# B.Tech Computer Science & Engineering (CSE) with Artificial Intelligence and Machine Learning (AIML) 2024 batch

## Program Educational Objectives (PEOs)

1. **Professional Competency:** To inculcate fundamental, conceptual, and intellectual skills to learn, and adapt computational approaches for problem-solving using AI/ML approach.
2. **Continuous Learning & Research:** To contribute and develop solutions through skills and critical thinking that can amalgamate with industrial and research practices.
3. **Ethics & Communication Skills:** To enrich specific areas of interest through ethics, responsibility, and practicality in meeting varied career opportunities through life-long learning.

## Program Outcomes (POs)

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

2. **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.

3. **PO3. Design/development of solutions:** Design solutions for complex engineering problems anddesign 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. **PO4. Conduct investigations of complex problems:** Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of theinformation to provide valid conclusions.

5. **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.

6. **PO6. The engineer and society:** Apply reasoning informed by the contextual

knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice.

7. **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need forsustainable development.

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

9. **PO9. Individual and teamwork:** Function effectively as an individual, and as a member or leaderin diverse teams, and in multidisciplinary settings.

10. **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.

11. **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.

12. **PO12. Life-long learning:** Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes (PSOs)**

1. Analyse and develop computer programs in the core areas through modern programming languages.
2. Demonstrate skills in the field of artificial intelligence and machine learning in allied areas to address the needs of the industry in an empirical approach.
3. Apply their knowledge to provide feasible and optimal solutions in solving problems connecting to SDGs, not limiting to domain areas such as Industrial Automation, explainable and generative AI, health care, Agriculture etc.

**Student Outcomes (SOs)**

**SO 1.** Analyse a complex computing problem and to apply principles of computing, AI, ML and other relevant domains to identify solutions.

**SO 2.** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the artificial intelligence and machine learning discipline.

**SO 3.** Communicate effectively in a variety of professional contexts.

**SO 4.** Recognize professional responsibilities and make informed judgments in computing practice based on appropriate legal, ethical, diversity, equity, inclusion, and accessibility principles.

**SO 5.** Function effectively as a member of a team engaged in activities appropriate to the program's discipline.

**SO 6.** Apply computer science theory and machine learning fundamentals to produce AI solutions.

# B.Tech Computer Science & Engineering (CSE) with Blockchain, Internet of Things, and Cybersecurity (BIC) 2024 batch

## Program Educational Objectives (PEOs)

1. **Professional Competency:** To inculcate fundamental, conceptual, and intellectual skills to learn, and adapt computational approaches for problem-solving in cyber space, security and IOT.
2. **Continuous Learning & Research:** To contribute and develop solutions through skills and critical thinking that can amalgamate with industrial and research practices.
3. **Ethics & Communication Skills:** To enrich specific areas of interest through ethics, responsibility, and practicality in meeting varied career opportunities through life-long learning.

## Program Outcomes (POs)

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

14. **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.

15. **PO3. Design/development of solutions:** Design solutions for complex engineering problems anddesign 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.

16. **PO4. Conduct investigations of complex problems:** Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of theinformation to provide valid conclusions.

17. **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.

18. **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice.

19. **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need forsustainable development.

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

21. **PO9. Individual and teamwork:** Function effectively as an individual, and as a member or leaderin diverse teams, and in multidisciplinary settings.

22. **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.

23. **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.

24. **PO12. Life-long learning:** Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

## Program Specific Outcomes (PSOs)

1. To analyze and develop multidisciplinary skills with a specific emphasis on the blockchain, Internet of Things (IoT), and cyber security technologies.

2. To showcase expertise in blockchain, IoT, and security, demonstrating competencies in safeguarding distributed ledgers and connected devices through robust cybersecurity measures.

3. Apply the acquired knowledge of blockchain and IoT to devise innovative solutions for contemporary challenges, with a focus on enhancing transparency, ethical hacking, vulnerability analysis, penetration testing, privacy, and security in industries.

## Student Outcomes (SOs)

**SO 1.** Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions in cyber space.

**SO 2.** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the cyber space and security.

**SO 3.** Communicate effectively in a variety of professional contexts.

**SO 4.** Recognize professional responsibilities and make informed judgments in computing practice based on appropriate legal, ethical, diversity, equity, inclusion, and accessibility principles.

