

Course Outcomes

Regulation 2017

Course Name	Course Outcomes
SEMESTER I	
HS8151- Communicative English	<p>CO1: Read articles of a general kind in magazines and newspapers.</p> <p>CO 2: Participate effectively in informal conversations; introduce themselves and their friends and express opinions in English.</p> <p>CO 3: Comprehend conversations and short talks delivered in English</p> <p>CO 4: Write short essays of a general kind and personal letters and emails in English.</p>
MA8151 Engineering Mathematics I	<p>CO 1: Use both the limit definition and rules of differentiation to differentiate functions. CO 2: Apply differentiation to solve maxima and minima problems.</p> <p>CO 3: Evaluate integrals both by using Riemann sums and by using the Fundamental Theorem of Calculus.</p> <p>CO 4: Apply integration to compute multiple integrals, area, volume, integrals in polar coordinates, in addition to change of order and change of variables.</p> <p>CO 5: Evaluate integrals using techniques of integration, such as substitution, partial fractions and integration by parts.</p> <p>CO 6: Determine convergence/divergence of improper integrals and evaluate convergent improper integrals.</p> <p>CO 7: Apply various techniques in solving differential equations.</p>
PH8151- Engineering Physics	<p>CO 1: The students will gain knowledge on the basics of properties of matter and its applications.</p> <p>CO 2: The Students Will Acquire Knowledge On The Concepts Of Waves And Optical Devices And Their Applications in fibre optics.</p> <p>CO 3: The students will have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers.</p> <p>CO 4: The students will get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes.</p> <p>CO 5: The students will understand the basics of crystals, their structures and different crystal growth techniques.</p>
CY8151 - Engineering Chemistry	<p>CO :The knowledge gained on engineering materials, fuels, energy sources and water treatment techniques will facilitate better understanding of engineering processes and applications for further learning.</p>

Course Name	Course Outcomes
GE8152 - Engineering Graphics	CO 1: Familiarize with the fundamentals and standards of Engineering graphics CO 2: Perform freehand sketching of basic geometrical constructions and multiple views of objects. CO 3: Project orthographic projections of lines and plane surfaces. CO 4: Draw projections and solids and development of surfaces. CO 5: Visualize and to project isometric and perspective sections of simple solids.
GE8151 – Problem Solving and Python Programming	CO 1: Develop algorithmic solutions to simple computational problems CO 2: Read, write, execute by hand simple Python programs. CO 3: Structure simple Python programs for solving problems. CO 4: Decompose a Python program into functions. CO 5: Represent compound data using Python lists, tuples, dictionaries. CO 5: Read and write data from/to files in Python Programs.
GE 8161 – Problem Solving and Python Programming Laboratory	CO 1: Write, test, and debug simple Python programs. CO 2: Implement Python programs with conditionals and loops. CO 3: Develop Python programs step-wise by defining functions and calling them. CO 4: Use Python lists, tuples, dictionaries for representing compound data. CO 5: Read and write data from/to files in Python.
BS8161 - Physics & Chemistry Laboratory	CO 1: Apply principles of elasticity, optics and thermal properties for engineering applications. CO 2: The students will be outfitted with hands-on knowledge in the quantitative chemical analysis of water quality related parameters.
SEMESTER II	
HS8251- Technical English	CO 1: Read technical texts and write area-specific texts effortlessly. CO 2: Listen and comprehend lectures and talks in their area of specialisation successfully. CO 3: Speak appropriately and effectively in varied formal and informal contexts. CO 4: Write reports and winning job applications.

