**EXCEL ENGINEERING COLLEGE**
**(Autonomous)**
Approv... CTE, New Delhi & Affiliated to Anna University, Chennai
...redited by NBA (AERO, CSE, ECE & MECH), NAAC with "A+" and Recognised by UGC (2f
&12B)
**KOMARAPALAYAM - 637303**
**Department of Information Technology**
**Course Outcomes Regulation 2017**
**Batch 2017-2021,2018-2022 & 2019-2023**

| Sem : 1 | Sub Code & Name : | HS8151 Communicative English |
|---|---|---|
| CO No | Course Outcome ||
| C101.1 | Read and understand articles of a general kind in magazines and newspapers. ||
| C101.2 | Participate effectively in Formal and informal conversations; introduce themselves and their ||
| C101.3 | Comprehend conversations and short talks delivered in English ||
| C101.4 | Write short essays of a general kind and personal letters and emails in English. ||
| C101.5 | Speak in informal group activities ||

| Sem : 1 | Sub Code & Name : | MA8151 Engineering Mathematics –I |
|---|---|---|
| CO No | Course Outcome ||
| C102.1 | Use both the limit definition and rules of differentiation to differentiate functions. ||
| C102.2 | Apply the functions of several variables in engineering field. ||
| C102.3 | integration by parts. ||
| C102.4 | Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables. ||
| C102.5 | Apply various techniques in solving differential equations. ||

| Sem : 1 | Sub Code & Name : | PH8151 Engineering Physics |
|---|---|---|
| CO No | Course Outcome ||
| C103.1 | Gain knowledge on the basics of properties of matter and its applications, ||
| C103.2 | Acquire knowledge on the concepts of waves and optical devices and their applications in fibre ||
| C103.3 | Adequate knowledge on the concepts of thermal properties of materials and their applications in ||
| C103.4 | Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling ||
| C103.5 | Understand the basics of crystals, their structures and different crystal growth techniques. ||

| Sem : 1 | Sub Code & Name : | CY8151 Engineering Chemistry |
|---|---|---|
| CO No | Course Outcome ||
| C104.1 | Understanding polymerization and some important industrial polymers. ||
| C104.2 | Learn Thermodynamic properties and their inter relationship. ||
| C104.3 | Acquaint with UV and IR spectral analysis. ||
| C104.4 | Know the principles of cooling curves and alloys. ||
| C104.5 | Acquire knowledge of Nano and micro structure materials. ||

| Sem : 1 | Sub Code & Name : | GE8151 Problem Solving and Python Programming |
|---|---|---|
| CO No | Course Outcome ||
| C105.1 | Apply algorithm, pseudo code and flow chart for problem solving. ||
| C105.2 | Write simple Python programs. ||
| C105.3 | Develop Python programs with various programming constructs and functions. ||
| C105.4 | Implement lists, tuples and dictionaries in various applications. ||
| C105.5 | Use of files and file operations efficiently. ||

| Sem : 1 | Sub Code & Name : | GE8152 Engineering Graphics |
|---|---|---|
| CO No | | Course Outcome |
| C106.1 | | Perform free hand sketching of basic geometrical constructions, multiple views of objects and |
| C106.2 | | Do orthographic projection of lines and plane surfaces inclined to both the principal planes by |
| C106.3 | | Draw projections of solids like prisms, pyramids, cylinder, cone and truncated solids. |
| C106.4 | | Draw development of surfaces of solids like prisms, pyramids, cylinder, cone and truncated solids. |
| C106.5 | | Prepare isometric and perspective sectional views of simple solids with cut-outs and holes. |

| Sem : 1 | Sub Code & Name : | GE8161  Problem Solving and Python Programming Laboratory |
|---|---|---|
| CO No | | Course Outcome |
| C107.1 | | Write, test, and debug simple Python programs |
| C107.2 | | Implement Python programs with suitable language constructs |
| C107.3 | | Use functions effectively for structuring Python programs |
| C107.4 | | Apply suitable data structures in various applications |
| C107.5 | | Develop python applications using files |

| Sem : 1 | Sub Code & Name : | BS8161 Physics and Chemistry Laboratory |
|---|---|---|
| CO No | | Course Outcome |
| C108.1 | | Analyze the mechanical properties and thermal properties of materials |
| C108.2 | | Acquire the practical knowledge about band gap of a semiconductor and in optics such as |
| C108.3 | | Gaining the knowledge of electrochemical redox reaction |
| C108.4 | | Apply knowledge of measurement of hardness producing ions, alkalinity, conductance, EMF |
| C108.5 | | Understand the impact of water quality and to solve engineering problems |

