RAMCO INSTITUTE OF TECHNOLOGY
(Approved by AICTE, Affiliated by Anna University Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND BUSINESS SYSTEMS
REGULATION-2021

Course Outcome

SEMESTER I	
Course Code and Course Name	**Course Outcomes(CO)** **After the completion of the course ,The students will be able to**
HS3152 - Professional English – I	**CO1:** communicate clearly both in written and oral forms using appropriate vocabulary and comprehend written text to make inferences. **CO2:** Speak persuasively in academic/work contexts and write biographical details and technical documents cohesively, coherently, and flawlessly using appropriate words. **CO3:** Read, write and speak effectively in a variety of professional and social settings. **CO4:** Comprehend descriptive, narrative, expository and interpretive texts and write using creative, critical, analytical, and evaluative methods. **CO5:**Understand and respond to different spoken and written discourses/excerpts in different accents and write different genres of text adopting various writing strategies.
MA3151- Matrices and Calculus	**CO1:** Use the matrix algebra methods for solving practical problems. **CO2:** Apply differential calculus tools in solving various application problems. **CO3:** 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.
PH3151 - Engineering Physics	**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.

CY3151 - Engineering Chemistry	**CO1:** Illustrate the importance of water quality parameters, water treatment methods and boiler troubles for domestic and industrial use. **CO2:** Explain the types of nanomaterials, synthesis and its applications in modern day devices. **CO3:** Apply the use of phase rule in metallurgy and describe the basics of composites and its industrial applications. **CO4:** Articulate the fuel types, synthesis and its combustion characteristics. **CO5:** Portray the working principle of alternate energy resources, storage devices and their application in electric vehicles and the impacts of carbon footprint.
GE3151- Problem Solving and Python Programming	**CO1:** Develop algorithmic solutions to simple computational problems **CO2:** Develop and execute simple Python programs. **CO3:** Apply control structures, functions and string to write simple program for solving problems**.** **CO4:** Use Python data structures - lists, tuples, dictionaries to represent complex data. **CO5:**Illustrate read and write data from/to files in Python programs.
SEMESTER II	
HS3252 Professional English	**CO1:** Compare and contrast products and ideas in technical texts and write relevant texts. **CO2:** Identify and report cause and effects in events, industrial processes through technical texts. **CO3:** Analyse problems in order to arrive at feasible solutions and communicate them in the written format. **CO4:** Present their ideas and opinions in a planned and logical manner. **CO5:** Draft effective resumes in the context of job search. **CO6:** Detect paralinguistic cues such as postures, gestures, facial expressions, and eye contact.
MA3251 Statistics and Numerical Methods	**CO1:** This course aims at providing the necessary basic concepts of a few statistical and numerical methods and give procedures for solving numerically different kinds of problems occurring in engineering and technology. **CO2**: To acquaint the knowledge of testing of hypothesis for small and large samples which plays an important role in real life problems. **CO3:** To introduce the basic concepts of solving algebraic and transcendental equations. **CO4:** To introduce the numerical techniques of interpolation in various intervals and numerical techniques of differentiation and integration which plays an important role in engineering and technology disciplines. **CO5:** To acquaint the knowledge of various techniques and methods of solving ordinary differential equations.
PH3256 Physics for Information Science	**CO1:** Extend the knowledge on classical and quantum electron theories, and energy band structures.

	CO2: Acquire knowledge on basics of semiconductor physics and its applications in various devices. **CO3:** Express the knowledge on magnetic properties of materials and their applications in data storage. **CO4:** Associate the necessary understanding on the functioning of optical materials for optoelectronics. **CO5:**Elaborate the basics of quantum structures and their applications and basics of quantum computing.
BE3251 Basic Electrical and Electronics Engineering	**CO1**: Determine various electrical parameters of basic electric circuits **CO2**: Illustrate the construction, working principle and applications of various electrical machines. **CO3**: Interpret the characteristics of various analog electronic devices. **CO4**: Explain the basic concepts of digital electronics. **CO5**: Describe the fundamental elements and working of various measuring instruments.
GE3251 Engineering Graphics	**CO1:** Construct the conic sectional curves, cycloidal and involute curves. **CO2:** Solve practical problems involving projection of lines. **CO3:** Construct the projection of simple solids and free hand sketches of multiple views from pictorial views of objects. **CO4:** Sketch the Section of Solids and Development of lateral Surfaces of solids**.** **CO5:** Illustrate the isometric and perspective projections of simple solids **CO6:** Sketch the real components of machine / building / circuit drawing based on the basic concept learned from the topics.
AD3251 Data Structures Design	**CO1:** Recognize abstract data types and its features **CO2:** Design and Implement linear data structures for different applications **CO3:** Implement Sorting, Searching and hashing techniques for given problems **CO4:** Apply an efficient tree structures to perform searching, indexing and sorting **CO5:**Use efficient graph algorithms to solve graph problems

