



PRINCE Dr. K. VASUDEVAN COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Affiliated to Anna University & ISO 9001:2015 Certified Institution)
Medavakkam-Mambakkam Main Road, Ponmar, Chennai-600127

DEPARTMENT OF AI & DS

2021 REGULATION

HS3151 PROFESSIONAL ENGLISH – I

C101.1	To use appropriate words in a professional context.
C101.2	To understand the basic grammatical structures and use them in right context.
C101.3	To read and infer the denotative and connotative meanings of technical texts
C101.4	To write definitions, descriptions, narrations and essays on various topics
C101.5	Interpret different genres of texts adopting various reading strategies and to write comprehensively.

MA3151 MATRICES AND CALCULUS

C102.1	To develop matrix algebra methods for solving practical problems
C102.2	Apply differential calculus tools in solving various application problems
C102.3	Able to use differential calculus ideas on several variable functions.
C102.4	Apply different methods of integration in solving practical problems.
C102.5	Apply multiple integral ideas in solving areas, volumes and other practical problems



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PH3151 ENGINEERING PHYSICS

C103.1	Understand the importance of mechanics
C103.2	Express their knowledge in electromagnetic waves.
C103.3	Demonstrate a strong foundational knowledge in oscillations, optics and lasers.
C103.4	Understand the importance of quantum physics.
C103.5	Comprehend and apply quantum mechanical principles towards the formation of energy bands.

CY3151ENGINEERING CHEMISTRY

C104.1	To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water.
C104.2	To identify and apply basic concepts of nano science and nanotechnology in designing the synthesis of nano materials for engineering and technology applications.
C104.3	To apply the knowledge of phase rule and composites for material selection requirements.
C104.4	To recommend suitable fuels for engineering processes and applications
C104.5	To recognize different forms of energy resources and apply them for suitable applications in energy sectors.

GE3151PROBLEM SOLVING AND PYTHON PROGRAMMING

C105.1	Develop algorithmic solutions to simple computational problems
C105.2	Develop and execute simple Python programs
C105.3	Ability to Write simple Python programs using conditionals and loops for solving problems
C105.4	Decompose a Python program into functions.
C105.5	Explain compound data using Python lists, tuples, dictionaries etc.



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GE3171 PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY

C106.1	Develop algorithmic solutions to simple computational problems
C106.2	Develop and execute simple Python programs.
C106.3	Implement programs in Python using conditionals and loops for solving problems
C106.4	Explain Deploy functions to decompose a Python program
C106.5	Explain Process compound data using Python data structures

BS3171 PHYSICS AND CHEMISTRY LABORATORY

C107.1	To analyse the quality of water samples with respect to their acidity, alkalinity, hardness.
C107.2	To determine the amount of metal ions through volumetric and spectroscopic techniques.
C107.3	Apply mathematical models as a medium for quantitative reasoning and describing physical reality.
C107.4	To learn simple method of synthesis of nano particles.
C107.5	Ability to Access, process and analyze scientific information.

GE3172 ENGLISH LABORATORY

C108.1	To listen and comprehend complex academic texts.
C108.2	To speak fluently and accurately in formal and informal communicative contexts.
C108.3	To express their opinions effectively in both oral and written medium of communication.



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C108.4	Ability to listen/view and comprehend different spoken excerpts critically and infer unspoken and implied meanings and write reports and winning job applications.
C108.5	Ability to identify, define and express the different components of grammar and Speak appropriately and effectively in varied formal and informal contexts.

HS3251PROFESSIONAL ENGLISH -II

C109.1	To compare and contrast products and ideas in technical texts.
C109.2	To identify cause and effects in events, industrial processes through technical texts
C109.3	To analyse problems in order to arrive at feasible solutions and communicate them orally and in the written format.
C109.4	To report events and the processes of technical and industrial nature.
C109.5	To present their opinions in a planned and logical manner, and draft effective resumes in context of job search.

MA3251STATISTICS AND NUMERICAL METHODS

C110.1	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C110.2	Apply the basic concepts of classifications of design of experiments in the field of agriculture.
C110.3	Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
C110.4	Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations
C110.5	Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.