| Sem : 2 | Sub Code & Name : | HS8251 Technical English |
|---|---|---|
| CO No | | Course Outcome |
| C109.1 | | Read technical texts and write area- specific texts effortlessly. |
| C109.2 | | Listen and comprehend lectures and talks in their area of specialisation successfully. |
| C109.3 | | Speak appropriately and effectively in varied formal and informal contexts |
| C109.4 | | Write reports and winning job applications. |
| C109.5 | | Perform better in interview through various softskills |

| Sem : 2 | Sub Code & Name : | MA8251 Engineering Mathematics – II |
|---|---|---|
| CO No | | Course Outcome |
| C110.1 | | Understand the use of matrix algebra techniques that is needed by engineers for practical |
| C110.2 | | Apply the concept of vector calculus in Engineering disciplines |
| C110.3 | | Evaluate the standard techniques of complex variable  to solve core Engineering problems. |
| C110.4 | | Analysis the real integrals by applying concept of complex integration. |
| C110.5 | | Understand  the knowledge of Laplace Transforms in solving Ordinary Differential Equations. |

| Sem : 2 | Sub Code & Name : | PH8252 Physics For Information Science |
|---|---|---|
| CO No | | Course Outcome |
| C111.1 | | Gain knowledge on classical and quantum electron theories, and energy band structuues . |
| C111.2 | | Acquire knowledge on basics of semiconductor physics and its applications in various devices . |
| C111.3 | | Get knowledge on magnetic properties of materials and their applications in data storage. |
| C111.4 | | Have the necessary understanding on the functioning of optical materials for optoelectronics . |
| C111.5 | | Understand the basics of quantum structures and their applications in carbon electronics. |

| Sem : 2 | Sub Code & Name : | BE8255  Basic Electrical , Electronics and Measurement Engineering |
|---|---|---|
| CO No | | Course Outcome |
| C112.1 | The essentials of electric circuits and analysis. | |
| C112.2 | The basic operation of electric machines and transformers | |
| C112.3 | Introduction of renewable sources and common domestic loads. | |
| C112.4 | Understand the fundamentals of electronic circuit constructions | |
| C112.5 | Introduction to measurement and metering for electric circuits. | |

| Sem : 2 | Sub Code & Name : | GE8291 Information Technology Essentials |
|---|---|---|
| CO No | | Course Outcome |
| C113.1 | Design and deploy web-sites | |
| C113.2 | Design and deploy simple web-applications | |
| C113.3 | Create simple database applications | |
| C113.4 | Develop information system | |
| C113.5 | Describe the basics of networking and mobile communications | |

| Sem : 2 | Sub Code & Name : | CS8251  Programming in C |
|---|---|---|
| CO No | | Course Outcome |
| C114.1 | Develop simple applications in C using basic constructs. | |
| C114.2 | Write an application with the effective use string manipulation, matrix, sorting and searching. | |
| C114.3 | Create an effective application in C by using functions and pointers. | |
| C114.4 | Create an effective application using structure and linked list. | |
| C114.5 | Design applications and develop using file processing techniques with sequential and random | |

| Sem : 2 | Sub Code & Name : | GE8261 Engineering Practices Laboratory |
|---|---|---|
| CO No | | Course Outcome |
| C115.1 | Illustrate the basic wiring connection of electrical components | |
| C115.2 | Measure the electrical quantities of circuits | |
| C115.3 | Recall and Apply the basics of electronic principles to the circuits | |
| C115.4 | Develop the fabrication of electronic circuits to improve their knowledge | |
| C115.5 | Analyze the circuit for application oriented | |

| Sem : 2 | Sub Code & Name : | CS8261 C Programming Laboratory |
|---|---|---|
| CO No | | Course Outcome |
| C116.1 | Develop simple applications in C using basic constructs | |
| C116.2 | Write an application with the effective use string manipulation, matrix, sorting and searching | |
| C116.3 | Create an effective application in C by using functions and pointers | |
| C116.4 | Create an effective application using structure and linked list | |
| C116.5 | Design an applications and develop using file processing techniques with sequential and random | |

| Sem : 2 | Sub Code & Name : | IT8201 INFORMATION TECHNOLOGY ESSENTIALS |
|---|---|---|
| CO No | | Course Outcome |
| C117.1 | Create client side and server side programs using scripts using PHP | |
| C117.2 | Design dynamic web sites and handle multimedia components | |
| C117.3 | Create applications with PHP connected to database. | |
| C117.4 | Design interactive websites using basic HTML tags, different styles, links and with all basic control elements | |
| C117.5 | Implement the technologies behind computer networks and mobile communication. | |

