# CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (Autonomous)
## Gandipet, Hyderabad-75
## Department of Artificial Intelligence & Mechine Learning
### Course Outcomes Statement for BE-AIML  R-22

| S.No | Course Code | Course Name | Course Outcomes Statements |
|------|------|------|------|
| 1 | 22MTC01 | Linear Algebra & Calculus | Determine the extreme values of functions of two variables. |
| | | | Apply the vector differential operator to scalar and vector functions |
| | | | Solve line, surface & volume integrals by Greens, Gauss and Stoke's theorems. |
| | | | Determine the basis and dimension of a vector space, compute linear transformation |
| | | | Apply the Matrix Methods to solve the system of linear equations |
| 2 | 22PYC01 | Optics and Semiconductor Physics | Demonstrate the physical properties of light |
| | | | Explain characteristic properties of lasers and fiber optics |
| | | | Find the applications of quantum mechanics |
| | | | Classify the solids depending upon electrical conductivity |
| | | | Identify different types of semiconductors |
| 3 | 22CSC01 | Problem Solving And Programming | Understand real world problems and develop computer solutions for those problems. |
| | | | Understand the basics of Python |
| | | | Apply Python for solving basic programming solutions. |
| | | | Create algorithms/flowcharts for solving real-time problems. |
| | | | Build and manage dictionaries to manage data. |
| | | | Handle data using files. |
| 4 | 22EGC01 | English | Illustrate the nature, process and types of communication and communicate effectively without barriers. |
| | | | Construct and compose coherent paragraphs, emails and adhering to appropriate mobile etiquette. |
| | | | Apply techniques of precision to write a précis and formal letters by using acceptable grammar and appropriate vocabulary. |
| | | | Distinguish formal from informal reports and demonstrate advanced writing skills by drafting formal reports. |
| | | | Critique passages by applying effective reading techniques |

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| 5 | 22PYC03 | Optics and Semiconductor Physics Lab | Interpret the errors in the results of an experiment. |
| | | | Demonstrate physical properties of light experimentally |
| | | | Make use of lasers and optical fibers for engineering applications |
| | | | Explain the V-I characteristics of some optoelectronic and semiconductor devices |
| | | | Find the applications of thermistor |
| 6 | 22EGC02 | English lab | Define the speech sounds in English and understand the nuances of pronunciation in English |
| | | | Apply stress correctly and speak with the proper tone, intonation and rhythm |
| | | | Analyze listening comprehension texts to enhance their listening skills. |
| | | | Determine the context and speak appropriately in various situations. |
| | | | Design and present effective posters while working in teams, and discuss and participate in Group discussions. |
| 7 | 22CSC02 | Problem Solving and Programming Lab | Understand various Python program development Environments |
| | | | Demonstrate the concepts of Python |
| | | | Implement algorithms/flowcharts using Python to solve real-world problems. |
| | | | Build and manage dictionaries to manage data. |
| | | | Write Python functions to facilitate code reuse. |
| | | | Use Python to handle files and memory. |
| 8 | 22MEC01 | CAD AND DRAFTING | Become conversant with appropriate use of CAD software for drafting. |
| | | | Recognize BIS, ISO Standards and conventions in Engineering Drafting. |
| | | | Construct the projections of points, lines, planes, solids |
| | | | Analyse the internal details of solids through sectional views |
| | | | Create an isometric projections and views |
| 9 | 22MEC38 | Digital Fabrication Lab | Understand safety measures to be followed in workshop to avoid accidents. |
| | | | Identify various tools used in carpentry, house wiring and plumbing. |
| | | | Make a given model by using workshop trades like carpentry, plumbing, House wiring and 3d modeling using solid works software for Additive Manufacturing. |
| | | | Perform pre-processing operations on STL files for 3D printing, also understand reverse engineering process. |
| | | | Conceptualize and produce simple device/mechanism of their choice. |