Course Name	Course Outcomes
MA8251 - Engineering Mathematics II	CO 1: Eigenvalues and eigenvectors, diagonalization of a matrix, Symmetric matrices, Positive definite matrices and similar matrices. CO 2: Gradient, divergence and curl of a vector point function and related identities. CO 3: Evaluation of line, surface and volume integrals using Gauss, Stokes and Green's theorems and their verification. CO 4: Analytic functions, conformal mapping and complex integration. CO 5: Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients.
PH8252 Physics for Information science	CO 1: Gain knowledge on classical and quantum electron theories, and energy band structures CO 2: Acquire knowledge on basics of semiconductor physics and its applications in various devices CO 3: Get knowledge on magnetic properties of materials and their applications in data storage CO 4: Have the necessary understanding on the functioning of optical materials for optoelectronics CO 5: Understand the basics of quantum structures and their applications in carbon electronics.
BE 8255 Basic Electrical, Electronics and Measurement Engineering	CO 1: Discuss the essentials of electric circuits and analysis. CO 2: Discuss the basic operation of electric machines and transformers CO 3: Introduction of renewable sources and common domestic loads. CO 4: To understand the fundamentals of electronic circuit constructions. CO 5: Introduction to measurement and metering for electric circuits.
IT8201 Information Technology Essentials	CO1: Design and deploy web-sites CO2: Design and deploy simple web-applications CO 3: Create simple database applications CO4: Develop information system CO5: Describe the basics of networking and mobile communications
CS 8251 Programming in C	CO 1: Develop and manage simple application in C using basic construct CO 2: Design and implement application to work with array and string CO 3: Develop and implement application related to good modular design within the framework of function pointer CO 4: Develop application in C using structure CO 5: Design applications using sequential and random access file processing.

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GE 8261 Engineering Practice Laboratory	CO 1: Fabricate carpentry components and pipe connections including plumbing works. CO 2: Use welding equipments to join the structures. CO 3: Carry out the basic machining operations CO 4: Make the models using sheet metal works CO 5: Illustrate on centrifugal pump, Air conditioner, operations of smithy, foundry and fittings CO 6: Carry out basic home electrical works and appliances CO 7: Measure the electrical quantities CO 8: Elaborate on the components, gates, soldering practices.
CS 8261C Programming Laboratory	CO1: Develop C programs for simple applications making use of basic constructs, arrays and strings. CO2: Develop C programs involving functions, recursion, pointers, and structures. CO3: Design applications using sequential and random access file processing.
IT8211 Information Technology Essentials Laboratory	CO 1: Design interactive websites using basic HTML tags, different styles, links and with all CO 2: Basic control elements CO 3: Create client side and server side programs using scripts using PHP CO 4: Design dynamic web sites and handle multimedia components CO 5: Create applications with PHP connected to database CO 6: Create Personal Information System CO 7: Implement the technologies behind computer networks and mobile communication.
SEMESTER III	
MA 8351 Discrete Mathematics	CO1: Have knowledge of the concepts needed to test the logic of a program. CO2: Have an understanding in identifying structures on many levels. 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. CO4: Be aware of the counting principles. CO5: Be exposed to concepts and properties of algebraic structures such as groups, rings and fields.
CS 8391 Data Structures	CO 1: Implement abstract data types for linear data structures. CO 2: Apply the different linear and non-linear data structures to problem solutions. CO 3: Critically analyze the various sorting algorithms.
CS8351 Digital Principles and Systems Design	CO 1: Simplify Boolean functions using KMap CO 2: Design and Analyze Combinational and Sequential Circuits CO 3: Implement designs using Programmable Logic Devices CO 4: Develop HDL code for combinational and Sequential Circuits

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CS8392 Object Oriented Programming	CO 1: Develop Java programs using OOP principles CO 2: Develop Java programs with the concepts inheritance and interfaces CO 3: Design Java applications using exceptions and I/O streams CO 4: Develop Java applications with threads and generics classes CO 5: Develop interactive Java programs using swings
EC8394 Analog And Digital Communication	CO 1: Apply analog and digital communication techniques. CO 2: Use data and pulse communication techniques. CO 3: Analyze Source and Error control coding. CO 4: Utilize multi-user radio communication.
CS 8382 Digital Principles and System Design Laboratory	CO 1: Implement simplified combinational circuits using basic logic gates CO 2: Implement combinational circuits using MSI devices CO 3: Implement sequential circuits like registers and counters CO 4: Simulate combinational and sequential circuits using HDL
CS 8381 Data Structures Laboratory	CO 1: Write functions to implement linear and non-linear data structure operations CO 2: Suggest appropriate linear / non-linear data structure operations for solving a given problem CO 3: Appropriately use the linear / non-linear data structure operations for a given problem CO 4: Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval
CS8383 Object Oriented Programming Laboratory	CO 1: Develop and implement Java programs for simple applications that make use of classes, packages and interfaces. CO 2: Develop and implement Java programs with arraylist, exception handling and multithreading. CO 3: Design applications using file processing, generic programming and event handling.
HS8381 Interpersonal Skills/Listening & Speaking	CO 1: Listen and respond appropriately. CO 2: Participate in group discussions CO 3: Make effective presentations CO 4: Participate confidently and appropriately in conversations both formal and informal
SEMESTER IV	
MA8391 - Probability and Statistics	CO 1: Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon. CO 2: Understand the basic concepts of one and two dimensional random variables and apply in engineering applications CO 3: Apply the concept of testing of hypothesis for small and large samples in real life problems CO 4: Apply the basic concepts of classifications of design of experiments in the field of agriculture and statistical quality control CO 5: Have the notion of sampling distributions and statistical techniques used in engineering and management problems.