| Sem : 3 | Sub Code & Name : | MA8351   DISCRETE MATHEMATICS |
|---|---|---|
| CO No | | Course Outcome |
| C201.1 | Implement abstract data types for linear data structures | |
| C202.2 | Apply the different linear and non-linear data structures to problem solutions. | |
| C201.3 | Critically analyze the various sorting algorithms. | |
| C202.4 | To familiarize the applications of algebraic structures | |
| C201.5 | To understand the basic concepts of combinatorics and graph theory. | |

| Sem : 3 | Sub Code & Name : | CS8351 Digital Principles and System Design |
|---|---|---|
| CO No | | Course Outcome |
| C202.1 | Simplify the Boolean expression using k-map and tabulation techniques | |
| C202.2 | Design and analyze  combinational circuits | |

| C202.3 | Construct the  Synchronous Sequential Circuits |
|--------|-----------------------------------------------|
| C202.4 | Design Asynchronous Sequential Circuits |
| C202.5 | Implement memory arrays  using Programmable logic Devices |

| Sem : 3 | Sub Code & Name : | CS8391 Data Structures |
|---------|-------------------|------------------------|
| **CO No** | **Course Outcome** | |
| C203.1 | Implement abstract data types for list linear data structures. | |
| C203.2 | Acquire knowledge about the linear data structures stack and queue with its operations. | |
| C203.3 | Apply non-linear data structure trees to problem solutions. | |
| C203.4 | Apply non-linear data structure graphs to problem solutions. | |
| C203.5 | Critically analyze the various sorting, searching algorithms and hashing techniques. | |

| Sem : 3 | Sub Code & Name : | CS8392 Object Oriented Programming |
|---------|-------------------|-----------------------------------|
| **CO No** | **Course Outcome** | |
| C204.1 | Understand Object Oriented Programming concepts and basic characteristics of Java | |
| C204.2 | Know the principles of packages, inheritance and interfaces | |
| C204.3 | Define exceptions and use I/O streams | |
| C204.4 | Develop a java application with threads and generics classes | |
| C204.5 | Design and build simple Graphical User Interfaces | |

| Sem : 3 | Sub Code & Name : | EC8394    Analog and Digital Communication |
|---------|-------------------|-------------------------------------------|
| **CO No** | **Course Outcome** | |
| C205.1 | Apply analog and digital communication techniques | |
| C205.2 | Use data and pulse communication techniques | |
| C205.3 | Analyze Source and Error control coding. | |
| C205.4 | Utilize multi-user radio communication. | |

| Sem : 3 | Sub Code & Name : | CS8381 Data Structures Laboratory |
|---------|-------------------|----------------------------------|
| **CO No** | **Course Outcome** | |
| C206.1 | Able to write functions to implement linear and non-linear data structure operations. | |
| C206.2 | Suggest appropriate type of linear / non-linear data structure operations for solving a given | |
| C206.3 | Able to understand and compare the application of different data structures. | |
| C206.4 | Appropriately use the linear / non-linear data structure operations for a given problem. | |
| C206.5 | Apply appropriate hash functions that result in a collision free scenario for data storage and | |

| Sem : 3 | Sub Code & Name : | CS8383 Object Oriented Programming Laboratory |
|---------|-------------------|----------------------------------------------|
| **CO No** | **Course Outcome** | |
| C207.1 | Build software development skills using java programming for real-world applications | |
| C207.2 | Understand and apply the concepts of classes, packages, interfaces, arraylist, exception handling | |
| C207.3 | Understand the exceptions and use I/O streams | |
| C207.4 | Develop the java applications using threads. | |
| C207.5 | Develop applications using generic programming and event handling. | |

| Sem : 3 | Sub Code & Name : | CS8382 Digital  System Laboratory |
|---------|-------------------|----------------------------------|
| **CO No** | **Course Outcome** | |
| C208.1 | Implement boolean simplification techniques to design a combinational hardware circuit. | |
| C208.2 | Design and implement combinational and sequential circuits. | |
| C208.3 | Analyse a given circuit-combinational and sequential. | |
| C208.4 | Design the different functional units in a digital computer system. | |
| C208.5 | Design and Implement a simple digital system. | |