| 11 | 22MTC04 | Differential Equations & Numerical Methods | Calculate the solutions of first order linear differential equations. |
| | | | Calculate the solutions of higher order linear differential equations. |
| | | | Solve the algebraic, transcendental and system of equations. |
| | | | Apply interpolation and numerical differentiation techniques for given data. |
| | | | Test the convergence and divergence of Infinite series. |
| 12 | 22CYC01 | Chemistry | Identify the microscopic chemistry in terms of molecular orbitals, intermolecular forces and rate of chemical reactions. |
| | | | Discuss the properties and processes using thermodynamic functions, electrochemical cells and their role in batteries and fuel cells. |
| | | | Illustrate the major chemical reactions that are used in the synthesis of organic molecules. |
| | | | Classify the various methods used in treatment of water for domestic and industrial use. |
| | | | Outline the synthesis of various Engineering materials & Drugs. |
| 13 | 22EEC01 | Basic Electrical Engineering | Understand the concepts of Kirchhoff's laws and their application various theorems to get solution of simple dc circuits. |
| | | | Predict the steady state response of RLC circuits with AC single phase/three phase supply. |
| | | | Infer the basics of single phase transformer |
| | | | Describe the construction, working principle of DC machine and 3-phase Induction motor. |
| | | | Acquire the knowledge of electrical wires, cables, earthing, Electrical safety precautions to be followed in electrical installations and electric shock and its safety and energy calculations. |
| 14 | 22CSC03 | Object Oriented Programming | Understand the concepts of Object-Oriented features. |
| | | | Apply OOPs concepts and different libraries to solve programming problems. |
| | | | Understand the advanced concepts of Python. |
| | | | Develop programs to access databases and web data. |
| | | | Understand APIs and third-party libraries to be used with Python. |
| 14 | 22CYC02 | Chemistry Lab | Identify the basic chemical methods to analyse the substances quantitatively & qualitatively. |
| | | | Estimate the amount of chemical substances by volumetric analysis. |
| | | | Determine the rate constants of reactions from concentration of reactants/ products as a function of time. |
| | | | Calculate the concentration and amount of various substances using instrumental techniques. |
| | | | Develop the basic drug molecules and polymeric compounds. |

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| 15 | 22MBC02 | Community Engagement | Gain an understanding of Rural life, Culture and Social realities. |
| | | | Develop a sense of empathy and bonds of mutuality with Local Communities. |
| | | | Appreciate significant contributions of Local communities to Indian Society and Economy. |
| | | | Exhibit the knowledge of Rural Institutions and contributing to Community's Socio-Economic improvements. |
| | | | Utilise the opportunities provided by Rural Development Programmes. |
| 16 | 22CSC04 | Object-Oriented Programming Lab | Demonstrate the features of Object-Oriented Programming. |
| | | | Understand APIs and third-party libraries to be used with Python. |
| | | | Use Python libraries to solve real-world problems. |
| | | | Write scripts to solve data science/machine leaning problems using NumPy and Pandas. |
| | | | Develop applications by accessing web data and databases. |
| 17 | 22MEC37 | Robotics & Drones Lab | Demonstrate knowledge of the relationship between mechanical structures of robotics and their operational workspace characteristics |
| | | | Understand mechanical components, motors, sensors and electronic circuits of robots and build robots. |
| | | | Demonstrate knowledge of robot controllers. |
| | | | Use Linux environment for robotic programming. |
| | | | Write Python scripts to control robots using Python and Open CV. |
| 18 | 22EEC02 | Basic Electrical Engineering Lab | Comprehend the circuit analysis techniques using various circuital laws and theorems |
| | | | Analyse the parameters of the given coil and measurement of power and energy in AC circuits |
| | | | Determine the turns ration/performance parameters of single-phase transformer |
| | | | Infer the characteristics of DC shunt motor different tests. |
| | | | Illustrate different parts and their function of electrical components, equipment and machines. |

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COMMITTED TO
RESEARCH,
INNOVATION AND
EDUCATION

44
years

**R20**

## Department Vision

To be in the frontiers of Computer Science and Engineering with academic excellence and Research.

