



RISE KRISHNA SAI GANDHI GROUP OF INSTITUTIONS::ONGOLE

(Approved by AICTE-NEW DELHI, Affiliated to JNTUK KAKINADA)

NH-16, Valluru,-523272, Ongole, Prakasam District, A.P

Department of Computer Science and Engineering

Year: I

Regulation: R16

Academic Year: 2018-19

Sem: I

CO No.	Subject: English-I	Taxonomy Level
After completing the course the student shall be able to		
C111.1	Students enhanced communication skills and team work	Applying
C111.2	students can understand the structure of a paragraph	Understanding
C111.3	students will improve self motivation and self esteem	Creating
C111.4	students can apply problem solving adaptability and stress management in their lives	Applying
C111.5	students will learn personal presentation	Analyzing
C111.6	students will develop conversation proficiency	Applying

CO No.	Subject: Mathematics-I	Taxonomy Level
After completing the course the student shall be able to		
C112.1	Find the solutions of first order ordinary differential equations.	Understanding
C112.2	Apply the technique of solving ordinary differential equations in some engineering problems like electrical circuits, simple harmonic motions etc.	Applying
C112.3	Define Laplace transform and inverse Laplace transform of various functions and solve ordinary differential equations using Laplace transform.	Applying
C112.4	Utilize the technique of partial differentiation to find the extreme values of functions of several variables.	Applying
C112.5	Find the solutions of linear and nonlinear partial differential equations of first order.	Understanding
C112.6	Solve the higher order linear partial differential equations.	Understanding



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Department of Computer Science and Engineering

CO No.	Subject: Mathematics-II	Taxonomy Level
After completing the course the student shall be able to		
C113.1	Understand the most basic numerical method to solve simultaneous linear equations.	Understanding
C113.2	Define interpolation and compute interpolating polynomial from the given data using interpolating formula.	Remembering
C113.3	Solve differential equations numerically using numerical methods.	Applying
C113.4	Understand the basic concepts of complex function and analytic functions using C-R equations.	Remembering
C113.5	Make use of Cauchy's theorem and Cauchy's Integral theorem to evaluate complex integration.	Applying
C113.6	Make use of residues to evaluate complex integration.	Applying

CO No.	Subject: Applied Physics	Taxonomy Level
After completing the course the student shall be able to		
C114.1	Explain the properties of light supporting the wave nature and working of optical instruments	Understanding
C114.2	Apply Lasers in scientific research and engineering by developing knowledge on basic principle in the working of Lasers & optical fibers.	Applying
C114.3	Describe the concept of Electrical or Electronic gadgets and their performance under E- or H- fields.	Understanding
C114.4	Explain the concept of Acoustics of Buildings, and the behavior of materials in the external magnetic and electric fields and physical significance of Maxwell's equations.	Understanding
C114.5	Explain the concept of matter waves, free electron theory and origin of energy band formation in solids .	Understanding
C114.6	Explain the intrinsic and extrinsic semiconductors ,drift ,diffusion currents in semiconductors.	Understanding



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Department of Computer Science and Engineering

CO No.	Subject: Computer Programming	Taxonomy Level
After completing the course the student shall be able to		
C115.1	Explain the basic terminology used in computer programming	Understanding
C115.2	Discuss the design of Algorithms, writing and executing programs	Understanding
C115.3	Explain the different data types, selection and Basic loop structures	Understanding
C115.4	Apply the modular programming and recursive solution formulations.	Applying
C115.5	Demonstrate the data representations using arrays.	Applying
C115.6	Implement data structures, dynamic memory, create, update data files	Applying

CO No.	Subject: Engineering Drawing	Taxonomy Level
After completing the course the student shall be able to		
C116.1	Learn the usage of drawing instruments and how to draw Polygons, Engineering Curves and Scales	Remembering
C116.2	Explain about the Orthographic Projections, Projection of Points And Lines	Understanding
C116.3	Solve and draw the projections of straight lines inclined to both the planes	Applying
C116.4	Solve and draw the projection of planes	Applying
C116.5	Solve and draw the projection of solids	Applying
C116.6	Draw the Isometric Views to Orthographic Views and vice versa	Applying



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Department of Computer Science and Engineering

