Department of Computer Science and Engineering

2.6.1 Program Outcomes and Course Outcomes

Program Outcomes (POs)
PO1: Apply knowledge of mathematics, science engineering fundamentals and an
engineering specialization to the solution of complex engineering problems.
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PO2:Identify, formulate, research literature and analyze complex engineering problems
reaching substantiated conclusions using first principal of mathematics, natural
sciences and engineering sciences.
PO3 . Design solutions for complex angineering problems and design system components or process
that meet specified needs with appropriate consideration for public health and safety, cultural.
societal and environmental considerations.
PO4:Conduct investigation of complex problems using research - based knowledge and
research methods including design of experiments, analysis and interpretation of data
and synthesis of information to provide valid conclusions.
PO5:Create select and apply appropriate techniques, resources and modern engineering and
IT tools including prediction and modeling to complex engineering activities with an
understanding of the limitations
PO6: Apply reasoning informed by contextual knowledge to assess societal, safety, legal and
practice
PO7 . Understand the impact of professional engineering solutions in societal and
environmental contexts and demonstrate knowledge of and need for sustainable
development
PO8: Apply ethical principal and commit to professional ethics and responsibilities and
norms of engineering practice
PO9: Function effectively as an individual, and as a member or leader in diverse teams and in
multi-disciplinary settings.
PO10:Communication: Communicate effectively on complex engineering activities with the
engineering community and with society at large, such as being able to comprehend and write
effective reports and design documentation, make effective presentations and give and
receive clear instructions.
PO11:Demonstrate knowledge and understanding of engineering and management principal
and apply these to one's own work, as a member and leader in a team, to manage Projects and
in multidisciplinary environments

PO12:Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological changes.

Program Specific Outcomes (PSOs)

PSO1: Apply the Strong Knowledge and Principles of Computer Science and Engineering to Model and Design Various Computing Systems

PSO2: Develop the Diverse Applications in Well Promised Domains by Adopting the Practices of Computer Science and Engineering.

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18-Scheme
Cour	rse Name : CALCULUS AND LINEAR ALGEBRA	Course Code: 18MAT11
CO1	Apply the knowledge of calculus to solve problems applications in determining the bendness of curve	related of polar curves and its
CO2	Learn the notion of partial differentiation to calc multivariate functions and solve problems related to con	rulate the rates of changes of mposite functions and Jacobians.
CO3	Apply the concept of change of order of integration a integrals and their usage in computing the area and volu	nd variables to evaluate multiple umes.
CO4	Solve first order linear/nonlinear differential equat methods.	ion analytically using standard
CO5	Make use of matrix theory for solving system of eigenvalues and eigenvectors required for matrix diagonality diagonality of the system of the	linear equations and compute nalization process.

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18-Scheme
	Course Name : ENGINEERING PHYSICS	Course Code: 18PHY12
CO1	Understand various types of oscillations and their impl in various fields and Recognize the elastic properti applications.	ications, the role of Shock waves es of materials for engineering
CO2	Realize the interrelation between time varying electron transverse nature of the EM waves and their role in the transverse nature of the EM waves and their role in the transverse nature of the EM waves and their role in the transverse nature of t	ric field and magnetic field, the optical fiber communication.).
CO3	Compute Eigen values, Eigen functions, momentum of using Time independent 1-D Schrodinger's wave equation	f Atomic and subatomic particles ion.
CO4	Apprehend theoretical background of laser, constructi of laser and its applications in different fields	on and working of different types
CO5	Understand various electrical and thermal propertie semiconductors and dielectrics using different theoretic	es of materials like conductors, cal models.

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18-Scheme
Cour	se Name : BASIC ELECTRICAL ENGINEERING	Course Code: 18ELE13
CO1	Analyze D.C and A.C circuits.	
CO2	Explain the principle of operation and construction of single phase transformers.	
CO3	Explain the principle of operation and construction of DC machines and synchronous machines.	
CO4	Explain the principle of operation and construction of three phase induction motors.	
CO5	Discuss concepts of electrical wiring, circuit protecting of	devices and earthing

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18-Scheme
	Course Name : CIVIL ENGINEERING AND MECHANICS	Course Code: 18CIV14
CO1	Mention the applications of various fields of Civil E of given force system subjected to various loads	ngineering. Compute the resultant
CO2	Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads.	
CO3	Locate the Centroid and compute the Moment of sections.	Inertia of regular and built-up
CO4	Express the relationship between the motion of be motion.	odies and analyze the bodies in

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18- Scheme
	Course Name : ENGINEERING GRAPHICS	Course Code: 18EGDL15
CO1	Prepare engineering drawings as per BIS conventions	mentioned in the relevant codes.
CO2	Prod Produce computer generated drawings using CA	AD software.
CO3	Use the knowledge of orthographic projection information/concepts and present the same in the form	ons to represent engineering of drawings
CO4	Develop isometric drawings of simple objects readir those objects.	ng the orthographic projections of
CO5	Con Convert pictorial and isometric views of simple of	bjects to orthographic

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
	Course Name : ENGINEERING PHYSICS LABORATORY	Course Code: 18PHYL16
CO1	Apprehend the concepts of interference of light, difference of light, difference of current	raction of light, Fermi energy and
CO2	Understand the principles of operations of optical f such as Photodiode, and NPN transistor using simple of	fibers and semiconductor devices circuits
CO3	Determine elastic moduli and moment of inertia of suggested procedures	given materials with the help of
CO4	Recognize the resonance concept and its practical appl	lications
CO5	Understand the importance of measurement pro- representing the data, reproduction of final results	ocedure, honest recording and

	Year/ Semester: 1 st Year /1 st Semester	Scheme of Study: 18-Scheme
	Course Name : BASIC ELECTRICAL ENGINEERING LABORATORY	Course Code: 18ELEL17
CO1	Identify the common electrical components and conducting experiments in the electrical laboratory.	measuring instruments used for
CO2	Compare power factor of lamps.	
CO3	Determine impedance of an electrical circuit and power	er consumed in a 3 phase load.
CO4	Determine earth resistance and understand two way a	nd three way control of lamps.

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
(Course Name : ADVANCED CALCULUS AND NUMERICAL METHODS	Course Code: 18CHE22
CO1	Illustrate the applications of multivariate calculus to irrational vectors and also exhibit the inter dependent integrals	o understand the solenoidal and nee of line, surface and volume
CO2	Demonstrate various physical models through higher solve such linear ordinary differential equations.	order differential equations and
CO3	Construct a variety of partial differential equa methods/method of separation of variables.	tions and solution by exact

CO4	Explain the applications of infinite series and obtain series solution of ordinary
	differential equations.
CO5	Apply the knowledge of numerical methods in the modeling of various physical and engineering phenomena.

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
•	Course Name : ENGINEERING CHEMISTRY	Course Code: 18CHE22
CO1	Use of free energy in equilibrium, rationalize bulk propodynamic system.	perties and processes using
CO2	Causes & effects of corrosion of metals and control of metals to develop resistance to corrosion, wear, tear, im	f corrosion. Modification of surface pact etc. by electroplating
CO3	Production & consumption of energy for industrialization of country and living standard Electrochemical and concentration cells. Classical, modern batteries and fuel cells. Utilization energy for different useful forms of energy.	
CO4	Environmental pollution, waste management and water chemistry.	
CO5	Different techniques of instrumental methods of analys materials.	is. Fundamental principles of Nano

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
Cou	rse Name : C PROGRAMMING FOR PROBLEM SOLVING	Course Code: 18CPS23
CO1	Illustrate simple algorithms from the different domains	such as mathematics, physics, etc.
CO2	Construct a programming solution to the given problem using C.	
CO3	Identify and correct the syntax and logical errors in C programs.	
CO4	Modularize the given problem using functions and strue	ctures.

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
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	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
C	Course Name : ELEMENTS OF MECHANICAL ENGINEERING	Course Code: 18MC25
CO1	Identify different sources of energy and their convergence of hydraulic turbines, pumps, IC engines and re-	ersion process. Explain the wo
CO2	Recognize various metal joining processes and power tra	ansmission elements.

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
	Course Name : ENGINEERING CHEMISTRY LABORATORY	Course Code: 18CHEL26
CO1	Handling different types of instruments for analysis of of materials involved for quick and accurate results.	materials using small quantities
CO2	Carrying out different types of titrations for estimation of concerned in materials using comparatively more quantities of materials involved for good results.	
CO3	To be familiar in the use of CGI and Perl programs for different types of server side applications.	
CO4	Design and implement user interactive dynamic web based applications.	
CO5	Evaluate the given wed application and enhance it using	latest web technologies.

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
Cou	urse Name : C PROGRAMMING LABORATORY	Course Code: 18CPL27
CO1	Write flowcharts, algorithms and programs.	
CO2	Familiarize the processes of debugging and execuprogramming.	tion. Implement basics of C
CO3	Illustrate solutions to the laboratory programs	

	Year/ Semester: 1 st Year /2 nd Semester	Scheme of Study: 18-Scheme
	Course Name : TECHNICAL ENGLISH - 2	Course Code: 18EGH28
CO1	Identify common errors in spoken and written communi-	cation
CO2	Get similiarized with English vocabulary and language proficiency	
CO3	Imp prove nature and style of sensible writing and acquire employment and workplace communication skills	
CO4	Improve their Technical Communication Skills through practices	Technical Reading and Writing
CO5	Per Perform well in campus recruitment, engineering a	nd all other general

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study: 18-Scheme
Cou	Irse Name : TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES	Course Code: 18MAT31
CO1	Use Laplace transform and inverse Laplace transform in solving differential/ inter-	
COI	equation arising in network analysis, control systems and	nd other fields of engineering.
CO2	Demonstrate Fourier series to study the behaviour	of periodic functions and their
02	applications in system communications, digital signal p	processing and field theory.
CO3	Make use of Fourier transform and Z-transform	to illustrate discrete/continuous
005	function arising in wave and heat propagation, signals a	and systems
CO4	Solve first and second order ordinary differential e	equations arising in engineering
04	problemsusing single step and multistep numerical met	hods
COS	Determine the externals of functional using calculus of	variations and solve problems
COS	Arising in dynamics of rigid bodies and vibrational ana	lysis.

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
	Course Name : DATA STRUCTURES AND APPLICATIONS	Course Code: 18CS32
CO1	1 Use different types of data structures, operations and algorithms	
CO2	Apply searching and sorting operations on files.	
CO3	Use stack, Queue, Lists, Trees and Graphs in problem solving	
CO4	Implement all data structures in a high-level language for problem solving	

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme	
	Course Name : ANALOG AND DIGITAL	Course Code: 18CS33	
	ELECTRONICS		
CO1	Design and analyze application of analog circuits using p	photo devices, timer IC, power	
COI	supply and regulator IC and op-amp.		
CO2	Explain the basic principles of A/D and D/A conversion circuits and develop the same.		
CO3	Simplify digital circuits using KarnaughMap, and Quine-McClusky Methods.		
Explain Gates and flip flops and make us in designing		fferent data processing circuits,	
04	registers and counters and compare the types.		
CO5	Develop simple HDL programs.		

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
C	Course Name : COMPUTER ORGANIZATION	Course Code: 18CS34
CO1	Explain the basic organization of a computer system	
CO2	Demonstrate functioning of different sub systems, such as processor, Input/output, and memory	
CO3	Illustrate hardwired control and micro programmed control, pipelining, embedded and othercomputing systems	
CO4	Design and analyse simple arithmetic and logical units.	

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
	Course Name : SOFTWARE ENGINEERING	Course Code: 18CS35
CO1	Design a software system, component, or process to mee constraints	t desired needs within realistic
CO2	Assess professional and ethical responsibility	
CO3	Function on multi-disciplinary teamsrisk.	
CO4	Use the techniques, skills, and modern engineering to practice	ools necessary for engineering

CO5 Analyse, design, implement, verify, validate, implement, apply, and maintain software systems orparts of software systems

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
	Course Name : DISCRETE MATHEMATICAL STRUCTURES	Course Code: 18CS36
CO1	Use propositional and predicate logic in knowled verification.	lge representation and truth
CO2	Demonstrate the application of discrete structures in science.	different fields of computer
CO3	Solve problems using recurrence relations and generating	g functions.
CO4	Application of different mathematical proofs technique courses.	es in proving theorems in the
CO5	Compare graphs, trees and their applications.	

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
	Course Name : ANALOG AND DIGITAL ELECTRONICS LABORATORY	Course Code: 18CSL37
CO1	Use appropriate design equations / methods to design	the given circuit
CO2	Examine and verify the design of both analog and digital circuits using simulators.	
CO3	Make us of electronic components, ICs, instruments and tools for design and testing of circuitsfor the given the appropriate inputs	
	Compile a laboratory journal	which includes; aim,
CO4	tool/instruments/software/components used, design	equations used and designs,
	schematics, program listing, procedure followed, relevant theory, results as graphs and	
	tables, interpreting and concluding the findings	

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study:18-Scheme
Cours	se Name : DATA STRUCTURES LABORATORY	Course Code: 18CSL38
CO1	Analyze and Compare various linear and non-linear data structures.	
CO2	Code, debug and demonstrate the working nature of different types of data structures and theirapplications.	
CO3	Implement, analyze and evaluate the searching and sorting algorithms	
CO4	Choose the appropriate data structure for solving real world problems	

	Year/ Semester: 2 nd Year /3 rd Semester	Scheme of Study: 18-Scheme
Co	urse Name :ADDITIONAL MATHEMATICS – I	Course Code:18MATDIP31
CO1	Apply concepts of complex numbers and vector algebra in related area.	a to analyze the problems arising
CO2	2 Use derivatives and partial derivatives to calculate rate of change of multivariate functions.	
CO3	Analyze position, velocity and acceleration in two and three dimensions of vector valued functions.	
CO4	Learn techniques of integration including the evaluation of double and triple integrals.	
CO5	Identify and solve first order ordinary differential equati	ons.

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study:18-Scheme
Cours	se Name : COMPLEX ANALYSIS, PROBABILITY	Course Code: 18MAT41
	AND STATISTICAL METHODS	Course Coue. Iomarta
COL	Use the concepts of analytic function and complex potentials to solve the problems	
COI	arising inelectromagnetic field theory.	
CO^{2}	Utilize conformal transformation and complex integral arising in aerofoil theory, fluid	
02	flowvisualization and image processing.	
CO3	Apply discrete and continuous probability distributions in analyzing the probability	
005	models arising inengineering field.	
CO4	Make use of the correlation and regression analysis to fit a suitable mathematical model	
04	for thestatistical data	
CO5	Construct joint probability distributions and demonstrate the validity of testing the	
	hypothesis	

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
	Course Name : DESIGN AND ANALYSIS OF ALGORITHMS	Course Code: 18CS42
CO1	Describe computational solution to well-known problems like searching, sorting etc.	
CO2	Estimate the computational complexity of different algorithms.	
CO3	Devise an algorithm using appropriate design strategies for problem solving.	

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
	Course Name : OPERATING SYSTEMS	Course Code: 18CS43
CO1	Demonstrate need for OS and different types of OS.	

CO2	Apply suitable techniques for management of different resources	
CO3	Use processor, memory, storage and file system commands	
CO4	Realize the different concepts of OS in platform of usage through case studies	

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
	Course Name : MICROCONTROLLER AND EMBEDDED SYSTEMS	Course Code: 18CS44
CO1	1 Describe the architectural features and instructions of ARM microcontroller	
CO2	Apply the knowledge gained for Programming ARM for different applications.	
CO3	Interface external devices and I/O with ARM microcontroller.	
CO4	Interpret the basic hardware components and their selection method based on the characteristics and attributes of an embedded system	
CO5	Develop the hardware /software co-design and firmware design approaches.	
CO6	Demonstrate the need of real time operating system for embedded system applications	

Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
urse Name : OBJECT ORIENTED CONCEPTS	Course Code: 18CS45
Explain the object-oriented concepts and JAVA.	
Develop computer programs to solve real world problems in Java.	
Develop simple GUI interfaces for a computer program to interact with users, and to understandthe event-based GUI handling principles using swings	
	Year/ Semester: 2 nd Year /4 th Semester urse Name : OBJECT ORIENTED CONCEPTS Explain the object-oriented concepts and JAVA. Develop computer programs to solve real world problet Develop simple GUI interfaces for a computer progra understandthe event-based GUI handling principles usi

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
	Course Name : DATA COMMUNICATION	Course Code: 18CS46
CO1	Explain the various components of data communication	
CO2	Explain the fundamentals of digital communication and switching.	
CO3	Compare and contrast data link layer protocols.	
CO4	Summarize IEEE 802.xx standards	

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
	Course Name : DESIGN AND ANALYSIS OF ALGORITHMS LABORATORY	Course Code: 18CSL47
CO1	Design algorithms using appropriate design techniques programming, etc.)	(brute-force, greedy, dynamic
CO2	Implement a variety of algorithms such assorting, graph related, combinatorial, etc., in a highlevel language.	
CO3	Analyze and compare the performance of algorithms using language features.	
CO4	Apply and implement learned algorithm design technic real-worldproblems.	ques and data structuresto solve

Vear/ Semester: 2 nd Vear /4 th Semester		Scheme of Study: 18-
	Tear, Semester, 2 Tear, 4 Semester	Scheme
Cours	e Name : MICROCONTROLLER AND EMBEDDED	Course Coder 19051 49
	SYSTEMS LABORATORY	Course Coue: 18CSL48
CO1	Develop and test program using ARM7TDMI/LPC2148.	
	Conduct the following experiments on an ARM7TDM	II/LPC2148 evaluation board
CO2	using	
	evaluation version of Embedded 'C' & Keil Uvision-4 tool	/compiler

	Year/ Semester: 2 nd Year /4 th Semester	Scheme of Study: 18-Scheme
Course Name : ADDITIONAL MATHEMATICS – II		Course Code: 18MATDIP41
CO1	Solve systems of linear equations using matrix algebra.	
CO2	Apply the knowledge of numerical methods in modelling and solving engineering problems.	
CO3	Make use of analytical methods to solve higher order differential equations	
CO4	Classify partial differential equations and solve them by exact methods.	
CO5	Apply elementary probability theory and solve related p	problems.

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
	Course Name : MANAGEMENT AND ENTREPRENEURSHIP FOR IT INDUSTRY	Course Code: 18CS51
CO1	Define management, organization, entrepreneur, plannir their importance in entrepreneurship	ng, staffing, ERP and outline
CO2	Utilize the resources available effectively through ERP	

CO3	Make use of IPRs and institutional support in entrepreneurship

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
	Course Name : COMPUTER NETWORKS AND SECURITY	Course Code: 18CS52
CO1	Explain principles of application layer protocols	
CO2	Recognize transport layer services and infer UDP and TCP protocols	
CO3	Classify routers, IP and Routing Algorithms in network layer	
CO4	Understand the Wireless and Mobile Networks covering IEEE 802.11 Standard	
CO5	Describe Multimedia Networking and Network Management	

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
Cour	se Name : DATABASE MANAGEMENT SYSTEM	Course Code: 18CS53
	Identify, analyze and define database objects, enforce in	tegrity constraints on a database
CO1	using	
	RDBMS.	
CO2	Use Structured Query Language (SQL) for database man	nipulation.
CO3	Design and build simple database systems	
CO4	Develop application to interact with databases.	

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
	Course Name : AUTOMATA THEORY AND COMPUTABILITY	Course Code: 18CS54
CO1	Acquire fundamental understanding of the core concept ofComputation	s in automata theory and Theory
CO2	Learn how to translate between different models of Computation (e.g., Deterministic andNon-deterministic and Software models).	
CO3	Design Grammars and Automata (recognizers) for different language classes and becomeknowledgeable about restricted models of Computation (Regular, Context Free) and their relative powers.	
CO4	Develop skills in formal reasoning and reduction of a panemphasis on semantic precision and conciseness.	problem to a formal model, with
CO5	Classify a problem with respect to different models of C	computation.

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
C	ourse Name : APPLICATION DEVELOPMENT USING PYTHON	Course Code: 18CS55
CO1	Demonstrate proficiency in handling of loops and creati	on of functions.
CO2	Identify the methods to create and manipulate lists, tuples and dictionaries.	
CO3	Discover the commonly used operations involving regular expressions and file system	
CO4	Interpret the concepts of Object-Oriented Programming as used in Python.	
CO5 Determine the need for scraping websites and working with CSV formats.		with CSV, JSON and other file

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
	Course Name : UNIX PROGRAMMING	Course Code: 18CS56
CO1	Explain Unix Architecture, File system and use of Bas	sic Commands
CO2	Illustrate Shell Programming and to write Shell Scripts	
CO3	Categorize, compare and make use of Unix System Calls	
CO4	Build an application/service over a Unix system.	

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
	Course Name :COMPUTER NETWORK LABORATORY	Course Code: 18CSL57
CO1	Analyze and Compare various networking protocols.	
CO2	2 Demonstrate the working of different concepts of networking.	
	Implement, analyze and evaluate networking protoc	cols in NS2 / NS3 and JAVA
CO3	programming	
	language	

Year/ Semester: 3 rd Year /5 th Semester		Scheme of Study: 18-Scheme
Cou	rse Name : DBMS LABORATORY WITH MINI PROJECT	Course Code: 18CSL58
CO1	Create, Update and query on the database.	
CO2	2 Demonstrate the working of different concepts of DBMS	
CO3	O3 Implement, analyze and evaluate the project developed for an application.	

	Year/ Semester: 3 rd Year /5 th Semester	Scheme of Study: 18-Scheme
C	Course Name : ENVIRONMENTAL STUDIES	Course Code: 18CIV59
CO1	Understand the principles of ecology and environmental issues that apply to air, land,	
COI	and waterissues on a global scale,	
CO2	Develop critical thinking and/or observation skills, and apply them to the analysis of a	
02	problemor question related to the environment.	
CO3	Demonstrate ecology knowledge of a complex relationship between biotic and abiotic	
COS	components	
CO4	Apply their ecological knowledge to illustrate and g	graph a problem and describe the
	realities thatmanagers face when dealing with complex	x issues.

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study:18-Scheme
	Course Name : SYSTEM SOFTWARE AND COMPILERS	Course Code: 18CS61
CO1	Explain system software	
CO2	Design and develop lexical analyzers, parsers and code generators	
CO3	Utilize lex and yacc tools for implementing different concepts of system software	

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study: 18-Scheme
C	Course Name : COMPUTER GRAPHICS AND VISUALIZATION	Course Code: 18CS62
CO1	Design and implement algorithms for 2D graphics prim	nitives and attributes.
CO2	Illustrate Geometric transformations on both 2D and 3D objects.	
CO3	Apply concepts of clipping and visible surface detection in 2D and 3D viewing, and IlluminationModels.	
CO4	Decide suitable hardware and software for developmenGL.	oping graphics packages using

Year/ Semester: 3 rd Year /6 th Semester		Scheme of Study: 18-Scheme
C	ourse Name : WEB TECHNOLOGY AND ITS APPLICATIONS	Course Code:18CS63
CO1	Adapt HTML And CSS Syntax And Semantics To Build Web Pages.	
CO2	Construct And Visually Format Tables And Forms Using HTML And CSS	
CO3	Develop Client-Side Scripts Using Javascript And Server-Side Scripts Using PHP To Generate AndDisplay The Contents Dynamically.	
CO4	Appraise The Principles Of Object Oriented Development Using PHP	

COS	Inspect Javascript Frameworks Like Jquery And Backbone Which Facilitates Developer
COS	To Focus OnCore Features.

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study: 18-Scheme
Co	ourse Name : CLOUD COMPUTING AND ITS APPLICATIONS	Course Code: 18CS643
CO1	Explain cloud computing, virtualization and classify services of cloud computing	
CO2	Illustrate architecture and programming in cloud	
CO3	Describe the platforms for development of cloud applications and List the application of	
	cloud.	

Year/ Semester: 3 rd Year /6 th Semester		Scheme of Study: 18-Scheme
Course Name : SYSTEM MODELLING AND SIMULATION		Course Code: 18CS645
CO1	Explain the system concept and apply functional activities of a static system	modeling method to model the
CO2	Describe the behavior of a dynamic system and create an analogous model for a dynamic system;	
CO3	Simulate the operation of a dynamic system and ma simulationresults.	ke improvement according to the

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study: 18-Scheme
Cour	se Name : SYSTEM SOFTWARE LABORATORY	Course Code: 18CSL66
CO1	Implement and demonstrate Lexer's and Parser's	
CO2	Evaluate different algorithms required for management, scheduling, allocation and	
002	communication used in operating system.	

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study: 18-Scheme
	Course Name : COMPUTER GRAPHICS LABORATORY WITH MINI PROJECT	Course Code: 18CSL67
CO1	Apply the concepts of computer graphics	
CO2	2 Implement computer graphics applications using OpenGL	
CO3	Animate real world problems using OpenGL	

	Year/ Semester: 3 rd Year /6 th Semester	Scheme of Study: 18-Scheme
	Course Name : MOBILE APPLICATION DEVELOPMENT	Course Code: 18CSMP68
CO1	Create, test and debug Android application by setting up Android development environment.	
CO2	Implement adaptive, responsive user interfaces that work across a wide range of devices.	
CO3	Infer long running tasks and background work in Android applications	
CO4	Demonstrate methods in storing, sharing and retrieving data in Android applications	
CO5	Infer the role of permissions and security for Android ap	oplications.