## Department Mission

The mission of the Computer Science and Engineering Department is to:

1. Educate students with the best practices of Computer Science by integrating the latest research into the curriculum
2. Develop professionals with sound knowledge in theory and practice of Computer Science and Engineering
3. Facilitate the development of academia-industry collaboration and societal outreach programs
4. Prepare students for full and ethical participation in a diverse society and encourage lifelong learning

# B.E. Program Outcomes (PO's)

**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization for the solution of complex engineering problems.

**Problem analysis:** Identify, formulate, research literature, and analyse 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 public health and safety, and 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 modelling 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 the 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:** Recognise 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 EDUCATION OBJECTIVES (PEOs):** After the completion of the program, our:
1. Graduates will apply their knowledge and skills to succeed in their careers and/or obtain advanced degrees, provide solutions as entrepreneurs
2. Graduates will creatively solve problems, communicate effectively, and successfully function in multidisciplinary teams with superior work ethics and values
3. Graduates will apply principles and practices of Computer Science, mathematics and Science to successfully complete hardware and/or software-related engineering projects to meet customer business objectives and/or productively engage in research

**PROGRAM SPECIFIC OUTCOMES (PSOs):** At the end of the program
1. Graduates will acquire the practical competency in Computer Science and Engineering through emerging technologies and open-source platforms related to the domains
2. Graduates will design and develop innovative products by applying principles of computer science

and engineering

3. Graduates will be able to successfully pursue higher education in reputed institutions and provide solutions as entrepreneurs.

4. Graduates will be able to work in multidisciplinary teams for career growth by exhibiting work ethics and values

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## Department of Computer Science and Engineering
## Course Outcomes Statements for BE(AI&ML)-R20

| S.No | Course Code | Course Name | Course Outcomes Statements |
|------|------|------|------|
| 1. | 20MTC01 | LINEAR ALGEBRA & CALCULUS (M-I) | Apply the Matrix Methods to solve the system of linear equations. |
| | | | Test the convergence and divergence of the infinite Series. |
| | | | Determine the extreme values of functions of two variables. |
| | | | Apply the vector differential operator to scalar and vector functions. |
| | | | Solve line, surface & volume integrals by Greens, Gauss and Stoke's theorems. |
| 2. | 20PY C01 | OPTICS AND SEMICONDUCTOR PHYSICS | Demonstrate the physical properties of light. |
| | | | Explain characteristic properties of lasers and fiber optics. |
| | | | Find the applications of quantum mechanics. |
| | | | Classify the solids depending upon electrical conductivity |
| | | | Identify different types of semiconductors |
| 3. | 20CSC01 | PROBLEM SOLVING AND PROGRAMMING | Understand real world problems and develop computer solutions for those problems. |
| | | | Understand the basics of Python |
| | | | Apply Python for solving basic programming solutions |
| | | | Create algorithms/flowcharts for solving real-time problems. |
| | | | Build and manage dictionaries to manage data. |
| | | | Handle data using files |
| 4. | 20EGC 01 | ENGLISH | Illustrate the nature, process and types of communication and communicate effectively without barriers |
| | | | Construct and compose coherent paragraphs, emails and adhering to appropriate mobile etiquette. |

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| | | | Apply techniques of precision to write a précis and formal letters by using acceptable grammar and appropriate vocabulary. |
| | | | Distinguish formal from informal reports and demonstrate advanced writing skills by drafting formal reports. |
| | | | Critique passages by applying effective reading techniques |
| 5. | 20MT C02 | LINEAR ALGEBRA & CALCULUS LAB | Apply the Matrix operations in executing various programmes. |
| | | | Test the convergence and divergence of the infinite Series. |
| | | | Explore the extreme values of functions of two variables. |
| | | | Determine the gradient, divergent and curl of scalar and vector point functions |
| | | | Solve line, surface & volume integrals by Greens, Gauss and Stoke's theorems |
| 6. | 20EGC 02 | ENGLISH LAB | Define the speech sounds in English and understand the nuances of pronunciation in English |
| | | | Apply stress correctly and speak with the proper tone, intonation and rhythm. |
| | | | Analyze IELTS and TOEFL listening comprehension texts to enhance their listening skills. |
| | | | Determine the context and speak appropriately in various situations. |
| | | | Design and present effective posters while working in teams, and discuss and participate in Group discussions. |
| 7. | 20PY C03 | OPTICS AND SEMICONDUCTOR PHYSICS LAB | Interpret the errors in the results of an experiment. |
| | | | Demonstrate physical properties of light experimentally |
| | | | Make use of lasers and optical fibers for engineering applications |
| | | | Explain the V-I characteristics of some optoelectronic and semiconductor devices |
| | | | Find the applications thermistor |
| 8. | 20CS C02 | PROGRAMMING LAB - I | Understand various Python program development Environments. |
| | | | Demonstrate the concepts of Python. |