| Sem : 3 | Sub Code & Name : | HS8381 Interpersonal Skills/Listening&Speaking |
|---------|-------------------|------------------------------------------------|
| **CO No** | **Course Outcome** | |
| C209.1 | Listen and respond appropriately. | |
| C209.2 | Participate in group discussions | |
| C209.3 | Make effective presentations | |
| C209.4 | Participate confidently and appropriately in conversations both formal and informal | |

| Sem : 4 | Sub Code & Name : | MA8391 Probability and Queuing Theory |
|---|---|---|
| CO No | Course Outcome | |
| C210.1 | Understand the fundamental knowledge of the concepts of probability and have knowledge of | |
| C210.2 | Understand the basic concepts of one and two dimensional random variables and apply in | |
| C210.3 | Apply the concept of random processes in engineering disciplines. | |
| C210.4 | Acquire skills in analyzing queueing models. | |
| C210.5 | Understand and characterize phenomenon which evolve with respect to time in a probabilistic | |

| Sem : 4 | Sub Code & Name : | CS8491 Computer Architecture |
|---|---|---|
| CO No | Course Outcome | |
| C211.1 | Understand the basics structure of computers, operations and instructions. | |
| C211.2 | Design arithmetic and logic unit. | |
| C211.3 | Understand pipelined execution and design control unit. | |
| C211.4 | Understand parallel processing architectures. | |
| C211.5 | Understand the various memory systems and I/O communication. | |

| Sem : 4 | Sub Code & Name : | CS8492 Database Management Systems |
|---|---|---|
| CO No | Course Outcome | |
| C212.1 | Classify the modern and futuristic database applications based on size and complexity | |
| C212.2 | Map ER model to Relational model to perform database design effectively | |
| C212.3 | Write queries using normalization criteria and optimize queries | |
| C212.4 | Compare and contrast various indexing strategies in different database systems | |
| C212.5 | Appraise how advanced databases differ from traditional databases. | |

| Sem : 4 | Sub Code & Name : | CS8451 Design And Analysis of Algorithms |
|---|---|---|
| CO No | Course Outcome | |
| C213.1 | Design algorithms for various computing problems. | |
| C213.2 | Analyze the time and space complexity of algorithms. | |
| C213.3 | Critically analyze the different algorithm design techniques for a given problem. | |
| C213.4 | Modify existing algorithms to improve efficiency. | |
| C213.5 | Apply efficient Algorithms to solve the problems handling standard data structures | |

| Sem : 4 | Sub Code & Name : | CS8493 Operating Systems |
|---|---|---|
| CO No | Course Outcome | |

| C214.1 | Analyze various scheduling algorithms &Understand deadlock, prevention and avoidance |
|---|---|
| C214.2 | Compare and contrast various memory management schemes. |
| C214.3 | Understand the functionality of file systems. |
| C214.4 | Perform administrative tasks on Linux Servers. |
| C214.5 | Compare iOS and Android Operating Systems. |

| Sem : 4 | Sub Code & Name : | GE8291 Environmental Science and Engineering |
|---|---|---|
| CO No | Course Outcome | |
| C215.1 | Understanding the Environment,Ecosystem,Biodiversity | |
| C215.2 | Learn the preventive methods of environmental pollution | |
| C215.3 | Acquaint with  Natural resourcesand Energy resources | |
| C215.4 | Know the social issues and Environment | |
| C215.5 | Acquire knowledge of Humanpopulation and Environment | |

| Sem : 4 | Sub Code & Name : | CS8481 Database Management Systems Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C216.1 | Use typical data definitions and manipulation commands. | |
| C216.2 | Design applications to test Nested and Join Queries | |
| C216.3 | Implement simple applications that use Views | |
| C216.4 | Implement applications that require a Front-end Tool | |
| C216.5 | Critically analyze the use of Tables, Views, Functions and Procedures | |

| Sem : 4 | Sub Code & Name : | CS8461-Operating Systems Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C217.1 | Compare the performance of various CPU Scheduling Algorithms | |
| C217.2 | Implement Deadlock avoidance and Detection Algorithms | |
| C217.3 | Implement Semaphores | |
| C217.4 | Create processes and implement IPC | |
| C217.5 | Analyze the performance of the various Page Replacement Algorithms,Implement File | |

| Sem : 4 | Sub Code & Name : | HS8461 Advanced Reading and Writing |
|---|---|---|
| CO No | Course Outcome | |
| C218.1 | Write different types of essays. | |
| C218.2 | Write winning job applications. | |
| C218.3 | Read and evaluate texts critically. | |
| C218.4 | Display critical thinking in various professional contexts. | |