**SO 5.** Function effectively as a member of a team engaged in activities appropriate to the program's discipline.

**SO 6.** Apply computer science theory and security fundamentals to produce strong, advanced & secured solutions.

# B.Tech Computer Science & Engineering (CSE)
# 2024 batch

## Program Educational Objectives (PEOs)

1. **Professional Competency:** To inculcate fundamental, conceptual, and intellectual skills to learn, and adapt computational approaches for problem-solving using computational systems and software.
2. **Continuous Learning & Research:** To contribute and develop solutions through skills and critical thinking that can amalgamate with industrial and research practices.
3. **Ethics & Communication Skills:** To enrich specific areas of interest through ethics, responsibility, and practicality in meeting varied career opportunities through life-long learning.

## Program Outcomes (POs)

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

2. **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.

3. **PO3. Design/development of solutions:** Design solutions for complex engineering problems anddesign 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. **PO4. Conduct investigations of complex problems:** Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of theinformation to provide valid conclusions.

5. **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.

6. **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice.

7. **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need forsustainable development.

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

9. **PO9. Individual and teamwork:** Function effectively as an individual, and as a member or leaderin diverse teams, and in multidisciplinary settings.

10. **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.

11. **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.

12. **PO12. Life-long learning:** Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes (PSOs)**

1. Analyze and develop computer programs using modern programming languages with a focus on optimal system designing, application development, software engineering systems, and principles with dynamic programming.

2. To demonstrate expertise with core problem-solving approaches, competencies in key concepts through optimal algorithms, and alignment with industry expectations.

3. Apply the core Engineering knowledge to design and develop end-end deployable innovative solutions with design thinking for real-world challenges.

**Student Outcomes (SOs)**

**SO 1.** Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

**SO 2.** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the software development.

**SO 3.** Communicate effectively in a variety of professional contexts.

**SO 4.** Recognize professional responsibilities and make informed judgments in computing practice based on appropriate legal, ethical, diversity, equity, inclusion, and accessibility principles.

**SO 5.** Function effectively as a member of a team engaged in activities appropriate to the program's discipline.

**SO 6.** Apply computer science theory and software development fundamentals to produce computing-based solutions.

# B.Tech Computer Science & Engineering (CSE) with Data Science (DS) 2024 batch

## Program Educational Objectives (PEOs)

1. **Professional Competency:** To inculcate fundamental, conceptual, and intellectual skills to learn, and adapt computational approaches for data-driven decision-making & problem-solving.
2. **Continuous Learning & Research:** To contribute and develop solutions through skills and critical thinking that can amalgamate with industrial and research practices.
3. **Ethics & Communication Skills:** To enrich specific areas of interest through ethics, responsibility, and practicality in meeting varied career opportunities through life-long learning.

## Program Outcomes (POs)

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

2. **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.

3. **PO3. Design/development of solutions:** Design solutions for complex engineering problems anddesign 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. **PO4. Conduct investigations of complex problems:** Use research-based knowledge and researchmethods including design of experiments, analysis and interpretation of data, and synthesis of theinformation to provide valid conclusions.

5. **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.

6. **PO6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assesssocietal, health, safety, legal and cultural issues and the consequent responsibilities relevant to theprofessional engineering practice.

7. **PO7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need forsustainable development.

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

9. **PO9. Individual and teamwork:** Function effectively as an individual, and as a member or leaderin diverse teams, and in multidisciplinary settings.

10. **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.

11. **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.

12. **PO12. Life-long learning:** Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

**Program Specific Outcomes (PSOs)**

1. Equip students with the capability to effectively collect the data, interpret, and handle substantial data volumes in real-world scenarios, utilizing a range of tools and methodologies.
2. Master advanced statistical & machine learning methods to extract insights from complex data, improving decision-making across diverse domains.
3. Apply the data science concepts into practice in addressing real-world challenges with multi-dimensional data analysis for providing technology readiness solutions.

**Student Outcomes (SOs)**

**SO 1.** Analyze a complex computing problem and to apply principles of data and other relevant disciplines to identify solutions.

**SO 2.** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of data Science.

**SO 3.** Communicate effectively in a variety of professional contexts.

**SO 4.** Recognize professional responsibilities and make informed judgments in computing practice based on appropriate legal, ethical, diversity, equity, inclusion, and accessibility principles.

**SO 5.** Function effectively as a member of a team engaged in activities appropriate to the program's discipline.

**SO 6.** Apply computer science theory and data analysis fundamentals to produce sophisticated data sciences solutions.