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| | | | Implement algorithms/flowcharts using Python to solve real-world problems. |
| | | | Build and manage dictionaries to manage data. |
| | | | Write Python functions to facilitate code reuse. |
| | | | Use Python to handle files and memory. |
| 9. | 20MEC01 | CAD AND DRAFTING | Become conversant with appropriate use of CAD software for drafting. |
| | | | Recognize BIS, ISO Standards and conventions in Engineering Drafting. |
| | | | Construct the projections of points, lines, planes, solids |
| | | | Analyse the internal details of solids through sectional views |
| | | | Create an isometric projections and views |
| 10. | 20MB C02 | COMMUNITY ENGAGEMENT | Gain an understanding of Rural life, Culture and Social realities. |
| | | | Develop a sense of empathy and bonds of mutuality with Local Communities. |
| | | | Appreciate significant contributions of Local communities to Indian Society and Economy. |
| | | | Exhibit the knowledge of Rural Institutions and contributing to Community's Socio-Economic improvements. |
| | | | Utilise the opportunities provided by Rural Development Programmes. |
| 11. | 20MT C03 | DIFFERENTIAL EQUATIONS & TRANSFORM THEORY | Calculate the solutions of first order linear differential equations. |
| | | | Calculate the solutions of higher order linear differential equations. |
| | | | Examine the series solutions for higher order differential equations. |
| | | | Evaluate the Improper integrals by Fourier Transform. |
| | | | Solve the difference equations byZ-transforms. |
| 12. | 20CYC01 | CHEMISTRY | Identify the microscopic chemistry in terms of molecular orbitals, intermolecular forces and rate of chemical reactions. |
| | | | Discuss the properties and processes using thermodynamic functions, electrochemical cells and their role in batteries and fuel cells. |
| | | | Illustrate the major chemical reactions that are used in |

| | | | the synthesis of organic molecules. |
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| | | | Classify the various methods used in treatment of water for domestic and industrial use. |
| | | | Outline the synthesis of various Engineering materials & Drugs. |
| 13. | 20CS C05 | INDUSTRY 4.0 | Identify the key drivers and enablers of Industry4.0 |
| | | | Describe the smartness in smart factories, smart cities, smart products, ad smart services |
| | | | Determine various systems used in manufacturing plants, and their role in an Industry 4.0world |
| | | | Illustrate the power of Cloud Computing in a networked economy |
| | | | Understand the opportunities, challenges, brought about by Industry 4.0 and how organizations and individuals should prepare to reap the benefits |
| 14. | 20CSC03 | OBJECT ORIENTED PROGRAMMING | Understand the concepts of Object-Oriented features. |
| | | | Apply OOPs concepts and different libraries to solve programming problems. |
| | | | Understand the advanced concepts of Python. |
| | | | Develop programs to access databases and web data. |
| | | | Understand APIs and third-party libraries to be used with Python. |
| 15. | 20MT C03 | DIFFERENTIAL EQUATIONS & TRANSFORM THEORY LAB | Explore all the possible solutions of first order differential equation. |
| | | | Analyse the solutions of higher order linear differential equations. |
| | | | Examine the series solutions for higher order differential equations. |
| | | | Evaluate the Improper integrals by Fourier Transform. |
| | | | Apply the Z-transform to solve the difference equations. |
| 16. | 20CYC02 | CHEMISTRY LAB | Identify the basic chemical methods to analyse the substances quantitatively & qualitatively. |
| | | | Estimate the amount of chemical substances by volumetric analysis. |
| | | | Determine the rate constants of reactions from concentration of reactants/ products as a function of time. |
| | | | Calculate the concentration and amount of various substances using instrumental techniques. |