| Sem : 5 | Sub Code & Name : | MA8551 Algebra and Number Theory |
|---|---|---|
| CO No | Course Outcome | |
| 301.1 | Apply the basic notions of groups, rings, fields which will then be used to solve related problems. | |
| 301.2 | Explain the fundamental concepts of advanced algebra and their role in modern mathematics and | |
| 301.3 | Demonstrate accurate and efficient use of advanced algebraic techniques. | |
| 301.4 | Demonstrate their mastery by solving non - trivial problems related to the concepts, and by | |
| 301.5 | Apply integrated approach to number theory and abstract algebra, and provide a firm basis for | |

| Sem : 5 | Sub Code & Name : | CS8591 Computer Networks |
|---|---|---|
| CO No | Course Outcome | |
| 302.1 | Understand the basic layers and its functions in computer networks. | |
| 302.2 | Evaluate the performance of a network. | |
| 302.3 | Understand the basics of how data flows from one node to another. | |
| 302.4 | Analyze and design routing algorithms. | |
| 302.5 | Design protocols for various functions in the network. | |

| Sem : 5 | Sub Code & Name : | EC8691 Microprocessors and Microcontrollers |
|---|---|---|
| CO No | Course Outcome | |
| 303.1 | Understand and execute programs based on 8086 microprocessor. | |
| 303.2 | Design Memory Interfacing circuits. | |
| 303.3 | Design and interface I/O circuits. | |
| 303.4 | Design and implement 8051 microcontroller based systems. | |

| Sem : 5 | Sub Code & Name : | IT8501 WEB TECHNOLOGY |
|---|---|---|
| CO No | Course Outcome | |
| 304.1 | Design simple web pages using markup languages like HTML and XHTML | |

| | |
|---|---|
| 304.2 | Create dynamic web pages using DHTML and java script that is easy to navigate and use |
| 304.3 | Program server side web pages that have to process request from client side web pages |
| 304.4 | Represent web data using XML and develop web pages using JSP. |
| 304.5 | Understand various web services and how these web services interact |

| Sem : 5 | Sub Code & Name : | CS8494 Software Engineering |
|---|---|---|
| CO No | Course Outcome | |
| 305.1 | Identify the key activities in managing a software project & Compare different process models. | |
| 305.2 | Concepts of requirements engineering and Analysis Modeling. | |
| 305.3 | Apply systematic procedure for software design and deployment. | |
| 305.4 | Compare and contrast the various testing and maintenance. | |
| 305.5 | Manage project schedule, estimate project cost and effort required. | |

| Sem : 5 | Sub Code & Name : | OLT553 Telecommunication Network Management |
|---|---|---|
| CO No | Course Outcome | |
| 306.1 | Design and analyze of fault management.. | |
| 306.2 | Analyze the common management information protocol specifications.. | |
| 306.3 | Design and analyze of management information model. | |
| 306.4 | Design the simple network management protocol. | |
| 306.5 | Design the various types of network management tools. | |

| Sem : 5 | Sub Code & Name : | EC8681 Microprocessors And Microcontrollers Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C307.1 | Write ALP Programmes for fixed and Floating Point and Arithmetic operations | |
| C307.2 | Interface different I/Os with processor | |
| C307.3 | Generate waveforms using Microprocessors | |
| C307.4 | Execute Programs in 8051 | |
| C307.5 | Explain the difference between simulator and Emulator | |

| Sem : 5 | Sub Code & Name : | CS8581 Networks Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C308.1 | Implement various protocols using TCP and UDP. | |
| C308.2 | Compare the performance of different transport layer protocols. | |
| C308.3 | Use simulation tools to analyze the performance of various network protocols. | |
| C308.4 | Analyze various routing algorithms. | |
| C308.5 | Implement error correction codes. | |

| Sem : 5 | Sub Code & Name : | IT8511 Web Technology Laboratory |
|---|---|---|

| CO No | Course Outcome |
|---|---|
| C309.1 | Design simple web pages using markup languages like HTML and XHTML |
| C309.2 | Create dynamic web pages using DHTML and java script that is easy to navigate and use. |
| C309.3 | Program server side web pages that have to process request from client side web pages. |
| C309.4 | Represent web data using XML and develop web pages using JSP. |
| C309.5 | Understand various web services and how these web services interact. |