	Year/ Semester: 4 th Year /7 th Semester	Scheme of Study: 18-Scheme
Cou	Irse Name : ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	Course Code: 18CS71
CO1	D1 Appaise the theory of Artificial intelligence and Machine Learning.	
CO2	Illustrate the working of AI and ML Algorithms.	
CO3	Demonstrate the applications of AI and ML.	

	Year/ Semester: 4 th Year /7 th Semester	Scheme of Study: 18-Scheme
	Course Name : BIG DATA AND ANALYTICS	Course Code: 18CS72
CO1	Understand fundamentals of Big Data analytics.	
CO2	Investigate Hadoop framework and Hadoop Distributed	File system.
CO3	Illustrate the concepts of NoSQL using MongoDB and Cassandra for Big Data.	
CO4	Demonstrate the MapReduce programming model to process the big data along with Hadooptools.	
CO5	Use Machine Learning algorithms for real world big data.	
CO6	Analyze web contents and Social Networks to provisualization tools.	rovide analytics with relevant

	Year/ Semester: 4 th Year /7 th Semester	Scheme of Study: 18-Scheme
	Course Name : USER INTERFACE DESIGN	Course Code: 18CS734
CO1	Design the User Interface, design, menu creation, windows creation and connection	
	betweenmenus and windows	

	Year/ Semester: 4 th Year /7 th Semester	Scheme of Study: 18-Scheme
Course Name : NETWORK MANAGEMENT Course Code: 18CS		Course Code: 18CS742
CO1	Analyze the issues and challenges pertaining to management of emerging network Technologies such as wired/wireless networks and high-speed internets.	
CO2	Apply network management standards to manage practical networks	
CO3	Formulate possible approaches for managing OSI network model.	
CO4	Use on SNMP for managing the network	
CO5	Use RMON for monitoring the behavior of the network.	
CO6	Identify the various components of network and formula them	ate the scheme for the managing

	Year/ Semester: 4 th Year /7 th Semester	Scheme of Study: 18-Scheme
Co	ourse Name : ENERGY AND ENVIRONMENT	Course Code: 18ME751
CO1	Understand energy scenario, energy sources, and their u	utilization
CO2	Understand various methods of energy storage, energy management, and economic analysis.	
CO3	Analyse the awareness about the environment and ecosystem	
CO4	Understand the environmental pollution along with social issues and acts	

Year/ Semester: 4 th Year /7 th Semester		Scheme of Study: 18-Scheme
Cou	rse Name : ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING LABORATORY	Course Code: 18CSL76
CO1	Implement and demonstrate AI and ML algorithms.	
CO2	Evaluate different algorithms.	

	Year/ Semester: 4 th Year /8 th Semester	Scheme of Study: 18-Scheme
	Course Name : INTERNET OF THINGS	Course Code: 18CS81
CO1	Interpret the impact and challenges posed by IoT networks leading to new architectural models	
CO2	Compare and contrast the deployment of smart objects and the technologies to connect them to network.	
CO3	Appraise the role of IoT protocols for efficient network communication.	
CO4	Elaborate the need for Data Analytics and Security in IoT.	
CO5	Illustrate different sensor technologies for sensing real applicationsofIoT in Industry.	world entities and identify the

Year/ Semester: Year/ Semester: 4 th Year /8 th Semester		Scheme of Study: 18-Scheme
C	ourse Name : STORAGE AREA NETWORKS	Course Code: 18CS822
CO1	Identify key challenges in managing information networking technologies and virtualization	and analyze different storage
CO2	Explain components and the implementation of NAS	
CO3	Describe CAS architecture and types of archives and forms of virtualization	
CO4	Illustrate the storage infrastructure and management act	tivities

Year/ Semester: 4 th Year /8 th Semester		Scheme of Study: 18-Scheme
Course Name : ENVIRONMENTAL STUDIES		Course Code: 18CIV59
CO1	Understand the principles of ecology and environmental issues that apply to air, land,	
	and water issues on a global scale.	
CO2	Develop critical thinking and/or observation skills, and apply them to the analysis of a	
	problem or questions related to the environment.	
CO3	Demonstrate ecology knowledge of a complex relationship between biotic and abiotic	
	components	
CO4	Apply their ecological knowledge to illustrate and graph a problem and describe the	
	realities that managers face when dealing with complex issues.	