| | | | Develop the basic drug molecules and polymeric compounds. |
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| 17. | 20CSC04 | OBJECT-ORIENTED PROGRAMMING LAB | Demonstrate the features of Object-Oriented Programming. |
| | | | Understand APIs and third-party libraries to be used with Python. |
| | | | Use Python libraries to solve real-world problems. |
| | | | Write scripts to solve data science/machine leaning problems using NumPy and Pandas. |
| | | | Develop applications by accessing web data and databases. |
| 18. | 20ME C02 | WORKSHOP / MANUFACTURING PRACTICE | Understand safety measures to be followed in workshop to avoid accidents. |
| | | | Identify various tools used in fitting, carpentry, tin smithy, house wiring, welding, casting and machining processes. |
| | | | Make a given model by using workshop trades including fitting, carpentry, tinsmithy and House wiring. |
| | | | Perform various operations in welding, machining and casting processes. |
| | | | Conceptualize and produce simple device/mechanism of their choice. |
| 19. | 20ME C03 | ENGINEERING EXPLORATION | Understand the role of an engineer as a problem solver. |
| | | | Identify multi-disciplinary approaches in solving an engineering problem |
| | | | Build simple systems using engineering design process. |
| | | | Analyze engineering solutions from ethical and sustainability perspectives. |
| | | | Use basics of engineering project management skills in doing projects. |
| 20. | 20AMC01 | INTRODUCTION TO ALGORITHMS AND DATA STRUCTURES | Understand the different types of data structure to be implemented using any programming language. |
| | | | Choose the data structures that effectively model the information in a problem and analyses the efficiency trade-offs (run time and memory usage) among alternative data structure implementations or combinations. |
| | | | Design, implement, test, and debug programs using a |

| | | | variety of data structures including stacks, queues, hash tables, binary and general tree structures, search trees, and graphs. |
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| | | | Apply efficient data structure (linked lists, stacks and queues) to solve a particular problem. |
| | | | Evaluate various searching and sorting algorithms. |
| 21. | 20AMC02 | DISCRETE MATHEMATICAL STRUCTURES | Understand the basics of various discrete structures. |
| | | | Write short proofs, and disprove algebraic statements by finding counter examples. |
| | | | Apply discrete structures in the applications of Computer Science and Engineering. |
| | | | Represent data using trees and graphs. |
| | | | Gain skills to apply basic properties of rings and fields. |
| | | | State the characteristics of an integral domain, and the field of quotients. |
| 22. | 20AMC03 | GROUP THEORY AND ITS APPLICATIONS | Understand the need of Group Theory and basic concepts related to Group Theory |
| | | | Recognize the real-world applications that use group theory |
| | | | Apply group theory for identifying symmetric and non-symmetric y patterns in real-time images and structures |
| | | | Evaluate various symmetry detection algorithms |
| | | | Formulate solutions using group theory for real problems involving different patterns in the domains of Robotics, Computer Vision and Computer Graphics |
| 23. | 20AMC04 | DIGITAL LOGIC DESIGN | Demonstrate the number system conversions and simplify Boolean functions. |
| | | | Recall basic theorems and properties of Boolean algebra to represent logical functions in canonical and standard forms. |
| | | | Analyze and simplify Boolean expressions using karnaugh-maps and tabulation method. |
| | | | Analyze and Design various combinational circuits and Sequential circuits used in Computer Hardware. |
| | | | Understand the designs of Combinational and Sequential circuits using Verilog HDL. |
| | | | Develop different applications by configuring registers, counters and memories. |
| 24. | 20BTO05 | COGNITIVE | Gain familiarity and basic knowledge about brain |

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| | | | systems and functions. |
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| | | NEUROSCIENCE | Understand brain's neuro-transimitter system. |
| | | | Understanding the brain's methods gives rise to behaviour whether we engage in any activity (e.g., walking, talking, etc.). |
| | | | Identify the patterns of varied activities in neurons that correspond to a person's attempts to move in particular ways. |
| 25. | 20EGM03 | UNIVERSAL HUMAN VALUESII: UNDERSTANDING HARMONY | Students are expected to become more aware of themselves, and their surroundings (family, society, nature) |
| | | | They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind |
| | | | They would have better critical ability |
| | | | They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society). |
| | | | It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction. |
| 26. | 20AMC05 | ALGORITHMS LAB-1 | Derive abstract data types for linear and non-linear data structures. |
| | | | Implement different types of data structures using any programming language. |
| | | | Choose and Implement the data structures that effectively model the information in a problem and analyses the efficiency trade-offs (run time and memory usage) among alternative data structure implementations or combinations. |
| | | | Test and debug programs using a variety of data structures including stacks, queues, hash tables, binary and general tree structures, search trees, and graphs. |
| | | | Apply efficient data structure (linked lists, stacks and queues) to solve a particular problem |
| | | | Evaluate various searching and sorting algorithms |
| 27. | 20AMC06 | INTRODUCTION TO INFERENCE AND | Develop awareness of causal thinking and understand selection bias. |

