



SRI SAI RAM INSTITUTE OF TECHNOLOGY

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Sai Leo Nagar, West Tambaram, Chennai – 44. Tel: 044– 22512333 / 22512111.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

REGULATION 2013

SEMESTER I

SUB CODE / SUBJECT NAME : HS6151/ TECHNICAL ENGLISH - I

YEAR / SEM: : I/I

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C101.1 (C01)	Define the fundamentals of engineering after learning the rules of English Grammar.
C101.2 (C02)	Observe and interpret the contextual knowledge by speaking, listening and reading the social issues such as public health, safety, legal and culturally related considerations.
C101.3 (C03)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises such as interviews and dialogue-writing.
C101.4 (C04)	Design the multidisciplinary settings to manage projects as an individual, as a member or leader after taking the exercises like role-play, group discussion and making presentations
C101.5 (C05)	Model the life-long learning methods suitable for all the environments committed to professional ethics and responsibilities after inculcating the habit of reading and writing
C101.6 (C06)	Analyze and identify the root for an effective managerial skills through different spoken discourse and excerpts



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



SUB CODE / SUBJECT NAME : MA6151/ ENGINEERING MATHS - I

YEAR / SEM: : II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C102.1 (C01)	Define Eigen values and Eigen vectors and explain how to analyze the stability of a system using these concepts and many other real time application in engineering.
C102.2 (C02)	Explain the physical interpretation of divergence, curl and gradient of a vector field and also how to apply these concepts in solving engineering problems.
C102.3 (C03)	Define the convergence of a sequence and series and make the student knowledgeable in the area of infinite series and their convergence so that he/ she will be familiar with limitations of using infinite series approximations for solutions arising in mathematical modeling
C102.4 (C04)	Introduce the concept of multivariable functions of real variables arise inevitably in engineering and physics due to any one physical quantity will generally depend on a number of other quantities and help[to solve real time problems.
C102.5 (C05)	Extend the concept of single integral to multiple integral and explain how to evaluate it. Also explain the idea of change of order of integration and explain how to find Area and volume of solids
C102.6 (C06)	Understand various mathematical tools and apply it to solve the engineering problems most effectively



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



SUB CODE / SUBJECT NAME : PH6151/ ENGINEERING PHYSICS - I

YEAR / SEM: : II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C103.1 (C01)	To understand the possible crystal structures and to analyze various growth techniques in the view of increasing demand of crystals for various Engineering and Technological applications.
C103.2 (C02)	To understand the basic concepts of elastic behavior of materials and evaluate the structural stability of beams. Remembering functional ideas of thermal physics and compare the thermal conductivity of different materials to meet the specific needs
C103.3 (C03)	Describe and analyzing the quantum nature of radiation and matter to solve the real time societal and technological problems.
C103.4 (C04)	The significance of frequency dependent sound waves is discussed and to solve the Medical and Engineering problems using ultrasonic's.
C103.5 (C05)	To discuss the propagation of light in optical fibers, compare various types of fibers and its applications in Medical and Engineering fields
C103.6 (C06)	To make the students understand the fundamentals of Physics to solve complex engineering problems for benefit of the society



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



SUB CODE / SUBJECT NAME : CY6151/ ENGINEERING CHEMISTRY - I YEAR / SEM: I/I

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C104.1 (C01)	To apply and implement the knowledge of synthesis and uses of polymers in industries and environment
C104.2 (C02)	To analyze and understand the concepts of thermodynamic laws in various industrial applications
C104.3 (C03)	To understand and remember the concepts of photo physical, photochemical process and spectroscopy for getting knowledge in light emitting properties of compounds and identifying the functional groups of molecules
C104.4 (C04)	Knowledge of alloys gives an idea about the manufacturing process in various industries
C104.5 (C05)	To create the knowledge of nonmaterial's and their applications in fields like medicinal, electrical, electronic, chemical, etc
C104.6 (C06)	The knowledge gained on polymer chemistry, Thermodynamics, Spectroscopy, phase rule and nano materials will provide a strong platform to understand the concept on various fields like mechanical, electrical, civil engineering for further learning

SUB CODE / SUBJECT NAME : GE6151/ COMPUTER PROGRAMMING

YEAR / SEM: I/I

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C105.1 (C01)	Understand the organization of a digital computer.
C105.2 (C02)	Be exposed to the number systems
C105.3 (C03)	Ability to think logically and write pseudo code or draw flow charts for problems.
C105.4 (C04)	Ability to use arrays, strings, functions, pointers, structures and unions in C.



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C105.5 (C05)	Design C Programs for problems
C105.6 (C06)	Write and execute C programs for simple applications

SUB CODE / SUBJECT NAME : GE6152/ ENGINEERING GRAPHICS

YEAR / SEM: I/I

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C106.1 (C01)	How to draw different engineering curves, draw different orthographic projections.
C106.2 (C02)	Illustrate different views of points, lines and planes inclined to both HP and VP in first quadrant.
C106.3 (C03)	Develop the projections of simple solids inclined to any one plane
C106.4 (C04)	Categorize Section and develop various solids
C106.5 (C05)	Evaluate to Draw 3D projections of simple solids by Perspective by visual ray method and Isometric projections
C106.6 (C06)	Build an engineering component using Paper drawing as well as in CAD

SUB CODE / SUBJECT NAME : GE6161/ COMPUTER PRACTICES LABORATORY

YEAR / SEM: I/I

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C107.1 (C01)	Be familiar with the use of Office software.
C107.2 (C02)	Be exposed to presentation and visualization tools.
C107.3 (C03)	Be exposed to problem solving techniques and flow charts.
C107.4 (C04)	Apply good programming design methods for program development.



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C107.5 (C05)	Design and implement C programs for simple applications.
C107.6 (C06)	Develop recursive programs.

SUB CODE / SUBJECT NAME : GE6162/ ENGINEERING PRACTICES LABORATORY YEAR /

SEM: I/I At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C108.1 (C01)	Hands on experience on welding, sheet metal and lathe works
C108.2 (C02)	Experience the plumbing and carpentry work
C108.3 (C03)	Demonstration on centrifugal pump and air conditioning working principles
C108.4 (C04)	Measurement of Electrical quantities, earthing procedures, wiring methods etc
C108.5 (C05)	Study of Electronic components and equipments – Resistor, colour coding measurement of AC signal parameter, Gates , Circuits etc
C108.6 (C06)	Provide exposure to the students with hands on experience on various basic engineering practices in Civil, Mechanical, Electrical and Electronics Engineering.

SUB CODE / SUBJECT NAME : GE6163/ PHYSICS AND CHEMISTRY LAB - I YEAR /

SEM: I/I At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C109.1 (C01)	To apply the physics principles of Thermal physics and Properties of Matter to evaluate properties of materials
C109.2 (C02)	To understand measurement technique and usage of new instrument in Optics for real time application in Engineering .



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C109.3 (C03)	Apply the concept of Ultrasonic to determine the physical parameters
C109.4 (C04)	Able to analyze the quality of water for domestic and industrial purpose
C109.5 (C05)	Used to find out the emf for different metallic solutions from which electrode potential is determined
C109.6 (C06)	To acquire knowledge about the conductivity of acids and bases

SEMESTER – II

SUB CODE / SUBJECT NAME : HS6251/ TECHNICAL ENGLISH-II

YEAR / SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C110.1 (C01)	Define the impact of the professional engineering solution in societal and environmental contexts with the help of the basic grammar taught to communicate effectively and confidently
C110.2 (C02)	Observe the usage of modern engineering and IT tools in designing and developing solutions after developing their reading skills with different types of reading strategies.
C110.3 (C03)	Apply the creative, appropriate techniques, resources to analyze complex engineering problems by interactive exercises like sample interviews and dialogue – writing.
C110.4 (C04)	Analyze the engineering and Project management principles in consequence of the listening and speaking skills acquired during the classroom activities.
C110.5 (C05)	Model the time varying natural and engineering sciences after learning to write an imaginary reports, essays, process description, and visualizing materials
C110.6 (C06)	Understand the responsibilities relevant to the professional engineering practice after reading the different genres of texts.

SUB CODE / SUBJECT NAME : MA6251/ MATHEMATICS-II

YEAR / SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C111.1 (C01)	Apply the knowledge of techniques in solving ordinary differential equations that model engineering problems.



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C111.2 (C02)	Define and understand the concepts of vector calculus, needed for problems in all engineering disciplines.
C111.3 (C03)	Develop an understanding of the standard techniques of complex variable theory so as to enable the student to apply them with confidence, in application areas such as heat conduction, elasticity, fluid dynamics and flow the of electric current.
C111.4 (C04)	Evaluate real integrals by applying concept of complex integration
C111.5 (C05)	Understand and apply the knowledge of Laplace Transforms in solving system of linear differential equations.
C111.6 (C06)	Introduces fundamental knowledge in mathematics that is applicable in the Engineering aspects.

SUB CODE / SUBJECT NAME : PH6251/ ENGINEERING PHYSICS-II

YEAR / SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C112.1 (C01)	To understand the basic principles of the electrical and thermal conductivity of metals and to analyze the electron behavior by classical and quantum theories.
C112.2 (C02)	To discuss the electron behavior in conduction and valence band in semiconducting materials, comparing the mobility and carrier concentration of N and P type semiconductors by theoretical method and applying Hall effect experimental method for biasing application.
C112.3 (C03)	To identify the different types of magnetic materials based on the atomic magnetic dipoles and utilize them for different technological applications. To explain the superconducting behaviors of materials and to solve real time medical and engineering applications.
C112.4 (C04)	To describe different polarization mechanism in dielectric materials and to meet the specific need in energy sector.
C112.5 (C05)	State and explain modern engineering materials such as metallic glasses, shape memory alloys, Nonmaterial's and NLO materials to design new engineering devices
C112.6 (C06)	To emphasize the role of conventional and modern engineering materials in Technological applications for the sustainable development of the society

SUB CODE / SUBJECT NAME :CY6251/ENGINEERING CHEMISTRY-II

YEAR / SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
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C113.1 (C01)	To gain knowledge about water quality parameters to analyze and provide them with latest equipment and technologies by using external and internal treatments
C113.2 (C02)	To impart knowledge in principles of electrochemical reactions, redox reactions in corrosion of materials and methods for corrosion prevention and protection of materials
C113.3 (C03)	To understand the principles and generation of energy in batteries, nuclear reactors, solar cells, wind mills and fuel cells
C113.4 (C04)	To get adequate knowledge in preparation, properties and applications of engineering materials
C113.5 (C05)	Analyze issues related to fuels and their synthesis and able to understand working of IC and diesel engines
C113.6 (C06)	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

SUB CODE / SUBJECT NAME : CS6201/DIGITAL PRINCIPLES AND SYSTEM DESIGN

YEAR / SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C114.1 (C01)	Define the fundamental concepts of digital logic circuits.
C114.2 (C02)	Understand and Correlate between Boolean Expression, simplification methods to optimize it for desired characteristics.
C114.3 (C03)	Apply the concept of digital logic circuits and Design various combinational building blocks and sequential logic to represent logic function in multiple forms
C114.4 (C04)	Analyze a memory cell and apply for organizing larger memory.
C114.5 (C05)	Understand and compare the concepts of Programmable logic Devices.
C114.6 (C06)	Develop a HDL Programs for combinational and Sequential Circuits

SUB CODE / SUBJECT NAME : CS6202/PROGRAMMING AND DATA STRUCTURE-I

YEAR / SEM: I/II At the end of the course the students will be able to



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COURSE CODE	COURSE OUTCOMES
C115.1 (C01)	To Define the problem solutions using C-Programming concepts
C115.2 (C02)	To Apply the Control Structures in solving the problems
C115.3 (C03)	To Apply the different linear data structures to problem solutions
C115.4 (C04)	To Analyze the various linear data structure concepts
C115.5 (C05)	To Create model for linear data structures using C Programming concepts
C115.6 (C06)	To Demonstrate linear data structure concepts using C Programming concepts

SUB CODE / SUBJECT NAME : GE6262/PHYSICS AND CHEMISTRY LAB-II

YEAR /

SEM: /II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C116.1 (C01)	Apply the knowledge of semiconducting material to evaluate the band gap of the material useful for engineering solutions.
C116.2 (C02)	Apply the concept of elasticity to analyze the properties related to multidisciplinary field
C116.3 (C03)	To demonstrate an experiment using spectrometer to determine the refractive index of various color and dispersive power of the material of the given prism and to develop instrument handling skill.
C116.4 (C04)	Able to analyze the quality of water for domestic and industrial purpose
C116.5 (C05)	Used to find out the Emf for different metallic solutions from which electrode potential is determined
C116.6 (C06)	To acquire knowledge about the conductivity of acids and bases

SUB CODE / SUBJECT NAME : CS6211/ DIGITAL LABORATORY

YEAR /

SEM: /II

At the end of the course the students will be able to



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COURSE CODE	COURSE OUTCOMES
	Examine Boolean Theorems using basic gates.
C117.2 (C02)	Apply the concept of digital logic circuits and implement combinational circuits using basic gates for arbitrary functions, code converters.
C117.3 (C03)	Design and implementation of combinational circuits using MSI devices: 4 – bit binary adder / subtractor Parity generator / checker Magnitude Comparator Application using multiplexers
C117.4 (C04)	Analyze and implementation of sequential circuits: Shift –registers Synchronous and asynchronous counters
C117.5 (C05)	Simulate Verilog models for digital logic circuits.
C117.6 (C06)	Design and implementation of a simple digital system

SUB CODE / SUBJECT NAME : CS6212/ PROGRAMMING AND DATA STRUCTURE LAB - I

YEAR/ SEM: I/II

At the end of the course the students will be able to

COURSE CODE	COURSE OUTCOMES
C118.1 (C01)	Develop simple C programs using pointers and functions.
C118.2 (C02)	Develop C program for linear data structure operations and its applications.
C118.3 (C03)	Experiment with file manipulation concepts.
C118.4 (C04)	Develop programs using various sorting algorithms.
C118.5 (C05)	Develop programs using different searching methods.
C118.6 (C06)	Develop C program for stack and Queue.



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



SEMESTER – III -

MA6351 - TRANSFORM AND PARTIAL DIFFERENTIAL EQUATIONS

The student should be able to

Course Code	Course Outcomes
C201.1 (CO1)	Evaluating the various model of homogeneous and non homogeneous partial differential equations which helps to solve engineering problems.
C201.2 (CO2)	Determine the Fourier coefficients in the Fourier series expansion of a given function and which play a vital role in analyzing various complex problems in engineering.
C201.3 (CO3)	Analyzing the one dimensional, two dimensional heat equation and one dimensional wave equation by using the concept of Fourier series, which describes the distribution in a given region over time
C201.4 (CO4)	Determine Fourier transform for a given function and use them to evaluate the definite integrals which helps in analyzing the differential equation and also applied in quantum mechanics
C201.5 (CO5)	Determine Z transforms and standard function and use them to solve the difference equation, which helps to investigate the discrete time signals.
C201.6 (CO6)	Understanding of the mathematical principles on transforms and partial differential equation would provide them the ability to formulate and solve the physical problems of engineering



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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

CS6301 - Programming and Data Structure II

The student should be able to

Course Code	Course Outcomes
C202.1 (CO1)	To Develop the problem solutions using Object Oriented Techniques
C202.2 (CO2)	To Apply the concepts of Object Oriented Techniques for problem solving
C202.3 (CO3)	To Analyze and use the control structures of C++ appropriately.
C202.4 (CO4)	To Design and critically analyze the various non-linear data structure concepts
C202.5 (CO5)	To Apply the different data structures to problem solutions and Create model for concepts
C202.6 (CO6)	To demonstrate the data structure concepts through OOPs concepts

CS6302 - Database Management Systems

The student should be able to

Course Code	Course Outcomes
C203.1 (CO1)	Compare and contrast different data models
C203.2 (CO2)	Analyze various query optimization techniques and data types.
C203.3 (CO3)	Apply concurrency control & recovery mechanism for database problems
C203.4 (CO4)	Outline the file organization of records in files.
C203.5 (CO5)	Illustrate various database security techniques.
C203.6 (CO6)	Comprehend the various physical storage media in database.

CS6303 - Computer Architecture

The student should be able to



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Course Code	Course Outcomes
C204.1 (CO1)	Explain the computer organization components, instructions and addressing modes
C204.2 (CO2)	Demonstrate arithmetic operations
C204.3 (CO3)	Design and analyze pipelined control units
C204.4 (CO4)	Outline the concept of parallelism and multi-core processor
C204.5 (CO5)	Classify the memory technologies and I/O systems
C204.6 (CO6)	Compare and contrast the arithmetic operations used in various processors

CS6304 - Analog and Digital Communication

The student should be able to

Course Code	Course Outcomes
C205.1 (CO1)	Understanding the basics of analog modulation technique
C205.2 (CO2)	Explain various digital communication schemes
C205.3 (CO3)	Design and analyze various pulse modulation techniques
C205.4 (CO4)	Discuss data communication circuits and modems
C205.5 (CO5)	Discuss the concept of spread spectrum and multiple access techniques
C205.6 (CO6)	Describe various error coding techniques



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GE6351 - Environmental Science and Engineering

The student should be able

Course Code	Course Outcomes
C206.1 (CO1)	To interpret the relationship between living organisms and the environment and to identify the threats to global biodiversity
C206.2 (CO2)	To identify and prevent the problems related to the pollution of air, water, soil, marine, etc
C206.3 (CO3)	To understand the importance of natural resources and to conserve it for future generation
C206.4 (CO4)	To analyze the social issues of the environment to be a part of sustainable development
C206.5 (CO5)	To create awareness and sustainable population growth and know the contribution of information technology in environmental management
C206.6 (CO6)	To study the integrated themes and biodiversity, natural resources, pollution control, waste management for protecting environment from degradation

CS6311 - Programming and Data Structure Laboratory II

The student should be able to

Course Code	Course Outcomes
C207.1 (CO1)	Select good programming design methods for program development.
C207.2 (CO2)	Develop C++ programs for object oriented concepts.
C207.3 (CO3)	Develop C++ programs for handling exceptions
C207.4 (CO4)	Develop C++ programs for practical problems using non-linear data structures.
C207.5 (CO5)	Develop recursive programs using trees and graphs.
C207.6 (CO6)	Develop C++ programs for shortest path algorithms.



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CS6312 - Database Management Systems Laboratory

The student should be able to

Course Code	Course Outcomes
C208.1 (CO1)	Infer database language commands to create simple database
C208.2 (CO2)	Analyze the database using queries to retrieve records
C208.3 (CO3)	Applying PL/SQL for processing database
C208.4 (CO4)	Analyze front end tools to design forms, reports and menus
C208.5 (CO5)	Develop solutions using database concepts for real time requirements
C208.6 (CO6)	Design mini project for different problems

SEMESTER - IV -

MA6453 - Probability and Queuing Theory

The student should be able to

Course Code	Course Outcomes
C209.1 (CO1)	Define the concept of random variable and its properties. Construct probabilistic models for observed phenomena through distributions which play an important role in many engineering applications
C209.2 (CO2)	Identify random variables by designing joint distributions and correlate the random variables.
C209.3 (CO3)	Define the concept of random processes and its classification, in particular about Markov chains, which plays an important role in finding solution of many engineering problems.
C209.4 (CO4)	Identify the queuing model in the given system and find the performance measures to analyse the result in real time situation.



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C209.5 (CO5)	Introduce non markovian queuing model which helps in analyzing various queuing networks. Applications emphasize communication networks and computer operations, but may include examples from transportation, manufacturing, and the service industry
C209.6 (CO6)	Helps to develop probabilistic models under several areas of science and engineering

CS6551 - Computer Networks

The student should be able

Course Code	Course Outcomes
C210.1 (CO1)	To Understand the components required to build different types of networks
C210.2 (CO2)	To Classify the required functionality at each layer for given application and Internet working
C210.3 (CO3)	To Analyze and demonstrate the solution of each functionality and routing techniques for each layer
C210.4 (CO4)	To Design the flow of information from one node to another node in the network
C210.5 (CO5)	To experiment the different application and Learn the flow control and congestion control algorithms
C210.6 (CO6)	To illustrate how application layer protocol works

CS6401 - Operating Systems

The student should be able to

Course Code	Course Outcomes
C211.1 (CO1)	Understand the basic concepts of OS ,Operating System Structure and functions of operating systems.
C211.2 (CO2)	Apply the scheduling algorithms for scheduling and avoid deadlock
C211.3 (CO3)	Analyze Processes, Threads ,concurrency and deadlocks
C211.4 (CO4)	Evaluate various memory management schemes and understand I/O management and File systems



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C211.5 (CO5)	Model the Linux system and perform administrative tasks on Linux Servers
C211.6 (CO6)	Explain I/O management and file systems

CS6402 - Design and Analysis of Algorithms

The student should be able to

Course Code	Course Outcomes
C212.1 (CO1)	Analyze the time and space complexity of various algorithms
C212.2 (CO2)	Analyze different algorithm design techniques for problem solving
C212.3 (CO3)	Applying techniques for various computing problems
C212.4 (CO4)	knowledge about problem solving using iterative method
C212.5 (CO5)	Design limitations of algorithms in problem solving
C212.6 (CO6)	knowledge about algorithm analysis techniques

EC6504 - Microprocessor and Microcontroller

The student should be able to

Course Code	Course Outcomes
C213.1 (CO1)	Understand architecture and operations of a microprocessor & Microcontroller system in depth
C213.2 (CO2)	Demonstrate programming proficiency using the various addressing modes and data transfer instructions of the microprocessor
C213.3	Analyze, specify, design, write and test assembly language programs of moderate



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(CO3)	complexity
C213.4 (CO4)	Perform the detailed hardware design of a microprocessor & microcontroller system, and program the microprocessor using suitable techniques and software tools
C213.5 (CO5)	Design electrical circuitry to the Microprocessor & Microcontroller I/O ports in order to interface the processor to external devices
C213.6 (CO6)	Design and Implementation of electronic system using appropriate microprocessor/Microcontroller, programming, Interfacing and troubleshooting techniques

CS6403 - Software Engineering

The student should be able to

Course Code	Course Outcomes
C214.1 (CO1)	Outline the fundamentals of software engineering concepts and software process standards
C214.2 (CO2)	Analyze requirements of software system and explore all requirements gathering approaches
C214.3 (CO3)	Creating an architectural design using design engineering process
C214.4 (CO4)	Apply software strategies and software testing tactics for testing real time projects effectively
C214.5 (CO5)	Compare and contrast the various project management and maintenance.
C214.6 (CO6)	Implement the software product according to software systematic approaches

CS6411 - Networks Laboratory

The student should be able to

Course Code	Course Outcomes
C215.1 (CO1)	Demonstrate the socket program using TCP & UDP
C215.2	Develop simple applications using TCP & UDP



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(CO2)	
C215.3 (CO3)	Develop the code for Data link layer protocol simulation
C215.4 (CO4)	Examine the performances of Routing protocol
C215.5 (CO5)	Experiment with congestion control algorithm using network simulator
C215.6 (CO6)	Understand the concept of data and signal, data transmission and data conversion

CS6412 - Microprocessor and Microcontroller Laboratory

The student should be able to

Course Code	Course Outcomes
C216.1 (CO1)	Apply programming concept for various applications using microprocessors and microcontrollers
C216.2 (CO2)	An in-depth knowledge of applying the concepts on real-time applications
C216.3 (CO3)	Solid foundation on interfacing the external devices to the processor and controllers according to the user requirements to create novel products and solutions for the real time problems
C216.4 (CO4)	Understanding of industrial environment aware of excellence guidelines and lifelong learning needed for a successful professional career in embedded and real time system design
C216.5 (CO5)	Exposing the students to design work where there is no single correct solution, rather competing objectives; and to encourage cooperative team work and develop communication skills.
C216.6 (CO6)	Apply software tools for better programming.

CS6413 - Operating Systems Laboratory

The student should be able to

Course Code	Course Outcomes
C217.1 (CO1)	Experiment with Unix commands and shell programming



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C217.2 (CO2)	Build 'C' program for process and file system management using system calls
C217.3 (CO3)	Choose the best CPU scheduling algorithm for a given problem instance
C217.4 (CO4)	Identify the performance of various page replacement algorithms
C217.5 (CO5)	Develop algorithm for deadlock avoidance, detection and file allocation strategies
C217.6 (CO6)	Implement semaphores, memory management

SEMESTER - V

- MA6566 - Discrete Mathematics

The student should be able to



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Course Code	Course Outcomes
C301.1 (CO1)	Apply the knowledge of the concepts needed to test the logic of a program.
C301.2 (CO2)	Introduce the core ideas of combinatorial mathematics and apply these ideas to practical problems.
C301.3 (CO3)	Explain basic concepts in Graph theory and Define how graphs serve as models for many standard problems
C301.4 (CO4)	Create awareness of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science and Analyze the concepts and properties of algebraic structures such as groups, rings and fields.
C301.5 (CO5)	Define the basic ideas of posets and develop the concepts of lattices which has application in finite state machines.
C301.6 (CO6)	Introduce the concepts of discrete objects and relationships that bind them and create an ability to deal with abstraction, combinatorics, algorithms and graphs.

CS6501 - Internet Programming

The student should be able to

Course Code	Course Outcomes
C302.1 (CO1)	Explain the concepts of Control Statements, I/O Applet and Threading
C302.2 (CO2)	Develop a basic website using HTML and Cascading Style Sheets
C302.3 (CO3)	Compare and contrast the Java Script programming for client and server along with its event handling mechanisms
C302.4 (CO4)	Build a simple web page in PHP with XML data format
C302.5 (CO5)	Explain web services and SOAP
C302.6 (CO6)	Illustrate Client Presentation using AJAX

CS6502 - Object Oriented Analysis and Design

The student should be able to



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Course Code	Course Outcomes
C303.1 (CO1)	Design and explain object oriented methodologies and relationships between objects and classes in UML
C303.2 (CO2)	Apply UML notations to develop various UML diagrams for the given scenario and will be able to evaluate the complexity in software design.
C303.3 (CO3)	Identify the objects and its responsibilities using traditional techniques and develop object-based models in real world projects
C303.4 (CO4)	Find the static and dynamic behavior of objects about document creation for the given scenario able to analyze information systems in real-world settings.
C303.5 (CO5)	Apply the domain & specification model for the given scenario Synthesize and develop real-time application based on object oriented methodologies able to represent a real-world system using UML diagrams.
C303.6 (CO6)	Compare and Contrast Different Testing Techniques

CS6503 - Theory of Computation

The student should be able to

Course Code	Course Outcomes
C304.1 (CO1)	Outline the concept of Finite Automata and Regular Expression
C304.2 (CO2)	Illustrate the design of Context Free Grammar for any language set
C304.3 (CO3)	Demonstrate the push down automaton model for the given language
C304.4 (CO4)	Make use of Turing machine concept to solve the simple problems
C304.5 (CO5)	Explain decidability or undecidability of various problems
C304.6 (CO6)	Design Various Computing models and know the decidability and undecidability of various problems

CS6504 - Computer Graphics



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The student should be able to

Course Code	Course Outcomes
C305.1 (CO1)	Gain knowledge about graphics hardware devices and software used.
C305.2 (CO2)	Design and Understand the two dimensional graphics and their transformations.
C305.3 (CO3)	Understand the three dimensional graphics, object representation and their transformations.
C305.4 (CO4)	Understand and familiar with illumination and color models.
C305.5 (CO5)	Be familiar with understand clipping techniques.
C305.6 (CO6)	Gain knowledge about the design and animation sequence

CS6511 - Case Tools Laboratory

The student should be able to

Course Code	Course Outcomes
C306.1 (CO1)	Design and implement projects using OO concepts.
C306.2 (CO2)	Be exposed to the UML design diagrams.
C306.3 (CO3)	Learn to map design to code.
C306.4 (CO4)	Be familiar with the various testing techniques
C306.5 (CO5)	Apply appropriate design patterns.
C306.6 (CO6)	Compare and contrast various testing techniques



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CS6512 - Internet Programming Laboratory

The student should be able to

Course Code	Course Outcomes
C307.1 (CO1)	Illustrate web pages using HTML/XML and style sheets
C307.2 (CO2)	Analyze Java programs using socket for chat application and file transfer using HTTP,SMTP,FTP,POP3
C307.3 (CO3)	Compare and contrast dynamic web pages using server side scripting servlets,JSP,JDBC
C307.4 (CO4)	Develop a Client Server application and use the frameworks JSP Strut, Spring
C307.5 (CO5)	Build the applications using AJAX
C307.6 (CO6)	Develop Web Services

CS6513 - Computer Graphics Laboratory

The student should be able to

Course Code	Course Outcomes
C308.1 (CO1)	Understand and implement algorithms for graphical drawing primitives
C308.2 (CO2)	Design 2D graphical transformation
C308.3 (CO3)	Analyze and design clipping algorithms and viewing techniques
C308.4 (CO4)	Design 3D graphical transformation
C308.5 (CO5)	Use image editing tool for image manipulation and enhancement
C308.6 (CO6)	Design graphical scenes using open graphics library suits



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SEMESTER - VI - CS6601 - Distributed Systems

Course Code	Course Outcomes
C309.1 (CO1)	Understand foundations of Distributed Systems
C309.2 (CO2)	Introduce the idea of peer to peer services and file system
C309.3 (CO3)	Understand in detail the system level and support required for distributed system
C309.4 (CO4)	Apply remote method invocation and objects
C309.5 (CO5)	Understand the issues involved in studying process and resource management
C309.6 (CO6)	Evaluate various applications using distributed techniques.

IT6601 - Mobile Computing

The student should be able to

Course Code	Course Outcomes
C310.1 (CO1)	Introduction to Mobile Computing, Applications, MAC Protocols and issues.
C310.2 (CO2)	Description about Mobile Internet protocol and Transport Layer
C310.3 (CO3)	Description about Mobile Telecommunication systems Using GSM, GPRS and UMTS
C310.4 (CO4)	Introduction to Ad-Hoc concepts and Routing Protocols for MANET and VANET
C310.5 (CO5)	Description about various mobile platform and applications.
C310.6 (CO6)	Data synchronization in mobile computing systems



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CS6660- Compiler Design

The student should be able to

Course Code	Course Outcomes
C311.1 (CO1)	Gain knowledge about different phases of a Compiler
C311.2 (CO2)	Illustrate the translation of regular expression
C311.3 (CO3)	Use the different compiler construction tools to develop a simple compiler
C311.4 (CO4)	Construct the intermediate representation considering the type systems
C311.5 (CO5)	Construct the optimization techniques for the generated code
C311.6 (CO6)	Design and implement a prototype compiler.

IT6502 - Digital Signal Processing

The student should be able to

Course Code	Course Outcomes
C312.1 (CO1)	Define basics of signals and systems, explain sampling theorem to convert analog to discrete signals and show how z transform and its properties are used as a mathematical tool in learning signals and systems
C312.2 (CO2)	Apply Discrete Fourier Transform and its properties to discrete time signals and systems
C312.3 (CO3)	Analyze digital IIR filters and model them using realization structures
C312.4 (CO4)	Prove that FIR digital filters are advantageous over IIR digital filters and model them using realization structures
C312.5 (CO5)	Discuss the behavior of digital filters on the effect of finite word length
C312.6 (CO6)	Design digital IIR and FIR filters and solve digital signal processing problems using transforms



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CS6659 - Artificial Intelligence

The student should be able to

Course Code	Course Outcomes
C313.1 (CO1)	Identify problems that are amenable to solution by AI methods.
C313.2 (CO2)	Recognize appropriate AI methods to solve a given problem.
C313.3 (CO3)	Discuss a given problem in the language/framework of different AI methods.
C313.4 (CO4)	Implement basic AI algorithms.
C313.5 (CO5)	Design and carry out an empirical evaluation of different algorithms on a problem formalization, and state the conclusions that the evaluation supports.
C313.6 (CO6)	Gain knowledge on architecture of expert systems and its shells.

GE6757 – TOTAL QUALITY MANAGEMENT

The student should be able to

Course Code	COURSE OUTCOMES
C314.1 (CO1)	Understand the basic concepts of TQM'
C314.2 (CO2)	To facilitate the understanding of Principles, PDA cycle, supplier rating
C314.3 (CO3)	Understanding the tools and techniques
C314.4 (CO4)	Know about the control charts ,TQM concepts and performance measures
C314.5 (CO5)	Understand the need for quality systems
C314.6 (CO6)	Apply the tools and techniques of quality management to manufacturing and services processes.



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IT6702 - Data Warehousing and Data Mining

The student should be able to

Course Code	Course Outcomes
C314.1 (CO1)	Identify the differences between relational database systems and data warehouses, the need for data warehousing to formulate the decision support system an engineering specialization for the prediction and modeling to complex engineering activities.
C314.2 (CO2)	Summarize the dominant data warehousing architectures and analyze their implementation details to develop multidimensional data models to analyze complex engineering problems.
C314.3 (CO3)	Understand the different functionalities of data mining system and analyze the various data preprocessing techniques to design data warehouses that meet the specified needs of the society with appropriate environmental considerations.
C314.4 (CO4)	Analyze the various clustering and classification algorithm functionalities and evaluate their merits and demerits to acquire research based knowledge for the synthesis of the information to provide valid conclusions.
C314.5 (CO5)	Explain the advanced data mining concepts and outline their scope of providing IT solutions for different domains which helps in the betterment of life.
C314.6 (CO6)	Develop optimization algorithms with Data mining

CS6611 - Mobile Application Development Laboratory

The student should be able to

Course Code	Course Outcomes
C315.1 (CO1)	Build a native application using GUI components and Mobile application development framework
C315.2 (CO2)	Develop an application using basic graphical primitives and databases
C315.3 (CO3)	Construct an application using multi threading and RSS feed
C315.4 (CO4)	Make use of location identification using GPS in an application



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C315.5 (CO5)	Model new applications to hand held devices
C315.6 (CO6)	Design and Implement various mobile applications using emulators.

CS6612 - Compiler Laboratory

The student should be able to

Course Code	Course Outcomes
C316.1 (CO1)	Apply different compiler writing tools to implement the different Phases
C316.2 (CO2)	Analyze the data flow and control flow
C316.3 (CO3)	Construct the intermediate representation and DAG
C316.4 (CO4)	Design the back end of a compiler for 8086 assembler
C316.5 (CO5)	Compare various code optimization techniques
C316.6 (CO6)	Implement The Code Generation Techniques

GE6674 - Communication and Soft Skills - Laboratory

The student should be able to

Course Code	Course Outcomes
C317.1 (CO1)	Define appropriate techniques with suitable language and speech pattern
C317.2 (CO2)	Discuss the social issues in the group discussion
C317.3 (CO3)	Apply the acquired skills confidently in interviews
C317.4 (CO4)	Take part in debates and public speaking
C317.5 (CO5)	Prioritize the ideas relevantly and coherently in writing and speaking



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C317.6 (CO6)	Develop the skills for writing technical reports and letters
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SEMESTER - VII - CS6701 - Cryptography and Network Security

The student should be able to

Course Code	Course Outcomes
C401.1 (CO1)	Explain the basics of number theory and compare various encryption techniques
C401.2 (CO2)	Summarize the functionality of public key cryptography.
C401.3 (CO3)	Apply various message authentication functions and secure algorithms.
C401.4 (CO4)	Demonstrate different types of security systems and applications.
C401.5 (CO5)	Discuss different levels of security and services.
C401.6 (CO6)	To create secure coding in the developed applications.

CS6702 - Graph Theory and Applications

The student should be able to

Course Code	Course Outcomes
C402.1 (CO1)	Define and explain the fundamentals concepts of discrete mathematics and accurate mathematical definitions of objects in graph theory
C402.2 (CO2)	Explain the concept of tree which manipulate hierarchical data and Make information easy to search in data structures
C402.3 (CO3)	Analyze computer networks by using the concept of graph theory parameters like chromatic number, domination theory
C402.4 (CO4)	Creative investigation of questions in graph theory can be solved by using combination of



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	theoretical knowledge and independent mathematical thinking
C402.5 (CO5)	Define difference equation and explain how to solve by using various techniques.
C402.6 (CO6)	Design a graph theory model for real time problems and analyse by using various graph theory parameters.

CS6703 - Grid and Cloud Computing

The student should be able to

Course Code	Course Outcomes
C403.1 (CO1)	Understand and apply the concept of Grid and Cloud Architectures.
C403.2 (CO2)	Comprehend the data intensive grid service models and grid computing techniques
C403.3 (CO3)	Analyze the concept of virtualization in cloud.
C403.4 (CO4)	Evaluate the programming model for Hadoop and globus toolkit.
C403.5 (CO5)	Create the security models in the grid and cloud environment.
C403.6 (CO6)	Demonstrate the importance of protocols and standards in management for cloud services

CS6704 - Resource Management Techniques

The student should be able to

Course Code	Course Outcomes
C404.1 (CO1)	Define and explain linear programming model which helps to solve decision problems like resource allocations problems and optimization problems which arise in engineering
C404.2 (CO2)	Introduce the concept of transportation and assignment problems and apply it in finding the shortest route problems in computer networks
C404.3 (CO3)	Apply the concept of integer programming technique to the implementation of graphical



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	user interface
C404.4 (CO4)	Solve real time optimization problem by using classical optimization theory
C404.5 (CO5)	Analyze computer networks by using the concept of Critical path method and PERT
C404.6 (CO6)	Solve optimization problems by using suitable technique like simplex method, transportation method and integer programming .