Course Name	Course Outcomes
CS 8451- Design and Analysis of Algorithms	CO 1: Design algorithms for various computing problems. CO 2: Analyze the time and space complexity of algorithms. CO 3: Critically analyze the different algorithm design techniques for a given problem. CO 4: Modify existing algorithms to improve efficiency.
CS8491 Computer Architecture	CO 1: Understand the basics structure of computers, operations and instructions. CO 2: Design arithmetic and logic unit. CO 3: Understand pipelined execution and design control unit. CO 4: Understand parallel processing architectures. CO 5: Understand the various memory systems and I/O communication.
CS8492 Database Management Systems	CO 1: Classify the modern and futuristic database applications based on size and complexity CO 2: Map ER model to Relational model to perform database design effectively CO 3: Write queries using normalization criteria and optimize queries CO 4: Compare and contrast various indexing strategies in different database systems CO 5: Appraise how advanced databases differ from traditional databases.
CS 8493 - Operating Systems	CO 1: Analyze various scheduling algorithms. CO 2: Understand deadlock, prevention and avoidance algorithms. CO 3: Compare and contrast various memory management schemes. CO 4: Understand the functionality of file systems. CO 5: Perform administrative tasks on Linux Servers. CO 6: Compare iOS and Android Operating Systems.
GE8291 Environmental Science And Engineering	CO 1: Public awareness of environment at infant stage. CO 2: Ignorance and incomplete knowledge has lead to misconceptions. CO 3: Development and improvement in standard of living has lead to serious environmental disasters.
CS8481 - Database Management Systems Lab	CO 1: Use typical data definitions and manipulation commands. CO 2: Design applications to test Nested and Join Queries CO 3: Implement simple applications that use Views CO 4: Implement applications that require a Front-end Tool CO 5: Critically analyze the use of Tables, Views, Functions and Procedures
HS 8461 Advanced Reading and writing	CO 1: Write different types of essays. CO 2: Write winning job applications. CO 3: Read and evaluate texts critically. CO 4: Display critical thinking in various professional contexts.

Course Name	Course Outcomes
CS8461 Operating Systems Laboratory	CO 1: Compare the performance of various CPU Scheduling Algorithms CO 2: Implement Deadlock avoidance and Detection Algorithms CO 3: Implement Semaphores CO 4: Create processes and implement IPC CO 5: Analyze the performance of the various Page Replacement Algorithms CO 6: Implement File Organization and File Allocation Strategies
SEMESTER – V	
MA8551 Algebra and Number Theory	CO 1: Apply the basic notions of groups, rings, fields which will then be used to solve related problems. CO 2: Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts. CO 3: Demonstrate accurate and efficient use of advanced algebraic techniques. CO 4: Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text. CO 5: Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.
CS8591- Computer Networks	CO 1: Understand the basic layers and its functions in computer networks. CO 2: Evaluate the performance of a network. CO 3: Understand the basics of how data flows from one node to another. CO 4: Analyze and design routing algorithms. CO 5: Design protocols for various functions in the network. CO 6: Understand the working of various application layer protocols
IT8501 Web Technology	CO 1: Design simple web pages using markup languages like HTML and XHTML. CO 2: Create dynamic web pages using DHTML and java script that is easy to navigate and use. CO 3: Program server side web pages that have to process request from client side web pages. CO 4: Represent web data using XML and develop web pages using JSP. CO 5: Understand various web services and how these web services interact.
CS8494 Software Engineering	CO 1: Identify the key activities in managing a software project. CO 2: Compare different process models. CO 3: Concepts of requirements engineering and Analysis Modeling. CO 4: Apply systematic procedure for software design and deployment. CO 5: Compare and contrast the various testing and maintenance. CO 6: Manage project schedule, estimate project cost and effort required.
EC 8691- Microprocessors and Microcontrollers	CO 1: Understand and execute programs based on 8086 microprocessor. CO 2: Design Memory Interfacing circuits. CO 3: Design and interface I/O circuits. CO 4: Design and implement 8051 microcontroller based systems