| Sem : 6 | Sub Code & Name : | IT8601 Computational Intelligence |
|---|---|---|
| CO No | Course Outcome | |
| C310.1 | Provide a basic exposition to the goals and methods of Computational Intelligence.  Study of the | |
| C310.2 | Apply the Intelligent techniques for problem solving | |
| C310.3 | Improve problem solving skills using the acquired knowledge in the areas of, reasoning, natural | |
| C310.4 | Language understanding, computer vision, automatic programming and machine learning. | |

| Sem : 6 | Sub Code & Name : | CS8592 Object Oriented Analysis And Design |
|---|---|---|
| CO No | Course Outcome | |
| C311.1 | Express software design with UML diagrams | |
| C311.2 | Design software applications using OO concepts. | |
| C311.3 | Identify various scenarios based on software requirements | |
| C311.4 | Transform UML based software design into pattern based design using design patterns | |
| C311.5 | Understand the various testing methodologies for OO software | |

| Sem : 6 | Sub Code & Name : | IT8602 Mobile Communication |
|---|---|---|
| CO No | Course Outcome | |
| C312.1 | Explain the basics of mobile telecommunication system | |
| C312.2 | Illustrate the generations of telecommunication systems in wireless network | |
| C312.3 | Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc | |
| C312.4 | networks  Explain the functionality of Transport and Application layer | |
| C312.5 | Explain the functionality of Transport and Application layer | |

| Sem : 6 | Sub Code & Name : | CS8091 Big Data Analytics |
|---|---|---|
| CO No | Course Outcome | |
| C313.1 | Work with big data tools and its analysis techniques | |
| C313.2 | Analyze data by utilizing clustering and classification algorithms. | |
| C313.3 | Learn and apply different mining algorithms and recommendation systems for large volumes of | |
| C313.4 | Perform analytics on data streams | |
| C313.5 | Learn NoSQL databases and management | |

| Sem : 6 | Sub Code & Name : | CS8092 Computer Graphics and Multimedia |
|---|---|---|
| CO No | Course Outcome | |
| C314.1 | Design two dimensional graphics | |
| C314.2 | Design three dimensional graphics | |
| C314.3 | Apply three dimensional transformations, Apply clipping techniques to graphics | |
| C314.4 | Understood Different types of Multimedia File Format. | |
| C314.5 | Design Basic 3d Scenes using Blender | |

| Sem : 6 | Sub Code & Name : | IT8076 Software Testing |
|---|---|---|
| CO No | Course Outcome | |

| C315.1 | Design test cases suitable for a software development for different domains. |
|--------|---------------------------------------------------------------------------|
| C315.2 | Prepare test planning based on the document. |
| C315.3 | Document test plans and test cases designed. |
| C315.4 | Use automatic testing tools |
| C315.5 | Develop and validate a test plan.. |

| Sem : 6 | Sub Code & Name : | CS8662 Mobile Application Development Laboratory |
|---------|-------------------|--------------------------------------------------|
| CO No | Course Outcome | |
| C316.1 | Develop mobile applications using GUI and Layouts. | |
| C316.2 | Develop mobile applications using Event Listener. | |
| C316.3 | Develop mobile applications using Databases. | |
| C316.4 | Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi- threading | |
| C316.5 | Analyze and discover own mobile app for simple needs. | |

| Sem : 6 | Sub Code & Name : | CS8582 Object Oriented Analysis And Design Laboratory |
|---------|-------------------|-------------------------------------------------------|
| CO No | Course Outcome | |
| C317.1 | Perform OO analysis and design for a given problem specification. | |
| C317.2 | Identify and map basic software requirements in UML mapping. | |
| C317.3 | Improve the software quality using design patterns and to explain the rationale behind applying | |
| C317.4 | Test the compliance of the software with the SRS. | |
| C317.5 | Perform OO analysis and design for a given problem specification. | |

| Sem : 6 | Sub Code & Name : | IT8611 Mini Project |
|---------|-------------------|---------------------|
| CO No | Course Outcome | |
| C318.1 | Formulate a real world problem and develop its requirements | |
| C318.2 | Develop a design solution for a set of requirements | |
| C318.3 | Test and validate the conformance of the developed software against the original requirements of | |
| C318.4 | Work effectively with peers to pursue a goal | |
| C318.5 | Take up any challenging practical problems and find solution by formulating proper methodology | |

| Sem : 6 | Sub Code & Name : | HS8581  Professional Communication |
|---------|-------------------|-------------------------------------|
| CO No | Course Outcome | |
| C319.1 | Make effective presentations | |
| C319.2 | Participate confidently in Group Discussions. | |
| C319.3 | Attend job interviews and be successful in them. | |
| C319.4 | Develop adequate Soft Skills required for the workplace | |
| C319.5 | Make them Employable Graduates | |

