



**PRATHYUSHA ENGINEERING COLLEGE**  
**(An Autonomous Institution)**

**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

**Course Outcomes**

**Regulation 2023**

<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
<b>SEMESTER I</b>	
<b>MATRICES AND CALCULUS</b>	CO1: Use the matrix algebra methods for solving practical problems. CO2: Apply differential calculus tools in solving various application problems. CO3: Able to use differential calculus ideas on several variable functions. CO4: Apply different methods of integration in solving practical problems. CO5: Apply multiple integral ideas in solving areas, volumes and other practical problems.
<b>ENGINEERING PHYSICS</b>	CO1: Understand the importance of mechanics. CO2: Express their knowledge in electromagnetic waves. CO3: Demonstrate a strong foundational knowledge in oscillations, optics and lasers. CO4: Understand the importance of quantum physics. CO5: Comprehend and apply quantum mechanical principles towards the formation of energy bands.
<b>ENGINEERING CHEMISTRY</b>	CO1: To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water. CO2: To identify and apply basic concepts of nano science and nanotechnology in designing the synthesis of nano materials for engineering and technology applications. CO3: To apply the knowledge of phase rule and composites for material selection requirements. CO4: To recommend suitable fuels for engineering processes and applications. CO5: To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
ENGINEERING GRAPHICS	CO1: Use BIS conventions and specifications for engineering drawing. CO2: Construct the conic curves and cycloid. CO3: Solve practical problems involving projection of lines. CO4: Draw the orthographic, isometric and perspective projections of simple solids. CO5: Draw the development of simple solids.
PHYSICS AND CHEMISTRY LABORATORY	<b>PHYSICS LABORATORY:</b> CO1: Understand the functioning of various physics laboratory equipment. CO2: Use graphical models to analyze laboratory data. CO3: Use mathematical models as a medium for quantitative reasoning and describing physical reality. CO4: Access, process and analyze scientific information. CO5: Solve problems individually and collaboratively. <b>CHEMISTRY LABORATORY:</b> CO1: To analyze the quality of water samples with respect to their acidity, alkalinity, hardness and DO. CO2: To determine the amount of metal ions through volumetric and spectroscopic techniques CO3: To analyze and determine the composition of alloys. CO4: To learn simple method of synthesis of nano particles CO5: To quantitatively analyse the impurities in solution by electro analytical techniques
<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
COMMUNICATION SKILLS LABORATORY	CO1: Speak effectively in group discussions held in formal/semi formal contexts. CO2: Discuss, analyse and present concepts and problems from various perspectives to arrive at suitable solutions CO3: Write emails, letters and effective job applications. CO4: Write critical reports to convey data and information with clarity and precision CO5: Give appropriate instructions and recommendations for safe execution of tasks

<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
<b>SEMESTER II</b>	
<b>PROFESSIONAL ENGLISH</b>	<p>CO1: To compare and contrast products and ideas in technical texts.</p> <p>CO2: To identify and report cause and effects in events, industrial processes through technical texts</p> <p>CO3: To analyze problems in order to arrive at feasible solutions and communicate them in the written format.</p> <p>CO4: To present their ideas and opinions in a planned and logical manner</p> <p>CO5: To draft effective resumes in the context of job search.</p>
<b>DIFFERENTIAL EQUATIONS AND TRANSFORM TECHNIQUES</b>	<p>CO1: Apply the concept of testing of hypothesis for small and large Samples in real life problems.</p> <p>CO2: Apply the basic concepts of classifications of design of experiments in the field of agriculture.</p> <p>CO3: Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.</p> <p>CO4: Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.</p> <p>CO5: Solve the partial and ordinary differential equations with Initial and boundary conditions by using certain techniques with engineering applications.</p>
<b>BASIC ELECTRICAL AND ELECTRONICS ENGINEERING</b>	<p>CO1: Compute the electric circuit parameters for simple problems</p> <p>CO2: Explain the working principle and applications of electrical machines</p> <p>CO3: Analyze the characteristics of analog electronic devices</p> <p>CO4: Explain the basic concepts of digital electronics</p> <p>CO5: Explain the operating principles of measuring instruments</p>
<b>PROBLEM SOLVING USING C</b>	<p>CO1: Demonstrate knowledge on C Programming constructs</p> <p>CO2: Develop simple applications in C using basic constructs</p> <p>CO3: Design and implement applications using arrays and strings</p> <p>CO4: Develop and implement modular applications in C using functions.</p> <p>CO5: Develop applications in C using structures and pointers.</p> <p>CO6: Design applications using sequential and random access file processing.</p>

