DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE OUTCOME

Regulation 2021

Sem.	Course code	Course Name	Course Outcome
I	HS3151	PROFESSIONAL ENGLISH I	• To use appropriate words in a professional context • To gain understanding of basic grammatic structures and use them in right context. • To read and infer the denotative and connotative meanings of technical texts • • To write definitions, descriptions, narrations and essays on various topics
I	MA3151	MATRICES AND CALCULUS	• Use the matrix algebra methods for solving practical problems. • Apply differential calculus tools in solving various application problems. • Able to use differential calculus ideas on several variable functions. • Apply different methods of integration in solving practical problems • . • Apply multiple integral ideas in solving areas, volumes and other practical problems.
I	PH3151	ENGINEERING PHYSICS	• Understand the importance of mechanics. • Express their knowledge in electromagnetic waves. • Demonstrate a strong foundational knowledge in oscillations, optics and lasers. • Understand the importance of quantum physics. • Comprehend and apply quantum mechanical principles towards the formation of energy bands
I	CY3151	ENGINEERING CHEMISTRY	• To infer the quality of water from quality parameter data and propose suitable treatment methodologies to treat water. • To identify and apply basic concepts of nanoscience and nanotechnology in designing the synthesis of nanomaterials for engineering and technology applications. • To apply the knowledge of phase rule and composites for material selection requirements. • To recommend suitable fuels for engineering processes and applications. • To recognize different forms of energy resources and apply them for suitable applications in energy sectors

I	GE3151	PROBLEM SOLVING AND PYTHON PROGRAMMING	• Develop algorithmic solutions to simple computational problems. Develop and execute simple Python programs. • Write simple Python programs using conditionals and loops for solving problems. • Decompose a Python program into functions. • Represent compound data using Python lists, tuples, dictionaries etc. • Read and write data from/to files in Python programs.
I	GE3152	HERITAGE OF TAMILS	
I	GE3171	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	• Develop algorithmic solutions to simple computational problems : Develop and execute simple Python programs. • Implement programs in Python using conditionals and loops for solving problems. • Deploy functions to decompose a Python program. • Process compound data using Python data structures. • Utilize Python packages in developing software applications.
I	BS3171	PHYSICS AND CHEMISTRY LABORATORY	• Understand the functioning of various physics laboratory equipment. • Use graphical models to analyze laboratory data. • Use mathematical models as a medium for quantitative reasoning and describing physical reality. • Access, process and analyze scientific information. • Solve problems individually and collaboratively • To analyse the quality of water samples with respect to their acidity, alkalinity, hardness and DO. • To determine the amount of metal ions through volumetric and spectroscopic techniques • To analyse and determine the composition of alloys. • To learn simple method of synthesis of nanoparticles • To quantitatively analyse the impurities in solution by electroanalytical techniques
I	GE3172	ENGLISH LABORATORY	• To listen and comprehend complex academic texts • To speak fluently and accurately in formal and informal communicative contexts • To express their opinions effectively in both oral and written medium of communication
II	HS3251	PROFESSIONAL ENGLISH -II	• To compare and contrast products and ideas in technical texts. • To identify cause and effects in events, industrial processes through technical texts • To analyse problems in order to arrive at feasible solutions and communicate them orally and in the written format. • To report events and the processes of technical and industrial nature. • To present their opinions in a planned and logical manner,

			and draft effective resumes in context of job search
II	MA3251	STATISTICS AND NUMERICAL METHODS	• Apply the concept of testing of hypothesis for small and large samples in real life problems. • Apply the basic concepts of classifications of design of experiments in the field of agriculture. • Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems. • Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations. • Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.
II	PH3256	PHYSICS FOR INFORMATION SCIENCE	• gain knowledge on classical and quantum electron theories, and energy band structures • acquire knowledge on basics of semiconductor physics and its applications in various devices • get knowledge on magnetic properties of materials and their applications in data storage, • have the necessary understanding on the functioning of optical materials for optoelectronics • understand the basics of quantum structures and their applications and basics of quantum computing
II	BE3251	BASIC ELECTRICAL AND ELECTRONICS ENGINEERING	• Compute the electric circuit parameters for simple problems • Explain the working principle and applications of electrical machines • Analyze the characteristics of analog electronic devices • Explain the basic concepts of digital electronics • Explain the operating principles of measuring instruments
II	GE3251	ENGINEERING GRAPHICS	• Use BIS conventions and specifications for engineering drawing. • Construct the conic curves, involutes and cycloid. • Solve practical problems involving projection of lines. • Draw the orthographic, isometric and perspective projections of simple solids. • Draw the development of simple solids.
II	CS3251	PROGRAMMING IN C	• Demonstrate knowledge on C Programming constructs • Develop simple applications in C using basic constructs • Design and implement applications using arrays and strings Develop and implement modular applications in C using functions. • Develop applications in C using structures and pointers. • Design applications using sequential and random access file processing