| Sem : 7 | Sub Code & Name : | MG8591 Principles  of Management |
|---------|-------------------|-----------------------------------|
| CO No | Course Outcome | |
| C401.1 | Enable the students to study the evolution of Management | |
| C401.2 | Study the functions and principles of management. | |
| C401.3 | Learn the application of the principles in an organization. | |
| C401.4 | Enable the effective and barriers communication in the organization | |
| C401.5 | Study the system and process of effective controlling in the organization. | |

| Sem : 7 | Sub Code & Name : | CS8792 Cryptography And Network Security |
|---------|-------------------|-------------------------------------------|
| CO No | Course Outcome | |
| C402.1 | Understand the fundamentals of networks security, security architecture, threats and | |

| C402.2 | Apply the different cryptographic operations of symmetric cryptographic algorithms |
|---|---|
| C402.3 | Apply the different cryptographic operations of public key cryptography |
| C402.4 | Apply the various Authentication schemes to simulate different applications. |
| C402.5 | Understand various Security practices and System security standards |

| Sem : 7 | Sub Code & Name : | CS8791 Cloud Computing |
|---|---|---|
| CO No | Course Outcome | |
| C403.1 | Articulate the main concepts, key technologies, strengths and limitations of cloud computing. | |
| C403.2 | Learn the key and enabling technologies that help in the development of cloud. | |
| C403.3 | Develop the ability to understand and use the architecture of compute and storage cloud, service | |
| C403.4 | Explain the core issues of cloud computing such as resource management and security. | |
| C403.5 | Be able to install and use current cloud technologies. | |

| Sem : 7 | Sub Code & Name : | OMF751- Lean Six Sigma |
|---|---|---|
| CO No | Course Outcome | |
| C404.1 | The student would be able to relate the tools and techniques of lean sigma to increase | |
| C404.2 | The scope of tools and techniques | |
| C404.3 | Knowledge about six sigma methodologies. | |
| C404.4 | Define the checkpoints, six sigma implementation and challenges | |
| C404.5 | Know evaluation and continuous improvement methods | |

| Sem : 7 | Sub Code & Name : | IT8075- Software Project Management |
|---|---|---|
| CO No | Course Outcome | |
| C405.1 | Understand Project Management principles while developing software. | |
| C405.2 | Gain extensive knowledge about the basic project management concepts, framework and the | |
| C405.3 | Obtain adequate knowledge about software process models and software effort estimation | |
| C405.4 | Define the checkpoints, project reporting structure, project progress and tracking mechanisms | |
| C405.5 | Learn staff selection process and the issues related to people management | |

| Sem : 7 | Sub Code & Name : | CS8079 - Human Computer Interaction |
|---|---|---|
| CO No | Course Outcome | |
| C406.1 | Design effective dialog for HCI. | |
| C406.2 | Design effective HCI for individuals and persons with disabilities. | |
| C406.3 | Assess the importance of user feedback. | |
| C406.4 | Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Websites. | |
| C406.5 | Develop meaningful user interface. | |

| Sem : 7 | Sub Code & Name : | IT8711  FOSS Cloud Computing Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C407.1 | Configure various virtualization tools such as Virtual Box, VMware workstation. | |
| C407.2 | Design and deploy a web application in a PaaS environment. | |
| C407.3 | Learn how to simulate a cloud environment to implement new schedulers. | |
| C407.4 | Install and use a generic cloud environment that can be used as a private cloud. | |
| C407.5 | Manipulate large data sets in a parallel environment. | |

| Sem : 7 | Sub Code & Name : | IT8761 Security Laboratory |
|---|---|---|
| CO No | Course Outcome | |
| C408.1 | Develop code for classical Encryption Techniques to solve the problems. | |
| C408.2 | Build cryptosystems by applying symmetric and public key encryption algorithms. | |
| C408.3 | Construct code for authentication algorithms. | |
| C408.4 | Develop a signature scheme using Digital signature standard. | |
| C408.5 | Demonstrate the network security system using open source tools | |

| Sem : 8 | Sub Code & Name : | IT8004 Network Management |
|---|---|---|
| CO No | Course Outcome | |
| C409.1 | Gather, derive, define and validate real requirements for the specified network. | |
| C409.2 | Understand different types of requirements from the user, application, device and network | |
| C409.3 | Develop traceability between requirements, architecture decisions, and design decisions | |
| C409.4 | Implement how and where addressing and routing, security, network management, and | |
| C409.5 | Use SNMPv1, v2 and v3 protocols. | |