<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
ENGINEERING PRACTICES LABORATORY	<p>CO1: Draw pipe line plan; lay and connect various pipe fittings used in common household plumbing work; Saw; plan; make joints in wood materials used in common household wood work.</p> <p>CO2: Wire various electrical joints in common household electrical wire work.</p> <p>CO3: Weld various joints in steel plates using arc welding work; Machine various simple processes like turning, drilling, tapping in parts; Assemble simple mechanical assembly of common household equipments; Make a tray out of metal sheet using sheet metal work.</p> <p>CO4: Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.</p>
PROBLEM SOLVING USING C LABORATORY	<p>CO1: Demonstrate knowledge on C programming constructs.</p> <p>CO2: Develop programs in C using basic constructs.</p> <p>CO3: Develop programs in C using arrays.</p> <p>CO4: Develop applications in C using strings, pointers, functions.</p> <p>CO5: Develop applications in C using structures.</p> <p>CO6: Develop applications in C using file processing.</p>

<b>SEMESTER III</b>	
<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
DISCRETE MATHEMATICS	<p>CO1: Have knowledge of the concepts needed to test the logic of a program.</p> <p>CO2: Have an understanding in identifying structures on many levels.</p> <p>CO3: Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.</p> <p>CO4: Be aware of the counting principles.</p> <p>CO5: Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.</p>
DATA SCIENCE USING PYTHON	<p>CO1: Understand the fundamentals of python programming</p> <p>CO2: Use the Python Libraries for Data Manipulation.</p> <p>CO3: Define the data science process.</p> <p>CO4: understand different types of data description for data science process</p> <p>CO5: Gain knowledge on relationships between data</p>

<b>COURSE NAME</b>	<b>COURSE OUTCOMES</b>
ARTIFICIAL INTELLIGENCE	CO1: Explain intelligent agent frameworks CO2: Apply problem solving techniques CO3: Apply game playing and CSP techniques CO4: Perform logical reasoning CO5: Perform probabilistic reasoning under uncertainty
DATA STRUCTURES	CO1: Define linear and non-linear data structures. CO2: Implement linear and non-linear data structure operations. CO3: Use appropriate linear/non-linear data structure operations for solving a given problem. CO4: Apply appropriate graph algorithms for graph applications. CO5: Analyze the various searching and sorting algorithms.
OBJECT ORIENTED PROGRAMMING	CO1: Apply the concepts of classes and objects to solve simple problems CO2: Develop programs using inheritance, packages and interfaces CO3: Make use of exception handling mechanisms and multithreaded model to solve real world problems CO4: Build Java applications with I/O packages, string classes, Collections and generics concepts CO5: Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications
DATA STRUCTURES LABORATORY	CO1: Implement Linear data structure algorithms. CO2: Implement applications using Stacks and Linked lists CO3: Implement Binary Search tree and AVL tree operations. CO4: Implement graph algorithms. CO5: Analyze the various searching and sorting algorithms
OBJECT ORIENTED PROGRAMMING LABORATORY	CO1 : Design and develop java programs using object oriented programming concepts CO2 : Develop simple applications using object oriented concepts such as package, exceptions CO3: Implement multithreading, and generics concepts CO4 : Create GUIs and event driven programming applications for real world problems CO5: Implement and deploy web applications using Java