SEMESTER III	
MA3354 Discrete Mathematics	**CO1**: Apply the concepts needed to test the logic of a program. **CO2**: Apply the knowledge of the counting principles to solve problems in Computer Science and Data Science Engineering. **CO3**: Apply the knowledge of Graphs and graph terminology in the Engineering subjects like Computer Networks, Data Structures etc.

	CO4: Apply the concepts and properties of algebraic structures in the Engineering subjects like Network Security, Cryptography etc. **CO5**: Apply the concepts and significance of lattices and Boolean algebra in Computer science and Data science engineering. **CO6**:Examine the Isomorphism between the Graphs using MATLAB
CS3351 Digital Principles and Computer Organization	**CO1**: Design various combinational circuits using logic gates. **CO2**: Design sequential circuits and analyze the design procedures. **CO3:** Illustrate the fundamentals of computer systems and analyze the execution of an instruction. **CO4**: Analyze different types of control design and identify hazards. **CO5**:Identify the characteristics of various memory systems and I/O communication.
CW3301 Fundamentals of Economics	**CO 1**: To study the elasticity in demand and supply and understand the economic efficiency **CO 2:** To discuss the supporting of price, income and substitution effects in the consumers and producer's surplus. **CO 3**: To compare the equilibrium of a firm under perfect competition, monopoly, and monopolistic competition. **CO 4**: To study the concepts of demand for money and supply of money with an appropriate model in macroeconomic analysis. **CO 5:** To examine and evaluate the problems of voluntary and involuntary unemployment
CS3391 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 mechanism and multithreading to solve real world problems **CO4**: Develop Java applications with I/O streams and generics classes **CO5**:Develop GUI based applications using JavaFX components.
AD3351 Design and Analysis of Algorithms	**CO1**: Analyze the efficiency of recursive and non-recursive algorithms mathematically **CO2**: Analyze the efficiency of brute force, divide and conquer, decrease and conquer, Transform and conquer algorithmic techniques **CO3**: Implement and analyze the problems using dynamic programming and greedy algorithmic techniques **CO4**: Solve the problems using iterative improvement techniques for optimization.

	CO5:Compute the limitations of algorithmic power and solve the problems using backtracking and branch and bound techniques.
AD3491 Fundamentals of Data Science and Analytics	**CO1**: Elucidate the pipeline of data analytics process for any data science application **CO2**: Describe, Visualize and examine the data of real world problems using descriptive analytics techniques. **CO3**: Perform statistical inferences from data **CO4**: Analyze the variance in the data for any real world data science problems. **CO5**:Build models for predictive analytics
CS3381 Object Oriented Programming Laboratory	**CO1**: The students will be able to design and develop java programs using object oriented programming concepts. **CO2**: The students will be able to develop simple applications using object oriented concepts such as package, exceptions. **CO3**: The students will be able to design applications using multithreading, file processing and generics concepts. **CO4**: The students will be able to create GUIs and event driven programming applications for real world problems. **CO5**:The students will be able to implement mini projects using Java concepts.
CW3311 Business Communication Laboratory I	**CO1**: Speak fluently in English without errors and present themselves as effective communicators. **CO2**: Use business vocabulary and take part comfortably in business conversations in English. **CO3**: Draft letters and reports with appropriate formats and choice of words. **CO4**: Perform well in team and group, resolve conflicts in workplaces and acquire leadership skills. **CO5**: Understand women in all spheres and cultural behaviours of the people and approach them with positive human values.