CO No.	Subject: English-Communications Skills Lab-I	Taxonomy Level
After completing the course the student shall be able to		
C117.1	Explain the basic concepts of language useful for pupils in their career	Applying
C117.2	Illustrate the usage of tenses in everyday life.	Understanding
C117.3	Apply the techniques of science through language ability in a practical way.	Applying
C117.4	Make use of grammatical sentences for perfect communication	Creating
C117.5	Analyze the importance of future tense with examples	Analyzing
C117.6	Find the speaking and writing skills through reading ability of safety measures	Applying

CO No.	Subject: Applied Physics Lab	Taxonomy Level
After completing the course the student shall be able to		
C118.1	Explain the appropriate application of Optics in Newton rings	Understanding
C118.2	Explain the appropriate application of Optics in Diffraction Grating	Understanding
C118.3	Apply the basic concepts of laser and techniques for the optics experiments.	Applying
C118.4	Apply the mathematical concepts/equations to obtain quantitative results.	Applying
C118.5	Explain the basic concepts of semiconductor physics, which are useful to understand the operation of Zener diode and PN junction diode	Understanding
C118.6	Develop basic communication skills through working in groups in performing the laboratory experiments and by interpreting	Evaluating



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Department of Computer Science and Engineering

CO No.	Subject: COMPUTER PROGRAMMING	Taxonomy Level
After completing the course the student shall be able to		
C119.1	Explain the basic terminology used in COMPUTER PROGRAMMING	(understanding)
C119.2	Explain the branching, iteration and data representation using arrays.	(Understanding)
C119.3	Describe the Modular programming and recursive solution formulation.	(Understanding)
C119.4	Explain the arrays,pointers and dynamic memory allocation.	(Understanding)
C119.5	Demonstrate the structures and unions.	(Applying)
C119.6	Demonstrate the file operations.	(Applying)

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Department of Computer Science and Engineering

Year: I

Regulation: R16 Academic Year: 2018-19

Sem: II

CO No.	Subject: English-II	Taxonomy Level
After completing the course the student shall be able to		
C121.1	Acquire the knowledge of education and how to serve the society accordingly	REMEMBERING
C121.2	Classify the different perspective of science in the sense of a common man and scientist	UNDERSTANDING
C121.3	Apply the knowledge to adjust ourselves towards the environmental conditions in the society	APPLYING
C121.4	Create an awareness on the present day and traditional beliefs	APPLYING
C121.5	Create the awareness on health threats due to climate changes.	APPLYING
C121.6	Identify the greatness and the hard work of the pioneers and try to inspire in attaining language communication skills	REMEMBERING



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Department of Computer Science and Engineering

CO No.	Subject: Mathematics-III	Taxonomy Level
After completing the course the student shall be able to		
C122.1	Applying analytical and numerical techniques to solve linear system of equations using matrices.	(Applying)
C122.2	Find the Eigen values and Eigen vectors of the square matrices and discuss the nature of quadratic forms.	Remembering
C122.3	Applying the techniques of multiple integrals to find the areas and volumes.	(Applying)
C122.4	Find the values of definite integrals using Beta and Gamma functions.	(Remembering)
C122.5	Find the gradient of scalar point functions, divergence and curl of vector point functions.	(Remembering)
C122.6	Applying Green's, Stokes and Gauss's divergence theorems to find line, surface and volume integrals.	(Applying)

CO No.	Subject: Applied Chemistry	Taxonomy Level
After completing the course the student shall be able to		
C123.1	Differentiate the plastics and rubber materials and their uses	(analysing)
C123.2	Explain the origin of fuel and their economic advantages and limitations	(understanding)
C123.3	Explain the working of batteries and its applications	(understanding)
C123.4	Describe the synthesis of nano materials and green methods	(understanding)
C123.5	Classify the types of solids and magnetic materials	(understanding)
C123.6	Discuss the non conventional energy resources and fuel cells	(understanding)



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CO No.	Subject: Object Oriented Programming Using C++	Taxonomy Level
After completing the course the student shall be able to		
C124.1	Explain the basic terminology used in object oriented programming.	(understanding)
C124.2	Explain about the classes, objects, constructors and destructor.	(understanding)
C124.3	Demonstrate the operator overloading and inheritance.	(Applying)
C124.4	Explain the polymorphism and virtual functions.	(understanding)
C124.5	Explain the Generic programming and exception handling. (understand)	(understanding)
C124.6	Describe the standard template library. (Remembering)	(understanding)