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PH3256 PHYSICS FOR INFORMATION SCIENCE

C111.1	Understand the knowledge on classical and quantum electron theories, and energy band structures.
C111.2	Acquire knowledge on basics of semiconductor physics and its applications in various devices.
C111.3	Apply knowledge on magnetic properties of materials and their applications in data storage
C111.4	Understand the function of optical materials for optoelectronics
C111.5	Understand the basics of quantum structures and their applications and basics of quantum computing

BE3251 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

C112.1	Compute the electric circuit parameters for simple problems.
C112.2	Explain the working principle and applications of electrical machines.
C112.3	Analyze the characteristics of analog electronic devices.
C112.4	Explain the basic concepts of digital electronics.
C112.5	Explain the operating principles of measuring instruments

GE3251 ENGINEERING GRAPHICS

C113.1	Use BIS conventions and specifications for engineering drawing
C113.2	Construct the conic curves, involutes and cycloid
C113.3	Solve practical problems involving projection of lines
C113.4	Draw the orthographic, isometric and perspective projections of simple solids
C113.5	Ability to develop a simple solids



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AD3251 DATA STRUCTURES DESIGN

C114.1	Explain abstract data types.
C114.2	Design, implement, and analyse linear data structures, such as lists, queues and stacks, according to the needs of different applications.
C114.3	Design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting.
C114.4	Explain graph problems and implement efficient graph algorithms to solve them.
C114.5	Design implement, and analyse efficient graph traversals, minimum spanning trees.

GE3271 ENGINEERING PRACTICES LABORATORY

C115.1	Construct a 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
C115.2	Explain various electrical joints in common household electrical wire work.
C115.3	Explain 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.
C115.4	Ability to make a tray out of metal sheet using sheet metal work.
C115.5	Ability to solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.

AD3271 DATA STRUCTURES DESIGN LABORATORY

C116.1	Implement ADTs as Python classes.
C116.2	Design, implement, and analyse linear data structures, such as lists, queues, and stacks, according to the needs of different applications.
C116.3	Design, implement, and analyse efficient tree structures to meet requirements such as searching, indexing, and sorting.



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C116.4	Explain graph problems and implement efficient graph algorithms to solve them.
C116.5	Design implement, and analyse efficient graph traversals, minimum spanning trees.

GE3272 Communication Laboratory

C117.1	Ability to speak effectively in group discussions held in a formal/semi formal contexts.
C117.2	Able to write emails and effective job applications
C117.3	Identify varied group discussion skills and apply them to take part in effective discussions in a professional context
C117.4	Able to communicate effectively through writing
C117.5	Able to use appropriate words in a professional context

MA3354 DISCRETE MATHEMATICS

C201.1	Apply the knowledge of the concepts needed to test the logic of a program.
C201.2	Understanding in identifying structures on many levels
C201.3	Understand the class of functions which transform a finite set into another finite set which relates to input and output functions in computer science
C201.4	Apply the concept of the counting principles.
C201.5	Apply the concepts and properties of algebraic structures such as groups, rings and fields.

CS3351 DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION

C202.1	Design various combinational digital circuits using logic gates.
C202.2	Design sequential circuits and analyze the design procedures
C202.3	State the fundamentals of computer systems and analyze the execution of an instruction



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C202.4	Analyze different types of control design and identify hazards
C202.5	Identify the characteristics of various memory systems and I/O communication

AD3391 DATABASE DESIGN AND MANAGEMENT

C203.1	Understand the database development life cycle and apply conceptual modeling.
C203.2	Apply SQL and programming in SQL to create, manipulate and query the database.
C203.3	Apply the conceptual-to-relational mapping and normalization to design relational database.
C203.4	Determine the serializability of any non-serial schedule using concurrency techniques.
C203.5	Apply the data model and querying in Object-relational and No-SQL databases.

AD3351 DESIGN AND ANALYSIS OF ALGORITHMS

C204.1	Analyze the efficiency of recursive and non-recursive algorithms mathematically.
C204.2	Analyze the efficiency of brute force, divide and conquer, decrease and conquer, Transform and conquer algorithmic techniques.
C204.3	Implement and analyze the problems using dynamic programming and greedy algorithmic techniques.
C204.4	Solve the problems using iterative improvement techniques for optimization.
C204.5	Compute the limitations of algorithmic power and solve the problems using backtracking and branch and bound techniques.



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AD3301 DATA EXPLORATION AND VISUALIZATION

C205.1	Understand the fundamentals of exploratory data analysis.
C205.2	Implement the data visualization using Matplotlib.
C205.3	Perform univariate data exploration and analysis
C205.4	Apply bivariate data exploration and analysis.
C205.5	Apply Data exploration and visualization techniques for multivariate and time series data.