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OCE552 Geographic Information systems	CO 1:Apply the basic idea of fundamentals of GIS CO 2:Design different types of data models CO 3:Apply the knowledge about data inputs and topology CO 4:Apply the knowledge on data quality and standards CO 5:Design data management functions and data input.
CS8581 - Networks Laboratory	CO 1: Implement various protocols using TCP and UDP. CO 2: Compare the performance of different transport layer protocols. CO 3: Use simulation tools to analyze the performance of various network protocols. CO 4: Analyze various routing algorithms. CO 5: Implement error correction codes
EC8681 Microprocessors And Microcontrollers Laboratory	CO 1: Write ALP Programmes for fixed and Floating Point and Arithmetic operations CO 2: Interface different I/Os with processor CO 3: Generate waveforms using Microprocessors CO 4: Execute Programs in 8051 CO 5: Explain the difference between simulator and Emulator
IT8511 Web Technology Laboratory	CO 1: Design simple web pages using markup languages like HTML and XHTML. CO 2: Create dynamic web pages using DHTML and java script that is easy to navigate and use. CO 3:Program server side web pages that have to process request from client side web pages. CO 4: Represent web data using XML and develop web pages using JSP. CO 5: Understand various web services and how these web services interact.
EC8681 – Microprocessors and Microcontroller Laboratory Lab	CO 1:Apply ALP Programmes for fixed and Floating Point and Arithmetic operations CO 2: Design different I/Os with processor CO 3:Design waveforms using Microprocessors CO 4:Develop Programs in 8051 CO 5: Analyse the difference between simulator and Emulator.
SEMESTER VI	
IT8601 Computational Intelligence	CO 1: Provide a basic exposition to the goals and methods of Computational Intelligence. CO 2: Study of the design of intelligent computational techniques. CO 3: Apply the Intelligent techniques for problem solving CO 4: Improve problem solving skills using the acquired knowledge in the areas of, reasoning, natural language understanding, computer vision, automatic programming and machine learning.

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CS8592 Object Oriented Analysis And Design	CO 1: Express software design with UML diagrams CO 2: Design software applications using OO concepts. CO 3: Identify various scenarios based on software requirements CO 4: Transform UML based software design into pattern based design using design patterns CO 5: Understand the various testing methodologies for OO softwar
IT8602 Mobile Communication	CO 1: Explain the basics of mobile telecommunication system CO 2: Illustrate the generations of telecommunication systems in wireless network CO 3: Understand the architecture of Wireless LAN technologies CO 4: Determine the functionality of network layer and Identify a routing protocol for a given Ad hoc networks CO 5: Explain the functionality of Transport and Application layer
CS8091 Big Data Analytics	CO 1: Work with big data tools and its analysis techniques CO 2: Analyze data by utilizing clustering and classification algorithms CO 3: Learn and apply different mining algorithms and recommendation systems for large volumes of data CO 4: Perform analytics on data streams CO 5: Learn NoSQL databases and management.
CS8092 Computer Graphics And Multimedia	CO 1: Design two dimensional graphics. CO 2: Apply two dimensional transformations. CO 3: Design three dimensional graphics. CO 4: Apply three dimensional transformations. CO 5: Apply Illumination and color models. CO 6: Apply clipping techniques to graphics. CO 7: Understood Different types of Multimedia File Format CO 8: Design Basic 3d Scenes using Blender
IT8076 Software Testing	CO 1: Apply software testing knowledge and engineering methods to solve the problem. CO 2: Design software testing problems and solve them. CO 3: Design and conduct various types and levels of software testing. CO 4: Apply basic knowledge of contemporary issues in software testing & planning. CO 5: Identify the needs of software test automation and develop a test tool to support test automation.
CS8662 Mobile Application Development Laboratory	CO 1: Develop mobile applications using GUI and Layouts. CO 2: Develop mobile applications using Event Listener. CO 3: Develop mobile applications using Databases. CO 4: Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS. CO 5: Analyze and discover own mobile app for simple needs.

