparting ethical values for the betterment of mankind.

MISSION

To impart Technical Knowledge and Values through continuous Training and Research for the overall development of the Stakeholders.

BTech Programme: Mechanical Engineering

PROGRAMME EDUCATIONAL OBJECTIVES

- I. Graduates will be Engineering Professionals, Innovators or Entrepreneurs engaged in Technology Development or implementation of Engineering Systems meeting the Industrial needs.
- II. Graduates will be successful in the pursuit of higher education or research, in Engineering or Management Studies.
- III. Graduates will be self-disciplined and capable of applying technical concepts and skills for the benefit of society.

PROGRAMME SPECIFIC OUTCOMES

Engineering Graduates will be able to:

1. Apply the concepts of Solid Mechanics in the design of Mechanical Engineering systems.
2. Apply knowledge of Thermal and Fluid Sciences to solve Engineering Problems.
3. Use Simulation Tools and Computer Integrated Systems in Mechanical Engineering.
4. Apply advanced manufacturing processes and modern Industrial Management Techniques in Engineering.