CO No.	Subject: ENGINEERING MECHANICS	Taxonomy Level
After completing the course the student shall be able to		
C125.1	Remember the concept of force system, friction and its applications	(Remembering)
C125.2	Construct the free body diagrams for different problems and solve the problems using the equilibrium conditions.	(Applying)
C125.3	Identify the centroid and centre of gravity for different composite sections	(Applying)
C125.4	Solve the problems on moment of inertia, mass moment of inertia for different composite sections using parallel axis and perpendicular theorems. (Applying)	(Applying)
C125.5	Summarize the motion of a body in general plane motion which includes rectilinear and curvilinear paths.	(Understanding)
C125.6	Remember the concept of work, power, and energy and calculate these values work-energy and impulse momentum principles.	(Remembering)



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CO No.	Subject: Environmental Science	Taxonomy Level
After completing the course the student shall be able to		
C126.1	Explain the concepts of the ecosystem and its functions in the environment.	Understanding
C126.2	Summarize the natural resources and their importance for the sustenance of life & need to conserve the natural resources	Understanding
C126.3	Demonstrate the values, threats, conservation practices to protect the biodiversity.	Applying
C126.4	Describe various attributes of the pollution and their impacts and measures to reduce pollution along with waste management practices.	Understanding
C126.5	Evaluate social issues both rural and urban environment and the possible means to combat the challenges, with help of environmental legislations of India	Evaluation
C126.6	Implement Environmental Impact Assessment, Green campus, business, & politics in their daily life	Applying

CO No.	Subject: English Communication Skills Lab-II	Taxonomy Level
After completing the course the student shall be able to		
C127.1	Explain the importance of body language	Understanding
C127.2	Summarize the skill of general English through dialogue	Understanding
C127.3	Develop short presentations on simple topics	Applying
C127.4	Summarize training offered to students through Group Discussion	Analyzing
C127.5	Describe the stand of interview skills through that students will successes	Remembering
C127.6	Explain the knowledge ability to communicate the needs and requirements of Debate	Understanding



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CO No.	Subject: : Applied Chemistry/ Engineering Chemistry Laboratory	Taxonomy Level
After completing the course the student shall be able to		
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C128.1	describe the experimental skills to design new experiments in engineering.	Understanding
C128.2	explain the different types of titrations and acquire skills in instrumentation.	Understanding
C128.3	determine hardness of various water samples.	Evaluating
C128.4	determine the no of free ions and charges in a mixture of acids using conductivity meter.	Evaluating
C128.5	calculate the potential between reference electrode and un known solution by using potentio meter.	Understanding

CO No.	Subject: OBJECT-ORIENTED PROGRAMMING LAB	Taxonomy Level
After completing the course the student shall be able to		
C129.1	Compare the procedural and object oriented paradigm with concepts of streams, classes, functions, data and objects.	Understanding
C129.2	Explain dynamic memory management techniques using pointers, constructors, destructors, etc	Understanding
C129.3	Experiment with the concept of function overloading, operator overloading, virtual functions and polymorphism.	Applying
C129.4	Classify inheritance with the understanding of early and late binding, usage of exception handling, generic programming.	Understanding
C129.5	Demonstrate the use of various OOPs concepts with the help of programs.	Understanding
C129.6	Experiment with exception handling and STL programming model to understand programming concepts.	Applying


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Department of Computer Science and Engineering

Year: II

Regulation: R16

Academic Year: 2018-19

Sem: I

Co.No	Subject: Statistics with R Programming	Taxonomy Level
C211.1	List motivation for learning R programming Language	Remembering
C211.2	Make use of data structures and advanced data structures.	Applying
C211.3	Make use of Math functions and methods to read and write files.	Applying
C211.4	Experiment with Graphs.	Applying
C211.5	Apply Probability Distributions.	Applying
C211.6	Apply linear and non-linear models for data sets.	Applying

Co.No	Subject: Mathematical Foundations of Computer Science	Taxonomy Level
C212.1	describe the need for and the ability to identify statements and predicates and mathematical principles and logic.	Understanding
C212.2	evaluate the mathematical problems in mathematical induction and algorithms in number theory	Understanding
C212.3	describe functions, relations and their operations and draw the hasse diagram.	Applying
C212.4	identify the graph, their representation and to traversal a graph in bfs and dfs.	Understanding
C212.5	apply the knowledge to construct groups and subgroups, Binomial theorem, permutations and combinations	Applying
C212.6	apply the knowledge to solve the recurrence relation, form generating functions.	Applying



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Co.No	Subject: Digital Logic Design	Taxonomy Level
C213.1	Understanding features of number systems and to design different logic circuits for real time applications.	Remembering
C213.2	Describe and minimize the Boolean expressions using the theorems in order to reduce the design complexity of combinational circuits.	Understanding
C213.3	Apply the Boolean expressions using k maps in order to reduce the design complexity of combinational circuits.	Applying
C213.4	Design and analyze small combinational circuits and to use standard combinational functions/building blocks to build larger more complex circuits.	Remembering
C213.5	Understand the knowledge on flip-flops which are necessary to develop the memory in the microprocessors and controllers for real time applications	Applying
C213.6	Understand the knowledge on counters which are necessary to develop the microprocessors and controllers for real time applications.	Understanding

Co.No	Subject: Python Programming	Taxonomy Level
C214.1	How to make indentation in the program.	Understanding
C214.2	Explain various data structures and extend with examples.	Understanding
C214.3	Make use of modules and packages.	Applying
C214.4	Build programs for user-defined exceptions.	Applying
C214.5	Experiment with GUI programming.	Applying
C214.6	How to write test cases.	Understanding



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Co.No	Subject: Data Structures through C++	Taxonomy Level
C215.1	find solutions to different problems using arrays.	Understanding
C215.2	find solutions to different problems using stack and queue.	Understanding
C215.3	Perform different operations for storage and retrieval of data on linked lists.	Applying
C215.4	handle various operations like searching, insertion, deletion, Traversing mechanism etc. on various Trees data structures	Understanding
C215.5	handle various operations like searching, insertion, deletion, Traversing mechanism etc. on various Tree data structures.	Understanding
C215.6	Explain concepts of sorting techniques	Understanding

Co.No	Subject: Computer Graphics	Taxonomy Level
C216.1	Illustrate Line, Circle and Ellipse Polygon, Curve and Text clipping Algorithms	Understanding
C216.2	Compare Parallel and Perspective projections	Understanding
C216.3	Develop various outputs by using Graphics programming	Applying
C216.4	Select models among lighting/shading	Understanding
C216.5	Classify Fractals and iterated functions	Understanding
C216.6	Understand to add Surface texture and create objects using Boolean operations	Understanding

Co.No	Subject: Data Structures through C++ Lab	Taxonomy Level
C217.1	Implement and test the functionality of data structures like stacks, queues and Linked list.	Applying
C217.2	Implement and test the functionality of searching and sorting techniques.	Applying
C217.3	Implement and test the functionality of trees and graph traversal techniques.	Applying



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Co.No.	Subject: Python Programming Lab	Taxonomy Level
C218.1	Write, test and debug python programs.	Understanding
C218.2	Use Conditional and loops for python programs.	Understanding
C218.3	Use functions and represent compound data using Lists, Tuples and Dictionaries.	Applying

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Department of Computer Science and Engineering

Year: II

Regulation: R16

Academic Year: 2018-19

Sem: II

Co.No	Subject: Software Engineering	Taxonomy Level
C221.1	Understand the need of Software Life Cycle Models.	Understanding
C221.2	Demonstrate the Requirements of the Software Systems process.	Remembering
C221.3	Summarize the system models of software engineering.	Understanding
C221.4	Choose appropriate software architecture style for real-time software projects.	Understanding
C221.5	Analyze various testing techniques.	Analyzing
C221.6	Analyze Risk management and Software quality of the software products.	Analyzing

Co.No	Subject: Java Programming	Taxonomy Level
C222.1	Demonstrate the object-oriented concepts, java program structure and its installation.	Understanding
C222.2	Implement of java programming constructs, control structures in Java Programming Constructs.	Applying
C222.3	Implement Object oriented constructs such as various class hierarchies, interfaces and exception handling.	Applying
C222.4	Explain the Thread concepts and I/O in Java.	Understanding
C222.5	Execute how to build dynamic user interfaces using applets and Event handling in java.	Applying
C222.6	Make use of various components of Java AWT and Swing and writing code snippets.	Applying



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Co.No	Subject: Advanced Data Structures	Taxonomy Level
C223.1	Explain basic static and dynamic data structures and relevant standard algorithms for them:set,lists, dictionaries and hash tables.	Understanding
C223.2	Solve problem involving graphs, trees and heaps.	Applying
C223.3	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data on Ques and Heaps.	Applying
C223.4	Demonstrate bugs in program, recognise needed basic operations with non-linear data structures.	Understanding
C223.5	Define efficiency and complexities in different sorting techniques.	Understanding
C223.6	Explain data structure impact on algorithms, program design and program performance.	Understanding

Co.No	Subject: Computer Organization	Taxonomy Level
C224.1	Demonstrate a view of computer system from user's perspective and representation of data.	Understanding
C224.2	Outline the RTL, Micro-operations and Basic Computer Organization and design.	Remembering
C224.3	Outline the Central processing Unit and Micro-programmed Control.	Remembering
C224.4	Understand the arithmetic operations of positive and negative numbers in a computer.	Understanding
C224.5	Illustrate different hardware components associated with the memory organization of a computer.	Remembering
C224.6	Understand the inputs, operations and outputs performed in a computer.	Understanding



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Department of Computer Science and Engineering

Co.No	Subject: Formal Languages and Automata Theory	Taxonomy Level
C225.1	Explain Deterministic, Non-Deterministic and Mealy and Moore Machines.	Understanding
C225.2	Describe about Finite Automata, Regular Grammar and Regular Expressions.	Understanding
C225.3	Discuss about Context Free Grammar and its applications.	Understanding
C225.4	Demonstrate Pushdown Automata.	Applying
C225.5	Demonstrate of Turing Machine.	Applying
C225.6	Apply the Decidable and Undecidable of Problems arise in Computer Science.	Applying

Co.No	Subject: Principles of Programming Languages	Taxonomy Level
C226.1	Describe syntax and semantics of programming languages.	Understanding
C226.2	Explain data, data types, and basic statements of programming languages.	Remembering
C226.3	Design and implement subprogram constructs, Apply object - oriented concurrency, and event handling programming constructs.	Applying
C226.4	Develop programs in Scheme, ML, and Prolog.	Applying
C226.5	Understand and adopt new programming languages.	Understanding
C226.6	Describe logic programming.	Understanding

Co.No	Subject: Advanced Data Structures Lab	Taxonomy Level
C227.1	Able to design and develop programs on trees , hashing techniques	Applying
C227.2	Able to design and develop programs using AVL trees.	Applying
C227.3	Able to design and develop programs on minimum spanning trees.	Applying



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Co.No	Subject: Java Programming Lab	Taxonomy Level
C228.1	Able to create simple mobile applications using J2ME for low constraint devices.	Applying
C228.2	Able to design and develop simple android applications for smart phones.	Applying
C228.3	Able to deploy an application in mobile stores (ex: google play store etc.)	Applying

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Department of Computer Science and Engineering

Year: III

Regulation: R16

Academic Year: 2018-19

Sem: I

Co.No	Subject: Compiler Design	Taxonomy Level
C311.1	Demonstrate stages in translators and acquire knowledge of compiler & its Phases.	Understanding
C311.2	Use grammars for specifying the syntax and construct top down parsing for given grammar.	Understanding
C311.3	Build bottom up parse table for a given grammar using LR items.	Applying
C311.4	Generate intermediate code for given program.	Applying
C311.5	Understand symbol table management and machine code generation for a given program and use peep hole optimization on machine code.	Understanding
C311.6	Apply machine independent code optimization techniques to improve the performance of a program.	Applying

Co.No	Subject: Unix Programming	Taxonomy Level
C312.1	Define Basic Components and commands in UNIX Operating System.	Remembering
C312.2	Illustrate different File permission in UNIX Operating System.	Understanding
C312.3	Construct Shell Programs using shell commands.	Applying
C312.4	Demonstrate different Grep Family in UNIX Operating system.	Understanding
C312.5	Build and Debug Shell Script in Unix operating.	Understanding
C312.6	Select Different Process Types in UNIX Operating System.	Applying



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Co.No	Subject: Object Oriented Analysis and Design using UML	Taxonomy Level
C313.1	Apply complex system using object-oriented approach.	Applying
C313.2	Build the class diagram with responsibilities and state using UML notation.	Applying
C313.3	Identify the events, classes and responsibilities of the problem domain.	Understanding
C313.4	Describe basic Interactions, Use cases of the problem domain.	Understanding
C313.5	Implement various states and advanced behavioral modeling using UML notation.	Applying
C313.6	Classify components and nodes of the problem domain.	Understanding

Co.No	Subject: Database Management Systems	Taxonomy Level
C314.1	Demonstrate Data Base with different applications of DBMS.	Understanding
C314.2	Identifies the entity, attributes, Relationships and keys in various Data Models.	Understanding
C314.3	Utilize relational algebra concepts like selection, projection, relational calculus which helps in understanding queries.	Applying
C314.4	Experiment ddl, dml commands etc by writing queries in standard language of relational databases.	Applying
C314.5	Develop various advance SQL queries related to Transaction Processing & Locking using concept of Concurrency control.	Applying
C314.6	Analyse indexing mechanisms for efficient retrieval of information from a database.	Analysing



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Co.No	Subject: Operating Systems	Taxonomy Level
C315.1	Explain the structure of OS and basic architectural components involved in OS.	Understanding
C315.2	Implement various process scheduling algorithms.	Applying
C315.3	Compare and contrast various memory management schemes.	Remembering
C315.4	Implement deadlock prevention and avoidance algorithms.	Applying
C315.5	Implement prototype file system.	Applying
C315.6	Explain administrative tasks on Linux servers and android internals.	Understanding

Co.No	Subject: Unified Modeling Lab	Taxonomy Level
C316.1	Able to understand the case studies and design the model.	Applying
C316.2	Able to understand how design patterns solve design problems.	Applying
C316.3	Able to develop design solutions using creational patterns.	Applying

Co.No	Subject: Operating System & Linux Programming Lab	Taxonomy Level
C317.1	Implement various CPU Scheduling algorithms.	Applying
C317.2	Develop Multiprogramming-Memory management Implementation	Applying
C317.3	Construct deadlock, prevention and avoidance algorithms.	Applying
C317.4	Implement Different page replacement algorithms.	Applying
C317.5	Execute basic shell control of the utilities	Applying
C317.6	Solve problems using bash for shell scripting	Applying



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Co.No	Subject: Database Management System Lab	Taxonomy Level
C318.1	Able to Understand, appreciate and effectively explain the underlying concepts of database technologies.	Understanding
C318.2	Able to Design and implement a database schema for a given problem-domain.	Applying
C318.3	Able to Normalize a database.	Understanding
C318.4	Able to Populate and query a database using SQL DML/DDI commands.	Applying
C318.5	Able to Declare and enforce integrity constraints on a database using a state-of-the-art RDBMS.	Applying
C318.6	Able to use Programming, PL/SQL including stored procedures, stored functions, cursors, packages.	Applying

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Department of Computer Science and Engineering

Year: III Regulation: R16 Academic Year: 2018-19 Sem: II

Co.No	Subject: Computer Networks	Taxonomy Level
C321.1	Outline the basic concepts of reference models and Identify the functionality of physical layer in computer communications.	Understanding
C321.2	Explain various physical layer transmission techniques.	Understanding
C321.3	Examine the data link layer design issues.	Understanding
C321.4	list various data link access methods and network layer functions.	Understanding
C321.5	outline the IEEE 802.11 standards.	Understanding
C321.6	Examine various application layer functionalities.	Understanding

Co.No	Subject: Data Warehousing and Mining	Taxonomy Level
C322.1	Understand the data warehouse principles, data mining concepts and working.	Understanding
C322.2	Understand various data pre-processing procedures and their application.	Understanding
C322.3	Discuss the general approach to solve Classification problem.	Applying
C322.4	Understand the alternative techniques of Classification.	Understanding
C322.5	Discuss basic concepts and algorithms of Association analysis.	Applying
C322.6	Understand the basic concepts and algorithms of Cluster Analysis.	Understanding



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Co.No	Subject: Design and Analysis of Algorithms	Taxonomy Level
C323.1	Explain the fundamentals for analysing time and space complexity of algorithms.	Remembering
C323.2	Apply divide and conquer technique to solve real time problems related to computing.	Applying
C323.3	Use greedy technique to solve problems on optimization like minimum spanning tree.	Applying
C323.4	Make use of dynamic programming paradigm for solving problems like knapsack, matrix multiplication and optimal binary search tree.	Applying
C323.5	Illustrate backtracking with applications on n-queen problem sum of subsets problem, and graph colouring.	Understanding
C323.6	Explain branch and bound paradigm with Travelling sales person problem and 0/1 knapsack problem.	Applying

Co.No	Subject: Software Testing Methodologies	Taxonomy Level
C324.1	Understand the basic testing procedure for Path testing.	Understanding
C324.2	Understand the basic testing procedures for Dataflow testing and Transaction Flow.	Understanding
C324.3	Understand the basic testing procedures for Domain testing.	Understanding
C324.4	Understand the basic testing procedures for syntax testing.	Understanding
C324.5	Understand the basic testing procedures for Logic based Testing.	Understanding
C324.6	Apply tools to resolve the problems in Real Time Environment.	Applying

Co.No	Subject: Internet of Things	Taxonomy Level
C325.1	Interpret the concepts of Internet of Things.	Understanding
C325.2	Determine the market perspective of IOT.	Understanding
C325.3	Analyze basic protocols in Web Communication.	Analysing
C325.4	Analyze and evaluate protocols used in IOT.	Analysing
C325.5	Design IOT applications in different domain and be able to analyze their performance.	Applying
C325.6	Implement basic IOT applications on embedded platform.	Applying



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Co.No	Subject: Network Programming Lab	Taxonomy Level
C326.1	Able to understand and explain the basic concepts of Grid Computing	Understanding
C326.2	Able to explain the advantages of using Grid Computing within a given environment.	Understanding
C326.3	Able to prepare for any upcoming Grid deployments and be able to get started with a potentially available Grid setup.	Applying
C326.4	Able to discuss some of the enabling technologies e.g. high-speed links and storage area networks.	Understanding
C326.5	Able to build computer grids.	Applying

Co.No	Subject: Software Testing Lab	Taxonomy Level
C327.1	Able to find practical solutions to the problems.	Applying
C327.2	Able to solve specific problems alone or in teams.	Applying
C327.3	Able to manage a project from beginning to end.	Applying
C327.4	Able to work independently as well as in teams.	Applying
C327.5	Able to define, formulate and analyze a problem.	Understanding

Co.No	Subject: Data Warehousing and Mining Lab	Taxonomy Level
C328.1	Able to understand the data mining process and important issues around data cleaning, pre-processing and integration.	Applying
C328.2	Able to understand the principle, algorithms and techniques used in data mining such as Clustering, association mining, classification and prediction.	Applying


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Year: IV Regulation: R13 Academic Year: 2018-19 Sem: I

Co.No	Subject: Cryptography and Network Security	Taxonomy Level
C411.1	Able to understand the basic security goals of cryptography and security networks.	Understanding
C411.2	Able to understand issues in symmetric key and cryptography.	Understanding
C411.3	Able to think and analyze the different techniques in asymmetric encryption.	Analyzing
C411.4	Able to understand the basics of data integrity and digital signature key management.	Understanding
C411.5	Apply the knowledge of data integrity.	Applying
C411.6	Able to learn management of key functions.	Understanding

Co.No	Subject: UML & Design Patterns	Taxonomy Level
C412.1	To understand interrelationships, principles and guidelines governing architecture and evolution over time.	Understanding
C412.2	To understand various architectural styles of software systems.	Understanding
C412.3	To understand design patterns and their underlying object-oriented concepts.	Understanding
C412.4	To understand implementation of design patterns and providing solutions to real-world software design problems.	Understanding
C412.5	To understand patterns with each other and understanding the consequences of combining patterns on the overall quality of a system.	Understanding
C412.6	Implement basic applications of SADP.	Applying



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Co.No	Subject: Mobile Computing	Taxonomy Level
C413.1	Able to understand the basics of mobile computing, radio interface, GSM & GPRS.	Understanding
C413.2	Able to understand issues in MAC Layer.	Understanding
C413.3	Able to think and analysis the different techniques in Network Layer.	Analyzing
C413.4	Able to think and analyze the different techniques mobile transport layer and data base issues.	Analyzing
C413.5	Able to understand the basics of Data Delivery Mechanism in Mobile computing.	Understanding
C413.6	Able to think and develop new mobile applications.	Applying

Co.No	Subject: Software Testing Methodologies	Taxonomy Level
C414.1	Have an ability to apply software testing knowledge and engineering methods.	Understanding
C414.2	Have an ability to design and conduct a software test process for a software testing project.	Creating
C414.3	Have an ability to identify the needs of software test automation, and define and develop a test tool to support	Analyzing
C414.4	test automation.	Applying
C414.5	Have an ability understand and identify various software testing problems, and solve these problems by	Understanding
C414.6	designing and selecting software test models, criteria, strategies, and methods.	Applying



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Co.No	Subject: Hadoop & Big Data	Taxonomy Level
C415.1	provide a strong foundation on concept of simulation, and modeling.	Understanding
C415.2	understand the techniques of random number generations.	Understanding
C415.3	understand the techniques of testing randomness.	Understanding
C415.4	design simulation models for various case studies like inventory, traffic flow networks, etc.	Applying
C415.5	practice on simulation tools and impart knowledge on building simulation systems.	Applying