Course Name	Course Outcomes
CS8582 Object Oriented Analysis And Design Laboratory	CO 1: Perform OO analysis and design for a given problem specification. CO 2: Identify and map basic software requirements in UML mapping. CO 3: Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns CO 4: Test the compliance of the software with the SRS.
HS8581 Professional Communication	CO 1: Make effective presentations CO 2: Participate confidently in Group Discussions. CO 3: Attend job interviews and be successful in them. CO 4: Develop adequate Soft Skills required for the workplace
SEMESTER VII	
MG8591 -Principle of Management	CO : Upon completion of the course, students will be able to have clear understanding of managerial functions like planning, organizing, staffing, leading & controlling and have same basic knowledge on international aspect of management
CS 8792 Cryptography and Network Security	CO 1: Understand the fundamentals of networks security, security architecture, threats and vulnerabilities CO 2: Apply the different cryptographic operations of symmetric cryptographic algorithms CO 3: Apply the different cryptographic operations of public key cryptography CO 4: Apply the various Authentication schemes to simulate different applications. CO 5: Understand various Security practices and System security standards
CS 8791 Cloud computing	CO 1: Articulate the main concepts, key technologies, strengths and limitations of cloud computing. CO 2: Learn the key and enabling technologies that help in the development of cloud. CO 3: Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models. CO 4: Explain the core issues of cloud computing such as resource management and security. CO 5: Be able to install and use current cloud technologies. CO 6: Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud.
OME752 Supply Chain Management	CO1: Apply the basic concepts of decision phases, drivers and competitive supply chain strategies. CO2: Analyze factors influencing network design. CO3: Apply the design, routing and scheduling principles of transportation network in supply chain. CO4: Analyse sourcing and coordination effects of supply chain. CO5: Design the role of information technology and analyze the customer, supplier relationship coordination in a supply chain.

Course Name	Course Outcomes
CS 8079 Human Computer Interaction	CO 1:Design effective dialog for HCI CO 2:Design effective HCI for individuals and persons with disabilities. CO 3:Analyse the importance of user feedback. CO 4: Develop the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites. CO 5:Develop meaningful user interface.
IT8711 Foss And Cloud Computing Laboratory	CO 1: Configure various virtualization tools such as Virtual Box, VMware workstation. CO 2: Design and deploy a web application in a PaaS environment. CO 3: Learn how to simulate a cloud environment to implement new schedulers. CO 4: Install and use a generic cloud environment that can be used as a private cloud. CO 5: Manipulate large data sets in a parallel environment.
IT8761 Security Laboratory	CO 1: Develop code for classical Encryption Techniques to solve the problems. CO 2:Build cryptosystems by applying symmetric and public key encryption algorithms. CO 3: Construct code for authentication algorithms. CO 4: Develop a signature scheme using Digital signature standard. CO 5: Demonstrate the network security system using open source tools
SEMESTER VIII	
GE8076 Professional Ethics in Engineering	CO1: Apply the morals and values for professional excellence. CO2: Analyse the different ideas of engineering studies. CO3: Develop an aware about global issues of ethics and its applicability. CO4: Apply knowledge on how to managing the stress. CO5: Develop knowledge to realize engineering ethical issues in global level.
CS8080 Information Retrieval Techniques	CO 1:Apply open source search engine framework and explore its capabilities CO 2:Apply appropriate method of classification or clustering. CO3: Design and implement innovative features in a search engine. CO 4: Design and implement a recommender system. CO 5:Apply neighbourhood models.
CS8811 Project Work	CO : On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology.