2019-2020
COMPUTER SCIENCE ENGINEERING

ACADEMIC YEAR 2018-2019

S1 CSE (2019 Batch) KTU

MAT101	LINEAR ALGEBRA AND CALCULUS	SANGEETHA
PHT 100	ENGINEERING PHYSICS A	DR.B.SASI
EST110	ENGINEERING GRAPHICS	K.S.SASI
EST120	BASICS OF CIVIL & MECHANICAL ENGINEERING	JAYALEKSHMI /JOHN P.GEORGE
HUT101	LIFE SKILLS	SREETI GANGADHARAN
PHL120	ENGINEERING PHYSICS LAB	DR.B.SASI
ESL120	CIVIL & MECHANICAL WORKSHOP	JAYALEKSHMI / ARYA

COURSE OBJECTIVES AND COURSE OUTCOMES

MAT 101: LINEAR ALGEBRA AND CALCULUS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To give the definition of an infinite series and explain what is meant by the sequence of partial sums. Relate the convergence or divergence of the series to the sequence of partialsums.	Solve the consistent system of linear equations and apply orthogonal to a quadratic form
2	Compute partial derivatives of functions of several variables. Apply the theorem on mixed partial derivatives.	Find the maxima and minima of multivariable functions
3	Use concepts of calculus to the model real-world problems	Find areas and volumes of geometrical shapes, mass and centre of gravity of plane laminas using double and triple integrals
4	Evaluate volumes of bounded solids and areas of bounded regions by using the ideas of double and triple integrals.	Perform various tests to determine whether a given series is convergent, absolutely convergent or conditionally convergent
5	Apply the concept of line integral to work and circulation. Know the definition and properties of conservative vector fields and their relationship to gradientfields.	Determine the power series expansion of a given function
6	Prepare the student for future Engineeringpositions	Solve the consistent system of linear equations and apply orthogonal to a quadratic form

COURSE OBJECTIVES AND COURSE OUTCOMES

PHT 100 ENGINEERING PHYSICS A

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	The aim of the Engineering Physics Program is to offer students a solid background in the fundamentals of Physics and to impart that knowledge in engineering disciplines.	Compute the quantitative aspects of waves and oscillations in engineering systems.
2	The program is designed to develop scientific attitudes and enable the students to correlate the concepts of Physics with the core programmes	Apply the interaction of light with matter through interference, diffraction and identify these phenomena in different natural optical processes and optical instruments.
3	Use concepts of calculus to the model real-world problems	Analyze the behaviour of matter in the atomic and subatomic level through the principles of quantum mechanics to perceive the microscopic processes in electronic devices.
		Classify the properties of magnetic materials and apply vector calculus to static magnetic fields and use Maxwell's equations to diverse engineering problems
		Analyze the principles behind various superconducting applications, explain the working of solid state lighting devices and fibre optic communication system

COURSE OBJECTIVES AND COURSE OUTCOMES

EST110: ENGINEERING GRAPHICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes **On completion of course the students will be able to:**
1	To enable the student to effectively perform technical communication through graphical representation as per global standards.	Draw the projection of points and lines located in different quadrants
2	Learn to sketch and take field dimensions.	Prepare multiview orthographic projections of objects by visualizing them in different positions
3	Learn to take data and transform it into graphic drawings.	Draw sectional views and develop surfaces of a given object
4	Learn basic Auto Cad skills.	Prepare pictorial drawings using the principles of isometric and perspective projections to visualize objects in three dimensions.
5	Learn basic engineering drawing formats	Convert 3D views to orthographic views
6	Prepare the student for future Engineeringpositions	Obtain multiview projections and solid models of objects using CAD tools

COURSE OBJECTIVES AND COURSE OUTCOMES
EST 120 BASICS OF CIVIL AND MECHANICAL ENGINEERING

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.
2	To design a system component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.	Explain different types of buildings, building components, building materials and building construction.
	To introduce the students to the basic principles of mechanical engineering.	Summarise the basic infrastructure services MEP, HVAC, elevators, escalators and ramps. Discuss the Materials, energy systems, water management and environment for green buildings. Describe the working of hydraulic machines. Explain the working of power transmission elements. Describe the basic manufacturing, metal joining and machining processes.
	To apply knowledge of mathematics, science, and engineering to mechanical engineering problems.	Analyse thermodynamic cycles and calculate its efficiency. Illustrate the working and features of IC Engines. Explain the basic principles of Refrigeration and Air Conditioning.

	To provide an insight and inculcate the essentials of Civil Engineering discipline to the students of all branches of Engineering and to provide the students an illustration of the significance of the Civil Engineering Profession in satisfying the societal needs.	Recall the role of civil engineer in society and to relate the various disciplines of Civil Engineering. Describe the importance, objectives and principles of surveying.

COURSE OBJECTIVES AND COURSE OUTCOMES
HUN 101 LIFE SKILLS

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To develop communication competence in prospective engineers, to enable them to convey thoughts and ideas with clarity and focus, to develop writing skills, to equip them to face interviews and Group Discussion	Define and Identify different life skills required in personal and professional life.
2	To inculcate critical thinking process, to prepare them on problem solving skills, to provide symbolic, verbal and graphical interpretations of statements in a problem description	Develop an awareness of the self and apply well-defined techn2iques to cope with emotions and stress.
	To understand team dynamics and effectiveness	Take part in group discussions
	To create an awareness on Engineering ethics and Human Values, to instill Moral and Social Values, Loyalty and also to learn to appreciate the rights of others	Use appropriate thinking and problem solving techniques to solve new problems

COURSE OBJECTIVES AND COURSE OUTCOMES

PHL 120 ENGINEERING PHYSICS LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	The aim of this course is to make the students gain practical knowledge to co-relate with the theoretical studies.	Develop analytical/experimental skills and impart prerequisite hands on experience for engineering laboratories.
2	To develop practical applications of engineering materials and use the principle in the right way to implement the modern technology.	Understand the need for precise measurement practices for data recording
3		Understand the principle, concept, working and applications of relevant technologies and comparison of results with theoretical calculations
4		Analyze the techniques and skills associated with modern scientific tools such as lasers and fiber optics
6.		Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results

COURSE OBJECTIVES AND COURSE OUTCOMES

ESL 120 CIVIL AND MECHANICAL WORKSHOP

Sl.	Course Objectives	Subject Learning Outcomes or Course Outcomes

No.		On completion of course the students will be able to:
1	To train the students to identify and manage the tools, materials and methods required to execute an engineering project.	Name different devices and tools used for civil engineering measurements. Explain the use of various tools and devices for various field measurements. Demonstrate the steps involved in basic civil engineering activities like plot measurement, setting out operation, evaluating the natural profile of land, plumbing and undertaking simple construction work.
2	Students will be introduced to a team working environment where they develop the necessary skills for planning, preparing and executing an engineering project.	Choose materials and methods required for basic civil engineering activities like field measurements, masonry work and plumbing. Compare different techniques and devices used in civil engineering measurements.
3	To enable the student to familiarize various tools, measuring devices, practices and different methods of manufacturing processes employed in industry for fabricating components.	Identify Basic Mechanical workshop operations in accordance with the material and objects. Apply appropriate Tools and Instruments with respect to the mechanical workshop trades. Apply appropriate safety measures with respect to the mechanical workshop trades.

S3 CSE (2018 Batch) KTU

MA 201	Linear Algebra & Complex Analysis	Ampady vk
CS 201	Discrete computational	Ambili

	Structures	
CS 203	Switching Theory and Logic Design	SukeshBabu V S
CS 205	Data Structures	Dhanunath R
CS 207	Electronic Devices & Circuits	Ponnambili
HS 210	Life skills	chippy
CS 231	Data structures Lab	Dhanunath
CS 233	Electronics circuits Lab	SujithS,Chinchu

COURSE OBJECTIVES AND COURSE OUTCOMES

MA201 LINEAR ALGEBRA & COMPLEX ANALYSIS

		Subject Learning Outcomes or Course Outcomes

Sl. No.	Course Objectives	On completion of course the students will be able to:
1	Learn to work with vectors in two and three dimensions.	Compute the distance between points, the distance from a point to a line, and the distance from a point to a plane in the three-dimensional coordinate system. Perform algebraic operations with vectors in two and three dimensions, Find the length of a vector, Compute dot and cross product of vectors.
2	An understanding of Fourier Series and Laplace Transform to solve real world problems	Solve first-order linear or separable equations, finding both the general solution and the solution satisfying a specified initial condition.
3	Identify an ordinary differential equation and itsorder	Sketch and describe regions in space.
4	Verify whether a given function is a solution of a given ordinary differential equation (as well as verifying initial conditions when applicable	Solve constant-coefficient, linear, homogeneous equations of higher order (especially second order) and find the solution satisfying specified initial conditions
5	Solve first order linear differential equations Find solutions of separable differential equations, Model radioactive decay, compoundinterest,	Determine whether solutions of such an equation are linearly independent. Use the methods of undetermined coefficients and variation of parameters to solve

	and mixing problems using first order equations, Model population dynamics	nonhomogeneous equations equation

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 201 DISCRETE COMPUTATIONAL STRUCTURES

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	Students will learn basic logic and set theory.	1. Students will understand Boolean algebra and truth tables.
		2. Students will understand basic proofs involving sets and functions.
		3. Students will understand types of algorithms and the issue of efficiency of algorithms.
		4. Use set notation, including the notations for subsets, unions, intersections, differences, complements, cross (Cartesian) products, and power sets.
		5.Prove that a proposed statement involving sets is true, or give a counterexample to show that it is false. In particular, be able to prove that a set is empty.
		6. Understand and use the terms cardinality, finite, countably infinite, and uncountably infinite, and determine which of these characteristics is associated with a given set.

2	Students will learn core ideas in combinatorial mathematics	1. Students will understand the ideas of permutations and combinations.
		2. Students will understand the addition and multiplication principles for counting.
		3. Students will understand how to apply combinatorial ideas to practical problems.
3	Explain the fundamentalconcepts of advanced algebrasuch as groups and rings andtheir role in modernmathematics and appliedcontexts	Demonstrate accurate and efficientuse of advanced algebraic Techniques
		Demonstrate capacity formathematical reasoning throughanalyzing, proving and explaining concepts from advanced algebra
		Apply problem-solving usingadvanced algebraic techniquesapplied to diverse situations inphysics, engineering and other mathematical contexts
4	At the conclusion of this course, students should have a sound understanding of what mathematics is about, and should have acquired a level of mathematical literacy that would enable them to see its relevance in their own domain of knowledge.	1.Can use, manipulate, and analyze Boolean expressions & functions (CAC a, EAC a)
		2. Can use, manipulate, and analyze propositional & predicate logic statements (CAC a, EAC a)
		3. Can construct and analyze simple finite state automata (CAC a, EAC a)
5	1.Write English sentences for logical expressions and vice-versa. Use standard notations of propositional logic.	Apply standard logical equivalences. Be able to prove that two logical expressions are or are not logically equivalent.
	2. Complete and use truth tables for expressions involving the following logical connectives: negation, conjunction, disjunction, conditional, and biconditional.	Determine if a logical argument is valid or invalid. Apply standard rules of inference including (but not limited to) Modus Ponens, Modus Tollens, Transitivity, and Elimination. Recognize fallacies such as the Converse Error and the

	3.Define and use the terms: proposition (statement), converse, inverse, contrapositive, tautology, and contradiction.	Inverse Error.
6	1. Translate between English sentences and symbols for universally and existentially quantified statements, including statements with multiple quantifiers. 2 Write the negation of a quantified statement involving either one or two quantifiers.	1.Determine if a quantified statement involving either one or two quantifiers is true or false. 2.Construct induction proofs involving summations, inequalities, and divisibility arguments.

COURSE OBJECTIVES AND OUTCOMES

CS 203 SWITCHING THEORY AND LOGIC DESIGN

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To impart an understanding of the basic concepts of Boolean algebra and digital systems	Apply the basic concepts of Boolean algebra for the simplification and implementation of logic functions using suitable gates namely NAND, NOR etc.
2	To impart familiarity with the design and implementation of different types of practically used sequential circuits.	Design simple Combinational Circuits such as Adders, Subtractors, Code Convertors, Decoders, Multiplexers, Magnitude Comparators etc.
3	To provide an introduction to use Hardware DescriptionLanguage	Design Sequential Circuits such as different types of Counters, Shift Registers, Serial Adders, and Sequence

		Generators.
		Use Hardware Description Language for describing simple logic circuits
		Apply algorithms for addition/subtraction operations on Binary, BCD and Floating Point Numbers.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 205 DATA STRUCTURE AND ALGORITHMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To impart a thorough understanding of linear data structures such as stacks, queues and their applications.	1. compare different programming methodologies and define asymptotic notations to analyze performance of algorithms.
2	2. To impart a thorough understanding of non-linear data structures such as trees, graphs and their applications.	2. use appropriate data structures like arrays, linked list, stacks and queues to solve real world problems efficiently.
3	3. To impart familiarity with various sorting, searching and hashing techniques and their performance comparison.	3. represent and manipulate data using nonlinear data structures like trees and graphs to design algorithms for various applications.

4	4. To impart a basic understanding of memory management.	4. illustrate and compare various techniques for searching and sorting.
		5. appreciate different memory management techniques and their significance.
		6. illustrate various hashing techniques.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 207 ELECTRONIC DEVICES AND CIRCUITS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To introduce to the students the fundamental concepts of electronic devices and circuits for engineering applications	Explain, illustrate, and design the different electronic circuits using electronic components
2	To develop the skill of analysis and design of various analog circuits using electronic devices	Design circuits using operational amplifiers for various applications

3	To provide comprehensive idea about working principle, operation and applications of electronic circuits	
4	To equip the students with a sound understanding of fundamental concepts of operational amplifiers	
5	To expose to the diversity of operations that operational amplifiers can perform in a wide range of applications	
6	To expose to a variety of electronic circuits/systems using various analog ICs	

COURSE OBJECTIVES AND COURSE OUTCOMES
CS 207 LIFE SKILLS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	· To develop communication competence in prospective engineers.	The students will be able to · Communicate effectively. · Make effective presentations.
2	· To enable them to convey thoughts and ideas with clarity and focus. · To develop report writing skills.	· Write different types of reports. Face interview & group discussion.

3	· To equip them to face interview & Group Discussion. · To inculcate critical thinking process. · To prepare them on problem solving skills.	· Critically think on a particular problem. · Solve problems. · Work in Group & Teams
4	· To provide symbolic, verbal, and graphical interpretations of statements in a problem description. · To understand team dynamics & effectiveness. · To create an awareness on Engineering Ethics and Human Values.	· Handle Engineering Ethics and Human Values.Become an effective leader.
5	· To instill Moral and Social Values, Loyalty and also to learn to appreciate the rights of others.	
6	To learn leadership qualities and practice them.	

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 231 DATA STRUCTURES LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:

1	To implement basic linear and non-linear data structures and their major operations.	Appreciate the importance of structure and abstract data type, and their basic usability in different applications.
2	To implement applications using	Analyze and differentiate different algorithms based on their time complexity.

	these data structures.	
3	To implement algorithms for various sorting techniques.	Implement linear and non-linear data structures using linked lists.
4	Strengthen the ability to the students to identify and apply the suitable data structure for the given real world problem.	Understand and apply various data structure such as stacks, queues, trees, graphs, etc. to solve various computing problems
5	Enables them to gain knowledge in practical applications of data structures.	Implement various kinds of searching and sorting techniques, and decide when to choose which technique.
6	Be capable to identity the appropriate data structure for given problem.	Identify and use a suitable data structure and algorithm to solve a real world problem.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS233 ELECTRONIC CIRCUITS LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce to the students the fundamental concepts of electronic devices and circuits for engineering	Explain, illustrate, and design the different electronic circuits using electronic components

	applications	
2	To develop the skill of analysis and design of various analog circuits using electronic devices	Design circuits using operational amplifiers for various applications
3	To provide comprehensive idea about working principle, operation and applications of electronic circuits	
4	To equip the students with a sound understanding of fundamental concepts of operational amplifiers	
5	To expose to the diversity of operations that operational amplifiers can perform in a wide range of applications	
6	To expose to a variety of electronic circuits/systems using various analog ICs	

S5 CSE (2017 Batch)

CS301	Theory of computation	Dhanunath
CS303	System software	Vivitha vijay
CS305	Microprocessors and microcontrollers	Amitha
CS307	Data communication	Suma s g
CS309	Graph theory and combinatorics	Chithra
CS361	Soft computing	Devika

CS341	Design project	Vivitha
CS331	System software lab	Amitha,,Devika
CS333	Application software development lab	Neethu K,Hema

COURSE OBJECTIVES AND COURSE OUTCOMES
CS 301 THEORY OF COMPUTATION

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES
1	To introduce the concept of formal languages and summarise the steps of automata.	Classify formal languages into regular,context-free,contex sensitive and unrestricted language.
2	To discuss the Chomsky classification.	Design finite automata, regular grammar and regular expression
3	To know various notations of decidability and halting problem	Apply various methods for halting problems
4	Design different turing machines	Design UTM, NDTM etc.

COURSE OBJECTIVES AND COURSE OUTCOMES
CS303 SYSTEM SOFTWARE

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To impart the basic concepts of system software design.	Able to understand different system software Architectures
2	Different assembler design options and assembler implementations.	Design and develop assembler.
3	Basic functions of loaders, linkers and macro processors.	Design and develop loader, linker and macro processor.

4	Overview of text editors and debuggers. General overview of the UNIX operating system	Able to understand the features of UNIX OS.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS305 MICROPROCESSOR AND MICROCONTROLLERS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Study on 8086 microprocessor, its memory and interfacing, analog to	To study instruction sets and know in detail about working of microprocessor, to help them in design of microprocessors.

	digital converters, read and write timing signals	
2	Study on 8086 microprocessor, addressing modes, timing diagrams	To study about instructions, its execution ,develop new real time applications using instruction sets ,to get basic knowledge about the micro processor and to work on improvements in processing speeds.
3	Study on timers, counters, interfaces like keyboard, interrupt controller, dma controller	The program motivates students todevelop strong skills in research, analysis and interpretation of complex information The program prepares students to successfully compete for employment in Electronics, Manufacturing and Teachingindustry

COURSE OBJECTIVES AND COURSE OUTCOMES

CS307 DATA COMMUNICATION

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Build an understanding of the fundamental concepts of data transmission. Familiarize the student with the basic taxonomy and terminology of the computer networking area.	After the successful completion of the course students will be able to explain Data Communications concepts and its components. Identify the different types of Transmission media and their functions within a network.

2	To introduce the concepts of different encoding methods.	Select and use appropriate signal encoding techniques for a given scenario.
3	To discuss the multiplexing techniques. To introduce different error detection and error correction techniques to achieve error free data communication	Independently understand basic computer network technology. Design suitable error detection and error correction algorithms to achieve error free data Communication.
4	To discuss the different Spread Spectrum and Switching Techniques. Preparing the student for understanding advanced courses in computer networking	Select and use appropriate multiplexing and switching techniques for a given scenario.

COURSE OBJECTIVES AND COURSE OUTCOMES
CS 309 GRAPH THEORY AND COMBINATORICS

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES
1	To introduce the fundamental concepts in graph theory, including properties and characterization of graphs/ trees and Graphs theoretic algorithms	Demonstrate the knowledge of fundamental concepts in graph theory, including properties and characterization of graphs and trees.
2	Develop efficient algorithms for graph related problems	Use graphs for solving real life problems.

3	To know about fundamental concepts in graph theory.	Distinguish between planar and non-planar graphs and solve problems
4	To know about characteristics of graphs and trees.	Design UTM, NDTM etc. 4. Develop efficient algorithms for graph related problems in different domains of engineering and science

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CS361 SOFT COMPUTING

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES
1	To introduce the concepts in Soft Computing as Artificial Neural Networks, Fuzzy logic-based systems, genetic algorithm-based systems and their hybrids.	Learn soft computing techniques and their applications
2	To know about various fuzzy systems.	Analyze various neural network architectures. 3. Define the fuzzy systems.
3	Identify and select a suitable Soft Computing technology to solve the problem	Understand the genetic algorithm concepts and their applications
4	Understand the genetic algorithm concepts and their applications	Identify and select a suitable Soft Computing technology to solve the problem; construct a solution and implement a Soft Computing solution.

COURSE OBJECTIVES AND COURSE OUTCOMES
CS341 DESIGN PROJECT

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES

1	To understand the engineering aspects of design with reference to simple products	Think innovatively on the development of components, products, processes or technologies in the engineering field
2	To foster innovation in design of products, processes or systems	Analyse the problem requirements and arrive workable design solutions
3	To develop design that add value to products and solve technical problems	Understand and analyze various aspects of problem
4	To provide students with the ability to understand and analyze various products.	To achieve a better solution for the problem

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CS331 SYSTEM SOFTWARE LAB

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES
1	To build an understanding on design and implementation of different types of system software	Implement banker's algorithm for deadlock avoidance
2	Implement different paging techniques ,bankers algorithm for deadlock	Implement synchronization techiniques using semaphore etc
3	Analyze CPU scheduling algorithms like FCFS, round robin, SJF and priority	Implement sysytem software such as loaders,assemblers and macro preprocessor
4	Implement memory management schemes	Implement page replacement schemes file location and organization techniques

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 333 APPLICATION SOFTWARE DEVELOPMENT LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce basic commands and operations on database	Design and implement a database for a given problem using database design principles
2	To introduce stored programming concepts (PL-SQL)using Cursors and Trigger	Apply stored programming concepts (PL-SQL) using Cursors and Triggers.
3	To familiarize front end tools of database	Use graphical user interface, Event Handling and Database connectivity to develop and deploy applications and applets.
		Develop medium-sized project in a team.

S7 CSE (2016 Batch)

CS401	Computer Graphics	Neethu krishna
CS403	Programming paradigm	Chippy
CS405	Computer system architecture	Sukesh babu
CS407	Distributed computing	Amitha r

CS463	Cryptography and Network security	Sreelekshmi
CS401	Digital Image processing	Chithra

CS451	Seminar & Project preliminary	Sukesh babu
CS431	Compiler design Lab	Chippy , chithra

COURSE OBJECTIVES AND OUTCOMES
CS401 COMPUTER GRAPHICS

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the concepts related to graphic devices.	Capture the knowledge about the working principles of graphic devices in selecting appropriate graphics hardware

		for various applications.
2	To develop an awareness of the various graphic functions and algorithms	Apply geometric transformations on 2D primitives and use formal mechanisms for displaying views of a picture on an outputdevice.
		Apply geometric transformations on 3D objects and use formal mechanisms for displaying views of a picture on an output device.
		Analyze various basic graphic algorithms, and explore the methods used for detecting visible surfaces in a three dimensionalscene
		Explain and differentiate various color, illumination and shading models.
		Develop the skill for graphics programming using OpenGL

		for various applications.
2	To develop an awareness of the various graphic functions and algorithms	Apply geometric transformations on 2D primitives and use formal mechanisms for displaying views of a picture on an outputdevice.
		Apply geometric transformations on 3D objects and use formal mechanisms for displaying views of a picture on an output device.
		Analyze various basic graphic algorithms, and explore the methods used for detecting visible surfaces in a three dimensionalscene
		Explain and differentiate various color, illumination and shading models.
		Develop the skill for graphics programming using OpenGL

COURSE OBJECTIVES AND COURSE OUTCOMES
CS403 PROGRAMMING PARADIGMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the basic constructs that underlie all programming languages	compare scope and binding of names in different programming languages
2	To introduce the basics of programming language design and implementation	analyze control flow structures in different programming languages
3	To introduce the organizational framework for learning new programming languages	appraise data types in different programming languages

		analyze different control abstraction mechanisms
		appraise constructs in functional, logic and scripting languages
		analyze object oriented constructs in different programming languages
		compare different concurrency constructs

COURSE OBJECTIVES AND OUTCOMES

CS405 COMPUTER SYSTEM ARCHITECTURE

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To provide an understanding of the different kinds of computer system architectures and their evolution..	Understand the different classes of computer architecture and select an appropriate architecture for a given application.
2	To provide an insight into the implementation of parallel processing performed in computers	Apply the various scalability analysis techniques.
3	To give a thorough understanding of pipeline design and its various aspects.	Familiarize the concepts of memory hierarchy and interconnectionsystems.
		Utilize the concept of pipelining to identify its various applications
		Apply collision free scheduling for initiating operations in non linear pipelinedesign

COURSE OBJECTIVES AND COURSE OUTCOMES CS407

DISTRIBUTED COMPUTING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	The course aims to provide an understanding of the principles on which the Internet and other distributed systems are based; their architecture, algorithms and how they meet the demands of contemporary distributed applications.	• Key concepts and well-known methods will be explained in lectures, classes or online, where syllabus material will be presented and the subject matter will be illustrated with demonstrations and examples;
2	The course covers the building blocks	• Tutorials will focus on problemsolving and they will provide practice in the

	for a study of distributed systems, and addressing the characteristics and the challenges that must be addressed in their design: scalability, heterogeneity, security and failure handling being the most significant.	application of theory and procedures, allow exploration of concepts with teaching staff and other students, and give feedback on your progress and understanding;
3	This course also covers issues and solutions related to the design and the implementation of distributed applications.	• Computer laboratory sessions provide practices in the application of developing basic distributed applications usingRPC;

COURSE OBJECTIVES AND COURSE OUTCOMES

CS463 CRYPTOGRAPHY & NETWORK SECURITY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Introduce cryptography, key terms, substitution techniques, transposition techniques, rotor machines, symmetric cipher models: DES, AES, IDEA	Able to understand cipher model, substitution and transposition techniques.
		Brief overview of symmetric models
		Understood round structure of DES, AES, IDEA
2	Provide an overview of Asymmetric encryption, RSA, Diffie Hellman key exchange, Elliptic curve cryptography, SHA, MD5, digital signatures	Able to differentiate symmetric and asymmetric encryptiontechniques.
		Able to encrypt simple messages using RSA, ECC
		Understood the concept of message authentication usingSHA,MD5

		Obtained the basic concept and significance of digital signatures
3	Provide an overview of need and possibilities for Network security. Introduce email security protocols PGP, S/MIME, Give a brief idea about IPSec	Awareness about the working of PGP and S/MIME protocols.
		Understood about different protocols that provide network security at IPlayer.
4	Introduce the concepts of secure Socket Layer and Transport layer Security- Secure electronic transaction, firewalls.	Understood about different protocols that provide network security at transportlayer.
		Understood the process of SET
		Awareness about different firewalls.

COURSE OBJECTIVES AND COURSE OUTCOMES
CS 463 DIGITAL IMAGE PROCESSING

SL.NO	COURSE OBJECTIVES	COURSE OUTCOMES
1	To introduce and discuss the fundamental concept and applications of digital image processing.	Compare different methods for image acquisition , storage and representation in digital devices and computers.
2	To discuss various basic operations in digital image processing.	Intrepret the mathematical principles in digital image enhancement and apply them in spatial domain and frequency domain.
3	To know various transform domains.	Apply various methods for segmenting image and identify image components
4	Summarise different reshaping operations on the image.	Image representation techniques enable encoding and decoding images.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CS451 SEMINAR AND PROJECT

SI NO	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To improve the professional skill and competency of the students	Able to understand the primary things to start a project
2	To understand the hardware and software design of a good product	Able to analyse a problem and design a solution to the problem.
3	To study about a topic in trend, based on the literature survey in leading journals	Able to create a report on a new topic in trend based on the study and literature survey.
4	Provide an opportunity to be inside an industry and aware about the working environment	Understood the working environment of an industry

COURSE OBJECTIVES AND COURSE OUTCOMES
CS431: COMPILER DESIGN LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To implement the different Phases of compiler.	. Implement the techniques of Lexical Analysis and Syntax Analysis.
2	To implement and test simple optimization techniques.	Apply the knowledge of Lex & Yacc tools to develop programs.
3	To give exposure to compiler writing tools.	Generate intermediate code.
4		Implement Optimization techniques and generate machine level code.

MAT102	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	SANGEETHA
CYT100	ENGINEERING CHEMISTRY	RENJU R.
EST100	ENGINEERING MECHANICS	K.S.SASI
EST130	BASICS OF ELECTRICAL & ELECTRONICS ENGINEERING	PRAJEESH / SEETHU
EST102	PROGRAMMING IN C	AMITHA
HUT102	PROFESSIONAL COMMUNICATION	SREETI GANGADHARAN
CYL120	ENGINEERING CHEMISTRY LAB	RENJU R.
ESL130	ELECTRICAL & ELECTRONICS WORKSHOP	SONY / SEETHU

COURSE OBJECTIVES AND COURSE OUTCOMES
MAT 102: VECTOR CALCULUS,DIFFERENTIAL EQUATIONS AND TRANSFORMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	: This course introduces the concepts and applications of differentiation and integration of vector valued functions, differential equations, Laplace and Fourier Transforms. The topics treated in this course have applications in all branches of engineering.	Apply computing integrals of scalar and vector field over surfaces in three-dimensional space.
2	The objective of this course is to familiarize the prospective engineers with some advanced concepts and methods in Mathematics which include the Calculus of vector valued functions, ordinary differential equations and basic transforms such as Laplace and Fourier Transforms which are invaluable for any engineer's mathematical tool box.	Apply Laplace transforms to solve physical problems arising in engineering
	The topics treated in this course have applications in all branches of engineering.	Solve homogeneous and non-homogeneous linear differential equation with constant coefficients
4		Apply Laplace transforms to solve physical problems arising in engineering
5		Apply Fourier transforms to solve physical problems arising in engineering

COURSE OBJECTIVES AND COURSE OUTCOMES

CYT 100 : ENGINEERING CHEMISTRY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To enable the students to acquire knowledge in the concepts of chemistry for engineering applications which enable them to develop abilities and skills that are relevant to the study and practice of chemistry.	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
2	Familiarize the students with different application oriented topics like spectroscopy, electrochemistry, instrumental methods etc.	Apply the basic concepts of electrochemistry and corrosion to explore its possible applications in various engineering fields.
	Familiarize the students with topics like mechanism of corrosion, corrosion prevention methods, SEM, stereochemistry, polymers, desalination etc.,	Apply the knowledge of analytical method for characterizing a chemical mixture or a compound. Understand the basic concept of SEM for surface characterisation of nanomaterials. CO 4 Learn about the basics of stereochemistry and its application.
4	Enable them to develop abilities and skills that are relevant to the study and practice of chemistry.	Apply the knowledge of conducting polymers and advanced polymers in engineering
5		Study various types of water treatment methods to develop skills for treating wastewater
6		

COURSE OBJECTIVES AND COURSE OUTCOMES
EST100: ENGINEERING MECHANICS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Goal of this course is to expose the students to the fundamental concepts of mechanics and enhance their problem-solving skills..	Recall principles and theorems related to rigid body mechanics .

2	It introduces students to the influence of applied force system and the geometrical properties of the rigid bodies while stationary or in motion.	Identify and describe the components of system of forces acting on the rigid body
	After this course students will be able to recognize similar problems in real-world situations and respond accordingly	Apply the conditions of equilibrium to various practical problems involving different force system.
4	To develop simple mathematical model for engineering problems and carry out static analysis.	Choose appropriate theorems, principles or formulae to solve problems of mechanics
5		Solve problems involving rigid bodies, applying the properties of distributed areas and masses
6		

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

EST130: BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	equip the students with an understanding of the fundamental principles of electrical engineering	Apply fundamental concepts and circuit laws to solve simple DC electric circuits
2	provide an overview of evolution of electronics, and introduce the working principle and examples of fundamental electronic devices and circuits	Develop and solve models of magnetic circuits
3	provide an overview	Apply the fundamental laws of electrical

		engineering to solve simple ac circuits in steady state
4		Describe working of a voltage amplifier
5		Outline the principle of an electronic instrumentation system
6		Explain the principle of radio and cellular communication

COURSE OBJECTIVES AND COURSE OUTCOMES

EST102 COMPUTER PROGRAMMING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Understand important concepts of C programming, pre-processor directives, data types, operators, input and output, control statements	Analyze a computational problem and develop an algorithm/flowchart to find its solution.
		Able to develop simple C programs for performing calculations like area of rooms, volume of a vessel etc.
		Able to develop programs for multiplication and addition tables, simple menu driven applications
2	Introduce arrays, strings, structure and union, enumerated data types, sorting and searching	Develop readable* C programs with branching and looping statements, which uses Arithmetic, Logical, Relational or Bitwise operators.

		Able to develop programs for sorting and searching simple things
		Write readable C programs which use pointers for array processing and parameter passing
3	Provide the concept of pointers and give brief idea about its application storage classes,	Write readable C programs with arrays, structure or union for storing the the data to be processed

COURSE OBJECTIVES AND COURSE OUTCOMES

HUN102 - PROFESSIONAL COMMUNICATION

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Clear, precise, and effective communication has become a sine qua non in today's information-driven world given its interdependencies and seamless connectivity.	Develop vocabulary and language skills relevant to engineering as a profession.
2	Any aspiring professional cannot but master the key elements of such communication.	Analyze, interpret and effectively summarize a variety of textual content.
3	The objective of this course is to equip students with the necessary skills to listen, read, write, and speak so as to comprehend and successfully convey any idea, technical or otherwise, as well as give them the necessary polish to become persuasive communicators.	Create effective technical presentations. Discuss a given technical/non-technical topic in a group setting and arrive at generalizations/consensus

4		Identify drawbacks in listening patterns and apply listening techniques for specific needs
5		Create professional and technical documents that are clear and adhering to all the necessary conventions

COURSE OBJECTIVES AND COURSE OUTCOMES

CYL 120 ENGINEERING CHEMISTRY LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	: To impart scientific approach and to familiarize with the experiments in chemistry relevant for research projects in higher semesters	Develop skills relevant to synthesize organic polymers and acquire the practical skill to use TLC for the identification of drugs CO 3
2	Understand and practice different techniques of quantitative chemical analysis to generate experimental skills and apply these skills to various analyses	Develop the ability to understand and explain the use of modern spectroscopic techniques for analysing and interpreting the IR spectra and NMR spectra of some organic compounds
3	Acquire the ability to understand, explain and use instrumental techniques for chemical analysis CO 5	Learn to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments

4		Function as a member of a team, communicate effectively and engage in further learning. Also understand how chemistry addresses social, economical and environmental problems and why it is an integral part of curriculum

COURSE OBJECTIVES AND COURSE OUTCOMES

ESL 130 ELECTRICAL & ELECTRONICS WORKSHOP

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	Electrical Workshop is intended to impart skills to plan and carry out simple electrical wiring.	Demonstrate safety measures against electric shocks.
2	It is essential for the practicing engineers to identify the basic practices and safety measures in electrical wiring.	Identify the tools used for electrical wiring, electrical accessories, wires, cables, batteries and standard symbols
3	Work in a team with good interpersonal skills	Develop the connection diagram, identify the suitable accessories and materials necessary for wiring simple lighting circuits for domestic buildings
4		Identify and test various electronic components
5		Draw circuit schematics with EDA tools Assemble and test electronic circuits on boards

S4 CSE (2018   Batch) KTU

MA 202	Probability Distributions, Transforms and Numerical Methods	Lijimol

CS 202	Computer Organization & Architecture	SukeshBabu V S
CS 204	Operating systems	Dhanunath R
CS 206	Object Oriented Design and Programming	Suma S G
CS 208	Principles of Database Design	Chithra
HS 200	Business Economics	Geetha
CS 232	Free and Open Source Software Lab	Vivitha, sreelekshmi
CS 234	Digital System Lab	Soubhagya, Chinchu

COURSE OBJECTIVES AND OUTCOMES
MA 202 PROBABILITY DISTRIBUTIONS, TRANSFORMS AND NUMERICAL METHODS

SI No	Course Objectives	Subject Learning Outcomes or Course Outcomes

		On completion of course the students will be able to:
1	- distinguish between discrete and continuous random variables - explain the difference between population, parameter, sample, and statistic - determine if a given value represents a population parameter or sample statistic - find probabilities associated with a discrete probability distribution - compute the mean and variance of a discrete probability distribution - find probabilities associated with a binomial distribution - find probabilities associated with a normal probability distribution using the standard normal table - determine the standard error for the sample proportion and sample mean - apply the Central Limit Theorem properly to a set of continuous data	- Students completing this course will be able to express a logic sentence in terms of predicates, quantifiers, and logical connectives. - Students completing this course will be able to apply the rules of inference and methods of proof including direct and indirect proof forms, proof by contradiction, and mathematical induction. - Students completing this course will be able to use tree and graph algorithms to solve problems. - Students completing this course will be able to evaluate Boolean functions and simplify expressions using the properties of Boolean algebra.

2	- Use programming operations to calculatesolutions - Determine better and moreaccurate solutions - Perform and evaluate algebraic and trigonometric operations using built-in functions - Assign and manage variables Manipulate vectors and matrices, use matrix indexing, and determinematrix dimensions - Generate linearly spacedvectors - Create and execute ascript - Create and evaluate x-y plotsand subplots suitable for technical presentation - Create function inputvalidation - Distinguish between thedifferent MATLAB 'data types' - Create and manipulate Structuresand Arrays Perform and evaluate relational and logical operations - Load, analyze, and manipulateimages - Obtain and utilize userinput - Manage and format text output Import and export numeric datausing other filetypes (e.g. .csv, .xls, and.txt) - Perform polynomial curve-fitting, general curve fitting, andinterpolation - Perform numeric and symbolic differentiation andintegration	- Understand the solution types(no-, unique, and infinitely-many solutions) of linear algebra in general - calculate the roots of a function using bi-section, fixed-point iteration, Newton?s methods, and also by searching for signchanges; - calculate the unknowns of a linear equation set using direct solution techniques (Gauss elimination and inverse matrix approach) for the unique-solutioncase - calculate the unknowns of a linear equation set using iterative solution techniques (Jacobian and Gauss-Seidel Iterative Methods) for the unique-solutioncase.
3	- Model decision making problemsusing major modeling formalisms of artificial intelligence and operations research, including propositional logic, constraints, linear programs and Markovprocesses, - Evaluate the computational performance of search, satisfaction, optimization and learningalgorithms. - Apply search, satisfaction, optimization and learning algorithms to real world problems	- Describe at an intuitive level the process of artificial intelligence and operations research: a real-time cycle of problem understanding, formulation, solution and implementation(homework). - Formulate simple reasoning, learning and optimization problems, in terms of the representations and methods presented (homework,quiz).

		- Manipulate the basicmathematical structures underlying these methods, such as system state, search trees, plan spaces, model theory, propositional logic, constraint systems, Markov decision processes, decision trees, linear programs and integer programs - Demonstrate the hand execution of basic reasoning and optimization algorithms on simple problems (homework,quiz). - Formulate more complex, but still relatively simple problems, and apply implementations of selected algorithms to solve theseproblems (homework,lab). - Evaluate analytically the limitations of these algorithms, and assess tradeoffs between these algorithms (homework, quiz).

COURSE OBJECTIVES AND OUTCOMES

CS202 COMPUTER ORGANIZATION AND ARCHITECTURE

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To impart an understanding of the internal organization and operation of computer.	Identify the basic structure and functional units of a digital computer.
2	To introduce the concepts of processor logic design and control logic design.	Analyze the effect of addressing modes on the execution time of aprogram
		Design processing unit using the concepts of ALU and control logicdesign
		Identify the pros and cons of different types of control logic design in processors.
		Select appropriate interfacing standards for I/O devices.
		Identify the roles of various functional units of a computer in instruction execution.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 204 OPERATING SYSTEM

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	1. To impart fundamental understanding of the purpose,structure, functions of operatingsystem.	Students will be able to: 1. identify the significance of operating system in computing devices.
	2. To impart the key design issues of an operating system	2. exemplify the communication between application programs and hardware devices through system calls. .
		3. compare and illustrate various process scheduling algorithms
		4. apply appropriate memory and file management schemes.
		5. illustrate various disk scheduling algorithms.
		6. appreciate the need of access control and protection in an operating system.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 206 OBJECT ORIENTED DESIGN AND PROGRAMMING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce basic concepts of object oriented design techniques.	Apply object oriented principles in software design process.
2	To introduce the basic understanding of Java language.	Able to understand basic concepts of Java such as operators, classes, objects, inheritance, packages and various keywords.
3	Handling Exceptions in Java	Able to understand the concept of exception handling and Input/Output operations.
4	To provide basic exposure to the basics of multithreading	Implement programs with multithreading in java.
5	Introduction to GUI classes and event Handling mechanisms	Able to design the applications of Java & Java applet along with the concept of event handling.

6	To impart the techniques of creating GUI based applications.	Implement Database Connectivity in the GUI program

COURSE OBJECTIVES AND COURSE OUTCOME

CS 208 PRINCIPLES OF DATABASE DESIGN

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To impart the basic understanding of the theory and applications of database management systems. To introduce the concept of ER model. Also to introduce	Ability to draw ER diagrams for databases. Able to search appropriate data from databases using various searching techniques. Able to classify the databases.
2	To introduce the concepts of database languages. To introduce how to create database and how to retrieve datafrom database using SQL.	Able to algebraic operations on databases.
3	To introduce the queries in SQL to create database, insert values, update values and various operations on database.	Ability to create databases. Able to insert, delete values from databases. Students can able to do various operations on the databases.
4	To introduce the concepts of data dependencies and normalization of databases to reduce the redundancy of data in databases.	Able to normalize the relations of databases, thus avoiding redundancy.
5	To introduce the organization of data in	Able to organize the databases.

Sl No		
6	To introduce the concepts of transactions in real life applications like banking applications. To introduce how to provide security to databases.	Ability to identify the properties of transactions and able to do transactions and can provide security to confidential databases.

| | | a database. Also to introduce the optimization of queries. | |

COURSE OBJECTIVES AND COURSE OUTCOMES

HS 200: BUSINESS ECONOMICS

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Includes the study of trading, growth, money, income, depression, prices, and monopoly.	1.Apply economic reasoning to the analysis of selected contemporary economic problems
2	Understand fundamental financial concepts of Micro-Economics through exposure to the language, theories and methodologies of economics;	2. Microeconomics course has several common objectives that contribute to a student's learning in a business, finance or economics program.
3	Present factual material concerning the operation of the firm and household as well as the development of rudimentary understanding of economic decision-making	3. Distinguish between a fixed cost and a variable cost
4	To provide the students with an introduction to the basic macroeconomic principles	4.Understand Business Costs and Pricing
5	Recognize the types of real-life business decision problems where use of the models brings added value	5. To make investment decisions with the help of NPV IRR ARR, payback period and PI.

6	Be able to explain the merits and limitations of various statistical techniques	6. Preparation of balance sheet helped to find financial position to understand about capital market and moneymarket.

COURSE OBJECTIVES AND OUTCOMES

CS 232 FREE AND OPEN SOURCE SOFTWARE LAB

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	Getting started with Linux basic commands and operations	Identify and apply various Linux commands
2	More awareness about shell script program to show varioussystem configuration and theirfunctions	Develop shell scripts and GUI for specific needs
3	Know about Version control set up and usage using GIT.	Use tools like GIT and SCM tools with no code repository.
4	Installing various software packages. Either the package is yet to be installed or an older version is present.	Perform basic level application deployment, kernel configuration and installation, packet management and installation etc.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 234 -DIGITAL SYSTEMS LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To understand different positional number systems and conversions.	Compare various positional number systems and binary codes
2	To introduce basic postulates of Boolean algebra and show the correlation between Boolean expression	Apply Boolean algebra in logic circuit design
3	To analysis and design various combinational circuits and sequential circuits	Design combinational and sequential circuits
4	To study the fundamentals of HDL	Design and implement digital systems using basic programmable blocks

5	To design and implement synchronous sequential circuits		

S6 CSE (2017 Batch)

CS302	Design and Analysis of Algorithms	Chithra
CS304	Compiler Design	Sukesh babu
CS306	Computer Networks	Sreelekshmi
CS308	Software engineering and Project management	Neethu Krishna
IS300	Principles of management	Soubhagya
CS364	Mobile computing	Hema
CS332	Microprocessor Lab	Chithra
CS334	Network programming Lab	Neethu Krishna

COURSE OBJECTIVES AND OUTCOMES

CS304 COMPILER DESIGN

Sl No	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the major concept areas of language translation and compiler design	Identify different language translators and explain the concepts and different phases of compilation with compile time error handling. ...
2	To develop an awareness of the function and complexity of modern compilers	Represent language tokens using regular expressions, context free grammar and finite automata and design lexical analyzer for a language
3	To provide practical, hands on experience in compiler design.	Compare top down with bottom up parsers, and develop appropriate parser to produce parse tree representation of the input
		Explain syntax directed translation schemes for a given context free grammar and generate intermediatecode

		Apply optimization techniques to intermediate code and generate machine code for high level language program

COURSE OBJECTIVES AND COURSE OUTCOMES

CS302 DESIGN AND ANALYSIS OF ALGORITHMS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the important of algorithms and its running time in various applications. Also introduced how to find the time needed for executing an algorithm.	Ability to calculate the running time of algorithms using various methods. Able to a list using different sorting techniques.
2	To introduce different types of height balanced trees.	Able to create height balanced trees and can perform various types of operations on such types of trees.
3	To introduce graph different operations can be applied to graphs.	Ability create trees from graphs. Able to do various operations on graphs.
4	To introduce different techniques for designing algorithms. To introduce different optimization techniques. To introduce the concept of NP-completeness.	Ability to design algorithms for given problems. Able to solve different optimization problems. Able to prove the given problem is under Np or not.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CS 308: SOFTWARE ENGINEERING AND PROJECT MANAGEMENT

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the fundamental concepts of software engineering. 3.	Identify suitable life cycle models to be used.
2	To build an understanding on various phases of software development.	Analyze a problem and identify and define the computing requirements to the problem.
3	To introduce various software process models.	Translate a requirement specification to a design using an appropriate software engineering Methodology.
4	To understand risk management.	Formulate appropriate testing strategy for the given software system.
5	To understand maintenance phases.	Develop software projects based on current technology, by managing resources economically and keeping ethical values.
6	To understand software configuration management.	Formulate appropriate testing strategy for the given software configuration system.

		Methodology.
4	To understand risk management.	Formulate appropriate testing strategy for the given software system.
5	To understand maintenance phases.	Develop software projects based on current technology, by managing resources economically and keeping ethical values.
6	To understand software configuration management.	Formulate appropriate testing strategy for the given software configuration system.

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

HS300 PRINCIPLES OF PROGRAMMING LANGUAGES

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	The course is built around aninvestigation of what programminglanguages are, and the notion ofprograms as artefacts. Two keyaspects of the study ofprogramming languages are their semantics, and their syntax.	Manipulate and generate lambda-terms, extending a system such as Church numerals; check and assign types to lambda terms.
2	We will survey some of thefundamental principles of thesemantics and computationalbehaviour of programs, includingthe lambda calculus, types and fixed-points.	Solve simple recursive equations by determining the limit of the Kleenefixpoint construction.

3	Rigorous proofs of properties ofprograms, such as are needed forsafety-critical software, or forprogram transformations such asare carried out by optimisingcompilers, require a formaldescription of the 'meaning' and behaviour of programs	design and extend operational and denotational definitions for basic programming language constructs. prove properties of programs by various formal means, including structural and fixpoint induction.
4	The syntax of programminglanguages is routinely defined bywell-understood means, in terms offormal grammars and their relationto certain classes of automata.	demonstrate correspondences between grammars, languages and automata. use standard parser and lexergenerator tools to construct andimplement translations such as a very simple compiler.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 306 COMPUTER NETWORKS

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	Build an understanding of the fundamental concepts of computer networking.	Describe the different aspects of networks, protocols and network design models. Explain the various Data Link layer design issues and Data Link protocols
2	Familiarize the student with the basic taxonomy and terminology of the computer networking area.	Analyze and compare different LAN protocols. Compare and select appropriate routing

		algorithms for a network.
3	Introduce the student to advanced networking concepts, preparing the student for entry Advanced courses in computer networking	Able to understand IP addressing. Able to understand congestion control algorithms. Able to understand IP protocols.
4	Allow the student to gain expertise in some specific areas of networking such as the design and maintenance of individual networks.	Able to understand the functions of network layer, transport layer and application layer in internetworking.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS 364 MOBILE COMPUTING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	● To study the relevance and underlining infrastructureof multimediasystem.	Clearly lifferentiate 3-G and 2-G networks

2	● To enable the students to apply contemporary theories of multimedia learning tothe development of multimedia products.	Learn the architecture of WAP &WWW.
3		Usage of various standardcommunicationprotocols.
4		Understand the services provided by wireless ATM.
5		Implement wireless communication in a mobile network.

COURSE OBJECTIVES AND COURSE OUTCOMES

CS332 MICROPROCESSOR LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To get concept about 8086 Microprocessor and their instruction set	Develop and execute programs to perform data transfer, arithmetic& logical operations. and code conversions using 8086

		microprocessors and basic arithmetic operations using 8086.
2	To explain and execute arithmetic and logical programs for microprocessor based applications in electrical and electronics engineering.	Generate square wave using 8086 microprocessor and to interface using PPI 8255
3	To know about the basic operating concepts of microprocessors	Make use of 8086 microprocessor for speed and position control of dc motor and stepper motor
4	To generate low level programming like generation of square wave, triangular wave etc	
5	To give awareness about the concept of 8086 Microprocessor	
6	To understand the basic operations that can be run on 8086 microprocessors	

COURSE OBJECTIVES AND COURSE OUTCOMES

CS334 NETWORK PROGRAMMING LAB

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce Network related commands and configuration files in Linux Operating System.	Use network related commands and configuration files in Linux Operating System.

2	To introduce tools for Network Traffic Analysis and Network Monitoring.	Develop operating system and network application programs.
3	To practice Network Programming using Linux System Calls.	Analyze network traffic using network monitoring tools.
4	To design and deploy Computer Networks.	

S8 CSE (2015 Batch)

CS402	Data Mining	Vivitha
CS404	Embedded Systems	Anup vasavan
CS472	Elective-IV Principles of Information Security	Neethu Krishna
CE482	Elective V- Environmental Impact Assessment	Hema
CS492	Project	Sukesh Babu V S

COURSE OBJECTIVES AND COURSE OUTCOMES FOR
CS402: DATA MINING AND WAREHOUSING

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce the concepts of data Mining and its applications	identify the key process of Data mining and Warehousing
2	To introduce data preprocessing techniques	apply appropriate techniques to convert raw data into suitable format for practical data mining tasks
3	To introduce Classification Models	analyze and compare various classification algorithms and apply in appropriate domain
4	To introduce Rule based classification	evaluate the performance of various classification methods using performance metrics
5	To introduce Association Rules Mining	make use of the concept of association rule mining in real world scenario
6	To introduce advanced Data Mining techniques	select appropriate clustering and algorithms for various applications, extend data mining methods to the new domains of data

COURSE OBJECTIVE AND COURSE OUTCOME

CS404 EMBEDDED SYSTEM

Sl no	Course Objective	Course Outcome
		On completion of course the student will be

		able to
1	To impart basic knowledge about embeddedsystem	Discuss various types of embedded system, programming methods for 8051 and peripherals in 8051 microcontroller and its interfacing methods
2	To create awareness on the processes involved in CPU operation	Explained the various steps in embedded system design and working of CPU and it,s related components
3	To explain the various embedded computing platform and basic designs in embedded system	Interpret various steps in the design and operation of embedded system and its network based design
4	To understand basic knowledge about PICMicrocontroller	Explicate various types of embedded system, programming methods for PIC Microcontroller and peripherals in PIC Microcontroller and its interfacingmethods

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CS472: PRINCIPLES OF INFORMATION SECURITY

Sl. No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To introduce fundamental concepts of security. etc.	Appreciate the common threats faced today
2	To introduce and discuss the relevance of security in operating system, web services	Interpret the foundational theory behind information security
3	To introduce fundamental concepts of secure electronic transactions.	Design a secure system
4	To introduce fundamental concepts of security Bluetooth devices	Identify the potential vulnerabilities in software
5	To introduce fundamental concepts of security in wireless lan	Appreciate the relevance of security in various domains

Sl No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
6	To introduce fundamental concepts of security in current domains	Develop secure web services and perform secure e-transactions

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CE482 ENVIRONMENTAL IMPACT ASSESSMENT

Sl No.	Course Objectives	Subject Learning Outcomes or Course Outcomes On completion of course the students will be able to:
1	To study the various types of environmental pollution	The students will have a basic knowledge of various pollution sources and their impacts
2	To study the impact of various types of pollutants and their assessment techniques	Critically analyze and evaluate management theories and practic
To study the various types of environmenta l pollution 3	To be able to mirror existing practices or to generate their own innovative management competencies, required for today's complex and global workplace	Plan and make decisions for organizations
4	To be able to critically reflect on ethical theories and social responsibility ideologies to create sustainable organizations	Do staffing and related HRD functions
5	To develop the basic understanding of amplifier designing and its analysis using hybrid model	

COURSE OBJECTIVES AND COURSE OUTCOMES FOR

CS451 Seminar and Project Preliminary

Sl No.	Course Objectives	Subject Learning Outcomes or Course Outcomes
		On completion of course the students will be able to:
1	To develop skills in doing literature survey, technical presentation and report preparation. To enable project identification and execution of preliminary works on final semester project	Analyze a current topic of professional interest and present it before an audience.
2	To develop skills in doing literature survey, technical presentation and report preparation. To enable project identification and execution of preliminary works on final semester project	Identify an engineering problem ,analize it and propose a work plan to solve it