CS6005-ADVANCED DATABASE SYSTEMS

The student should be able to

Course Code	Course Outcomes
C405.1 (CO1)	Learn and design different types of databases.
C405.2 (CO2)	Understand the concepts behind active databases
C405.3 (CO3)	Understand the concepts behind temporal and object databases
C405.4 (CO4)	Be exposed and use the query languages.
C405.5 (CO5)	Understand the spatial and multimedia database
C405.6 (CO6)	Be familiar with the indexing techniques.

CS6004 – Cyber Forensics

The student should be able to

Course	Course Outcomes
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Code	
C405.1 (CO1)	Understand the security issues network layer and transport layer
C405.2 (CO2)	Be exposed to security issues of the application layer
C405.3 (CO3)	Analysis the computer forensics
C405.4 (CO4)	Evaluating the forensics tools
C405.5 (CO5)	creating the design to handle forensics tools
C405.6 (CO6)	Illustrate the various forensics tools

IT6006 – Data Analytics

The student should be able to

Course Code	Course Outcomes
C406.1 (CO1)	Understand the concepts of Big data
C406.2 (CO2)	Apply the statistical methods to perform the data analysis
C406.3 (CO3)	Define the data mining concepts in different streams
C406.4 (CO4)	Apply the data mining concepts to solve the real world problems.
C406.5 (CO5)	Understand the different frameworks in big data
C406.6 (CO6)	Illustrate the various visualization techniques in data mining

CS6711 - Security Laboratory

The student should be able to



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Course Code	Course Outcomes
C407.1 (CO1)	Be exposed to the different cipher techniques
C407.2 (CO2)	Learn to implement the algorithms DES, RSA, MD5, SHA-1
C407.3 (CO3)	Learn to use Digital signature standard using simulation tools
C407.4 (CO4)	Learn to setup honey pot using KF Sensor
C407.5 (CO5)	Study about the installation of rootkits
C407.6 (CO6)	Understand the WAP and WEP using stumbler

CS6712 - Grid and Cloud Computing Laboratory

The student should be able to

Course Code	Course Outcomes
C408.1 (CO1)	Understanding and Make use of the Grid Toolkit.
C408.2 (CO2)	Comperhence the Design and Implementation of new Grid applications.
C408.3 (CO3)	Analysing the use of Cloud Toolkit.
C408.4 (CO4)	Evaluating the cloud applications on Cloud.
C408.5 (CO5)	Creating the applications according to the services.
C408.6 (CO6)	Identify and analyze security implications in cloud computing



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SEMESTER - VIII

CS6801 - Multi – Core Architectures and Programming

The student should be able

Course Code	Course Outcomes
C409.1 (CO1)	To design single core and multicore architectures with performance issues.
C409.2 (CO2)	To implement program in parallel processors and discuss the parallel program challenges
C409.3 (CO3)	To develop programs using OpenMP in shared memory programming
C409.4 (CO4)	To develop programs using MPI in distributed memory programming
C409.5 (CO5)	To implement parallel program development using OpenMP
C409.6 (CO6)	To compare and contrast programming for serial processors and programming for parallel processors



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CS6008 – Human Computer Interaction

The student should be able to

Course Code	Course Outcomes
C410.1 (CO1)	Understanding the basics of HCI for individuals and person with disabilities
C410.2 (CO2)	Apply various interaction framework models for interaction between user and system
C410.3 (CO3)	Design the technologies for HCI of individuals and disable persons
C410.4 (CO4)	Evaluate the HCI in software process and mobile HCI
C410.5 (CO5)	Implement various user interface for HCI
C410.6 (CO6)	Analyze and discuss HCI issues in groupware, ubiquitous computing, virtual reality, multimedia, and Word Wide Web-related environments.

MG6088 – Software Project Management

The student should be able to

Course Code	Course Outcomes
C411.1 (CO1)	Plan the project in stepwise manner.
C411.2 (CO2)	Apply cost benefit evaluation techniques to find the cost of the project and to evaluate the risk of project.
C411.3 (CO3)	Know activity plan for a project and to estimate the overall duration of the project.
C411.4 (CO4)	Monitor the progress of projects and to assess the risk of slippage
C411.5 (CO5)	Identify the factors that influence people's behavior in a project environment and selection of appropriate people for the project and to improve group working.
C411.6 (CO6)	Understand how to manage the people in software industries and projects.



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GE2025 – PROFESSIONAL ETHICS IN ENGINEERING

The student should be able to

Course Code	COURSE OUTCOMES
C409.1 (CO1)	Evaluates the ethical dimensions of professional engineering and scientific practice.
C409.2 (CO2)	Understand systematic and group influences on social problems from theoretical and applied perspectives
C409.3 (CO3)	Identify and analyze an ethical issue in the subject matter under investigation or in a relevant field.
C409.4 (CO4)	Accept responsibility for and act in a manner that reflects the values of the communities and organizations.
C409.5 (CO5)	Understand copyright rules and the ethics of extracting, sharing, and citing source information.
C409.6 (CO6)	Demonstrate appropriate and professional ethical behavior.

CS6811 – Project Work

The student should be able to

Course Code	Course Outcomes
C412.1 (CO1)	Acquire knowledge for the project
C412.2 (CO2)	Choose efficient tools for designing project modules.
C412.3 (CO3)	Analyze and categorize executable project modules
C412.4 (CO4)	Assemble all the modules through effective team work after efficient testing.
C412.5 (CO5)	Recognize the completed task and compile the project.
C412.6 (CO6)	Demonstrate the project.



SRI SAI RAM INSTITUTE OF TECHNOLOGY

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