Co.No	UML & Design Patterns Lab	Taxonomy Level
C416.1	Able to understand interrelationships, principles and guidelines governing architecture and evolution over time.	Understanding
C416.2	Able to analyze the architecture and build the system from the components.	Analyzing
C416.3	Able to prepare creational patterns that deal with object creation mechanisms, trying to create objects in a manner suitable to the situation.	Applying
C416.4	Able to prepare structural patterns that ease the design by identifying a simple way to realize relationships among entities.	Understanding
C416.5	Able to learn behavioral patterns that identify common communication patterns between objects and realize these patterns.	Understanding
C416.6	Able to classify various case studies.	Understanding



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Co.No	Subject: Mobile Application Development Lab	Taxonomy Level
C417.1	Create simple mobile applications using J2ME for low constraint devices	Apply
C417.2	Design and Develop simple android applications for smart phones	Apply
C417.3	Deployment of application in mobile stores(ex: google playstore etc.)	Apply
C417.4	Improve individual / team work skills, communication & report writing skills	Understand

Co.No	Subject: Software Testing Lab	Taxonomy Level
C418.1	Investigate the reason for bugs and analyze the principles in software testing to prevent and remove bugs.	Analysis
C418.2	Design and manage test planning process	Apply
C418.3	Apply the software testing techniques in commercial environment	Apply
C418.4	Improve individual / team work skills, communication & report writing skills	Understand

Co.No	Subject: Hadoop Lab	Taxonomy Level
C419.1	Program applications using tools like Hive, pig, , NO SQL and MongoDB for Big data Applications	Apply
C419.2	Implement algorithms for Clustering, Classifying and finding associations in Big Data	Apply
C419.3	Design and implement algorithms to analyze Big data like streams, Web Graphs and Social Media data and construct recommendation systems.	Apply
C419.4	Improve individual / team work skills, communication & report writing skills	Apply


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Year: IV Regulation: R13 Academic Year: 2018-19 Sem: II

Co.No	Subject: Human Computer Interaction	Taxonomy Level
C421.1	Understand the basics of an embedded system	Understanding
C421.2	Program an embedded system	Analyzing
C421.3	Design, implement and test an embedded system.	Applying
C421.4	Identify the unique characteristics of real-time systems	Analyzing
C421.5	Explain the general structure of a real-time system	Understanding
C421.6	Define the unique design problems and challenges of real-time systems	Applying

Co.No	Subject: Cloud Computing	Taxonomy Level
C422.1	Interpret the main concepts, key technologies, strengths, and limitations of cloud computing and the possible applications for state-of-the-art cloud computing.	Understanding
C422.2	Build the levels of virtualization, structure, memory and I/O devices and data centres.	Understanding
C422.3	Apply the architecture and infrastructure of cloud computing, including Saas, PaaS, IaaS, public cloud, private cloud and hybrid cloud to different problems.	Applying
C422.4	Analyze case studies to derive the best practice model to apply when developing and deploying cloud based applications.	Analyzing
C422.5	Apply the resource management skills in theory and applications related to cloud computing.	Applying
C422.6	Explain the storage technologies in File system in Cloud environment.	Understanding



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Co.No	Subject: Distributed Systems	Taxonomy Level
C423.1	Explain the building blocks of distributed system.	Understanding
C423.2	Implement the inter process communication using java programs.	Understanding
C423.3	Implement the RMI communication for distributed environment.	Understanding
C423.4	Explain the OS supports, process and threading.	Understanding
C423.5	Explain the distributed file system.	Understanding
C423.6	Explain distributed deadlock transaction and replication.	Understanding

Co.No	Subject: Management Science	Taxonomy Level
C424.1	Understand the basic concepts of management science.	Understanding
C424.2	Distinguish all functional management.	Remembering
C424.3	Analyze operations management.	Analyzing
C424.4	Analyze real project management and solve PERT and CPM.	Analyzing
C424.5	Understand the management strategic management.	Understanding
C424.6	Discuss contemporary management practices.	Understanding



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Co.No	Subject: Project	Taxonomy Level
C425.1	Summarize the contemporary scholarly literature, activities, and explored tools for hands-on in the respective project area.	Understanding
C425.2	List out the specific requirements to develop the workable solution for the identified computing problem.	Analyzing
C425.3	Develop a workable computing solution for the identified problem.	Applying
C425.4	Evaluate the performance of the developed solution.	Evaluating
C425.5	Compile the results and findings of the project in written and verbal formats.	Creating
C425.6	Summarize the contemporary scholarly literature, activities, and explored tools for hands-on in the respective project area.	Understanding


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