| Sem : 8 | Sub Code & Name : | IT8078 Web design and Management |
|---|---|---|
| CO No | Course Outcome | |
| C410.1 | Learn the basic concepts in HTML, CSS, JavaScript | |
| C410.2 | Understand the responsive design and development | |
| C410.3 | Understand the responsive design and development | |
| C410.4 | Design a Website with HTML, JS, CSS / CMS - Word press | |
| C410.5 | Manage, Maintain and Support Web Apps | |

| Sem : 8 | Sub Code & Name : | IT8811-Project Work |
|---|---|---|
| CO No | Course Outcome | |
| C411.1 | Formulate a real world problem and develop its requirements | |
| C411.2 | Develop a design solution for a set of requirements | |
| C411.3 | Test and validate the conformance of the developed software against the original requirements of | |
| C411.4 | Work effectively with peers to pursue a goal | |
| C411.5 | Take up any challenging practical problems and find solution by formulating proper methodology | |

**2019-2023 Batch**

| Sem : 6 | Sub Code & Name : | IT8001 Information Storage and Management |
|---|---|---|
| CO No | Course Outcome | |
| C315.1 | Understand the logical and physical components of a Storage infrastructure. | |
| C315.2 | Evaluate storage architectures, including storage subsystems, DAS, SAN, NAS, and CAS | |
| C315.3 | Understand the various forms and types of Storage Virtualization. | |
| C315.4 | Describe the different role in providing disaster recovery and business continuity capabilities | |
| C315.5 | Distinguish different remote replication technologies. | |

| Sem : 8 | Sub Code & Name : | CS8080 Information Retrieval Techniques |
|---|---|---|
| CO No | Course Outcome | |
| C410.1 | Understand the strengths and limitations of Information retrieval. | |
| C410.2 | Use an open source search engine framework and explore its capabilities | |
| C410.3 | Apply appropriate method of classification or clustering. | |
| C410.4 | Design and implement innovative features in a search engine. | |
| C410.5 | Design and implement a recommender system. | |

| Sem : 7 | Sub Code & Name : | OME752 – SUPPLY CHAIN MANAGEMENT |
|---|---|---|
| CO No | Course Outcome | |
| C404.1 | Summarize the role of logistics in supply chain management | |
| C404.2 | Explain the concept of supply chain network design | |
| C404.3 | Interpret the logistics in supply chain management | |
| C404.4 | Explain the concept of sourcing and coordination in supply chain management | |

| C404.5 | Summarize the role of information technology in supply chain management |
|--------|--------------------------------------------------------------------------|

**2017-2021 Batch**

| Sem : 6 | Sub Code & Name : | IT8001 Information Storage and Management |
|---------|-------------------|-------------------------------------------|
| **CO No** | **Course Outcome** | |
| C315.1 | Understand the logical and physical components of a Storage infrastructure. | |
| C315.2 | Evaluate storage architectures, including storage subsystems, DAS, SAN, NAS, and CAS | |
| C315.3 | Understand the various forms and types of Storage Virtualization. | |
| C315.4 | Describe the different role in providing disaster recovery and business continuity capabilities | |
| C315.5 | Distinguish different remote replication technologies. | |

| Sem : 7 | Sub Code & Name : | IT8074  SERVICE ORIENTED ARCHITECTURE |
|---------|-------------------|---------------------------------------|
| **CO No** | **Course Outcome** | |
| C405.1 | Understand the logical and physical components of a Storage infrastructure. | |
| C405.2 | provide an overview of Service Oriented Architecture | |
| C405.3 | Web services and their importance | |
| C405.4 | learn web services standards and technologies | |
| C405.5 | The student would be able to apply the tools and techniques of quality management to | |

| Sem : 8 | Sub Code & Name : | GE8076  PROFESSIONAL ETHICS IN ENGINEERING |
|---------|-------------------|--------------------------------------------|
| **CO No** | **Course Outcome** | |
| C410.1 | Acquire knowledge to adopt green computing practices to minimize negative impacts on the | |
| C410.2 | Enhance the skill in energy saving practices in their use of hardware. | |
| C410.3 | Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders. | |
| C410.4 | Describe the different role in providing disaster recovery and business continuity capabilities | |
| C410.5 | Understand the ways to minimize equipment disposal requirements | |