AL3391 ARTIFICIAL INTELLIGENCE

C206.1	Explain intelligent agent frameworks.
C206.2	Apply problem solving techniques.
C206.3	Apply game playing and CSP techniques.
C206.4	Perform logical reasoning.
C206.5	Perform probabilistic reasoning under uncertainty.

AD3381 DATABASE DESIGN AND MANAGEMENT LABORATORY

C207.1	Understand the database development life cycle.
C207.2	Design relational database using conceptual-to-relational mapping, Normalization.
C207.3	Apply SQL for creation, manipulation and retrieval of data.
C207.4	Create GUIs and event driven programming applications for real world problems
C207.5	Design and query object-relational databases.



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AD3311 ARTIFICIAL INTELLIGENCE LABORATORY

C208.1	Design and implement search strategies
C208.2	Implement game playing and CSP techniques
C208.3	Develop logical reasoning systems
C208.4	Develop probabilistic reasoning systems
C208.5	Implement Bayesian networks and perform inferences

GE3361 PROFESSIONAL DEVELOPMENT

C209.1	Create quality documents, by structuring and organizing content for their day to day technical and academic requirements by using MS WORD.
C209.2	To perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding BY USING MS EXCEL.
C209.3	To create high quality academic presentations by including common tables, charts, graphs, interlinking other elements, and using media objects BY USING MS PowerPoint.
C209.4	Ability to organize the content for their day to day technical and academic requirements by using Ms WORD.
C209.5	To create common tables, charts and using media objects by using Ms PowerPoint.

MA3391 PROBABILITY AND STATISTICS

C210.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
C210.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C210.3	Apply the concept of testing of hypothesis for small and large samples in real life problems.
C210.4	Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control.
C210.5	Have the notion of sampling distributions and statistical techniques used in



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	engineering and management problems.
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AL3452 OPERATING SYSTEMS

C211.1	Analyze various scheduling algorithms and process synchronization.
C211.2	Explain deadlock, prevention and avoidance algorithms.
C211.3	Compare and contrast various memory management schemes.
C211.4	Explain the functionality of file systems I/O systems, and Virtualization.
C211.5	Compare iOS and Android Operating Systems.

AL3451 MACHINE LEARNING

C212.1	Explain the basic concepts of machine learning.
C212.2	Construct supervised learning models.
C212.3	Construct unsupervised learning algorithms.
C212.4	Evaluate and compare different models.
C212.5	Evaluate and compare two classification algorithms.

AD3491 FUNDAMENTALS OF DATA SCIENCE AND ANALYTICS

C213.1	Explain the data analytics pipeline.
C213.2	Describe and visualize data.
C213.3	Perform statistical inferences from data.
C213.4	Analyze the variance in the data
C213.5	Implement build models for predictive analytics.

CS3591 COMPUTER NETWORKS

C214.1	Explain the basic layers and its functions in computer networks.
C214.2	Understand the basics of how data flows from one node to another.
C214.3	Analyze routing algorithms.
C214.4	Describe protocols for various functions in the network.



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C214.5	Analyze the working of various application layer protocols.
GE3451 ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	
C215.1	Create public awareness of environmental is at infant stage
C215.2	Understand the problem posed by Environmental Pollution which cannot be solved by mere laws
C215.3	Comprehend the natural resources available to us
C215.4	Analyze and provide judgmental solutions to prevailing social issues in the environment
C215.5	Develop and improve standard of living

AD3411 DATA SCIENCE AND ANALYTICS LABORATORY

C216.1	Ability to write python programs to handle data using Numpy and Pandas.
C216.2	Perform descriptive analytics.
C216.3	Perform data exploration using Matplotlib.
C216.4	Perform inferential data analytics.
C216.5	Implement build models of predictive analytics.

AL3461 MACHINE LEARNING LABORATORY

C217.1	Apply suitable algorithms for selecting the appropriate features for analysis
C217.2	Implement supervised machine learning algorithms on standard datasets and evaluate the performance.
C217.3	Apply unsupervised machine learning algorithms on standard datasets and evaluate the performance.
C217.4	Design the graph based learning models for standard data sets.
C217.5	Assess and compare the performance of different ML algorithms and select the suitable one based on the application.