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| | | INTERPRETATION | Understand counterfactual vital ideas and assumptions of causal inference methods. |
| | | | Apply causal inference methods to assess whether these assumptions are reasonable, and finally, the ways to interpret the quantity being estimated. |
| | | | Use R to work on data science related projects. |
| | | | Develop scripts for data visualization, analytics and dashboards. |
| 28. | 20AMC07 | MODERN COMPUTER ARCHITECTURE | Understand the organization of the Control, arithmetic, logic unit, and memory unit and the I/O. |
| | | | Analyze different computer architectures and their applications. |
| | | | Understand distributed computing architecture and high-performance computing. |
| 29. | 20AMC08 | DATABASE SYSTEMS | Understand the basics of databases and data management |
| | | | Understand various theoretical and practical principles involved in the design and use of database systems with the help of a database |
| | | | Design and implement databases for various scenarios |
| | | | Design a database scenario for handling big data |
| 30. | 20AMC09 | LINEAR REGRESSION MODLEING FOR DATA ANALYSIS | Obtain, clean, process, and transform data using data management techniques |
| | | | Analyze and interpret data to derive insights |
| | | | Apply computing algorithms, mathematical and statistical models, and optimization methods to solve underlying problems |
| 31. | 20MBC03 | STRATEGIC ENTREPRENEURSHIP | Use innovative skills to generate ideas for new products and services. |
| | | | Evaluate the feasibility of ideas, and develop a strategy from commercialization. |
| | | | Use technology to select target markets, profile target customers, define venture's mission, and create business plans. |
| | | | Take initial steps to establish a business |
| | | | Calculate and forecast costs, breakeven, and sales |
| | | | Establish brand, setting prices, promoting products, and managing customer relationships. |
| 32. | 20EEC38 | SIGNAL PROCESSING | Represents the signals and systems and Fourier series. |
| | | | Evaluate signal characteristics and systems using Fourier Transform. |

| | | | Assess the characteristics of systems using Laplace Transform. |
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| | | | Assess the characteristics the DT Signal using DTF and Z-Transform. |
| | | | Apply the Convolution and correlation for analysis of Signal. |
| 33. | 20MEC39 | ROBOTICS AND AUTOMATION | Perform kinematic and dynamitic analysis with simulation. |
| | | | Design control laws for a simple robot. |
| | | | Integrate mechanical and electrical hardware for a real prototype of robotic device. |
| | | | Select a robotic system for a given industrial application. |
| 34. | 20MEC40 | ROBOTICS AND AUTOMATION LAB | Demonstrate the understanding of assembly and working of a robot |
| | | | Analyze the robot kinematics with the help of suitable software |
| | | | Program a robot for a specific requirement |
| | | | Apply the computer vision to the robot for a given application |
| | | | Apply AI Technologies to the robot |
| 35. | 20AMC10 | DATABASE SYSTEMS LAB | Implementation of normal forms in databases. |
| | | | Implementation of basic SQL commands on a database |
| | | | Implementation of information and ranking using any language |
| | | | Implement document retrieval and ranking using any algorithm |
| | | | Implement Map-Reduce algorithm on any big data task |
| 36. | 20AMC11 | BUILDING LARGE, RELIABLE SOFTWARE SYSTEMS | Apply software construction and maintenance heuristics to build code, such as ways to eliminate global variables and methods to test complex code. |
| | | | Execute software modernization techniques such as reverse engineering, reengineering, salvaging, and restructuring. |
| | | | Organize software user documentation that enhances long-term software sustainability. |
| | | | Construct software to meet clients' expectations. |
| | | | Describe the ways configuration management is used in production systems. |

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