II	GE3252	TAMILS AND TECHNOLOGY	
II	GE3271	ENGINEERING PRACTICES LABORATORY	• 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. • Wire various electrical joints in common household electrical wire work. • 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. • Solder and test simple electronic circuits; Assemble and test simple electronic components on PCB.
II	CS3271	PROGRAMMING IN C LABORATORY	• Demonstrate knowledge on C programming constructs. • Develop programs in C using basic constructs. • Develop programs in C using arrays. • Develop applications in C using strings, pointers, functions. Develop applications in C using structures. • Develop applications in C using file processing
II	GE3272	COMMUNICATION LABORATORY	• Speak effectively in group discussions held in a formal/semi formal contexts. • Write emails and effective job applications.
III	MA3354	DISCRETE MATHEMATICS	• Have knowledge of the concepts needed to test the logic of a program. • Have an understanding in identifying structures on many levels. • 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. • Be aware of the counting principles. • Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.
III	CS3351	DIGITAL PRINCIPLES AND COMPUTER ORGANIZATION	• Design various combinational digital circuits using logic gates • Design sequential circuits and analyze the design procedures : State the fundamentals of computer systems and analyze the execution of an instruction • Analyze different types of control design and identify hazards Identify the characteristics of various memory systems and I/O communication
III	CS3352	FOUNDATIONS OF DATA SCIENCE	• Define the data science process • Understand different types of data description for data science process • Gain knowledge on relationships between data • Use the Python Libraries for Data Wrangling

			• Apply visualization Libraries in Python to interpret and explore data
III	CS3301	DATA STRUCTURES	• Define linear and non-linear data structures. • Implement linear and non–linear data structure operations. • Use appropriate linear/non–linear data structure operations for solving a given problem. • Apply appropriate graph algorithms for graph applications. • Analyze the various searching and sorting algorithms
III	CS3391	OBJECT ORIENTED PROGRAMMING	• Apply the concepts of classes and objects to solve simple problems • Develop programs using inheritance, packages and interfaces • Make use of exception handling mechanisms and multithreaded model to solve real world problems • Build Java applications with I/O packages, string classes, Collections and generics concepts • Integrate the concepts of event handling and JavaFX components and controls for developing GUI based applications
III	CS3311	DATA STRUCTURES LABORATORY	• Implement Linear data structure algorithms. • Implement applications using Stacks and Linked lists • Implement Binary Search tree and AVL tree operations. • Implement graph algorithms. • Analyze the various searching and sorting algorithms
III	CS3381	OBJECT ORIENTED PROGRAMMING LABORATORY	• Design and develop java programs using object oriented programming concepts • Develop simple applications using object oriented concepts such as package, exceptions • Implement multithreading, and generics concepts • Create GUIs and event driven programming applications for real world problems • Implement and deploy web applications using Java
III	CS3361	DATA SCIENCE LABORATORY	• Make use of the python libraries for data science • Make use of the basic Statistical and Probability measures for data science. • Perform descriptive analytics on the benchmark data sets. Perform correlation and regression analytics on standard data sets • Present and interpret data using visualization packages in Python
III	GE3361	PROFESSIONAL DEVELOPMENT	• Use MS Word to create quality documents, by structuring and organizing content for their day to day technical and academic requirements • Use MS EXCEL to perform data operations and analytics, record, retrieve data as per requirements and visualize data for ease of understanding • Use MS PowerPoint to create high quality academic

			presentations by including common tables, charts, graphs, interlinking other elements, and using media objects
IV	CS3452	THEORY OF COMPUTATION	• Construct automata theory using Finite Automata • Write regular expressions for any pattern • Design context free grammar and Pushdown Automata • Design Turing machine for computational functions • Differentiate between decidable and undecidable problems
IV	CS3491	ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	• Use appropriate search algorithms for problem solving • Apply reasoning under uncertainty • Build supervised learning models • Build ensembling and unsupervised models • Build deep learning neural network models
IV	CS3492	DATABASE MANAGEMENT SYSTEMS	• Construct SQL Queries using relational algebra • Design database using ER model and normalize the database • Construct queries to handle transaction processing and maintain consistency of the database • Compare and contrast various indexing strategies and apply the knowledge to tune the performance of the database • Appraise how advanced databases differ from Relational Databases and find a suitable database for the given requirement.
IV	CS3401	ALGORITHMS	• Analyze the efficiency of algorithms using various frameworks • Apply graph algorithms to solve problems and analyze their efficiency. • Make use of algorithm design techniques like divide and conquer, dynamic programming and greedy techniques to solve problems • Use the state space tree method for solving problems. • Solve problems using approximation algorithms and randomized algorithms
IV	CS3451	INTRODUCTION TO OPERATING SYSTEMS	• Analyze various scheduling algorithms and process synchronization. • Explain deadlock prevention and avoidance algorithms. • Compare and contrast various memory management schemes. • Explain the functionality of file systems, I/O systems, and Virtualization • Compare iOS and Android Operating Systems.
IV	GE3451	ENVIRONMENTAL SCIENCES AND SUSTAINABILITY	
IV	CS3461	OPERATING SYSTEMS LABORATORY	• Define and implement UNIX Commands. • Compare the performance of various CPU Scheduling Algorithms.

			• Compare and contrast various Memory Allocation Methods.
			• Define File Organization and File Allocation Strategies.
			• Implement various Disk Scheduling Algorithms
IV	CS3481	DATABASE MANAGEMENT SYSTEMS LABORATORY	• reate databases with different types of key constraints.
			• Construct simple and complex SQL queries using DML and DCL commands.
			• Use advanced features such as stored procedures and triggers and incorporate in GUI based application development.
			• Create an XML database and validate with meta-data (XML schema).
			• Create and manipulate data using NOSQL database