SRI SAI RAM ENGINEERING COLLEGE
DEPARTMENT OF COMPUTER SCINECE AND ENGINEERING
CRITERIA 3
2017 REGULATION
COURSE OUTOMES

Semester :		III
Sub Code :		CS8351
Sub Name:		DIGITAL PRINCIPLES AND SYSTEM DESIGN

1	Simplify Boolean functions using Kmap.	K2
2	Design and Analyze Combinational Circuits.	K6
3	Design and Analyze Sequential Circuits.	K6
4	Implement designs using Programmable Logic Devices.	K2
5	Write HDL code for combinational and Sequential Circuits.	K3

Semester :		III			
Sub Code :		CS8391			
Sub Name:		DATA STRUCTURES			

1	Understand the concept of abstract data type and its types.		
2	Analyze the applications of linear data structure using Stack and Queue implementation.		
3	Apply the basic concepts of the Non Linear Data Structure - Trees and Graph		
4	Illustrate the various sorting algorithms with examples		
5	Define the various hash functions and its implementation		

Semester : III					
Sub Code : CS8392					
Sub Name: OBJECT ORIENTED PROGRAMMING					

1	Comprehend Object Oriented Programming Concepts in Java .(K2)		

2	Apply the Object Oriented Programming Concepts such as inheritance and interfaces to develop the reusable Appl
3	Illustrate the object oriented applications using Java Exceptions and I/O Streams.(K4)
4	Understand Multi-threading and Generic Classes in Java (K2)
5	Apply AWT and Swing package to develop Graphical User Interface Applications.(K3)

Semester : III	
Sub Code : CS8381	
Sub Name: DATA STRUCTURES LABORATORY	

1	Apply Linear data structures using C programs (stack, Queue and Linked List) (K3)
2	Explain applications of Linear data stru tures. (K2)
3	Apply the concepts of Non linear data structures using C programs (Tree, Graph) (K3)
4	Develop the applications of tree (traversal, sorting and searching) (K6)
5	Experiment with the applications of Graph Hashing collision techniques (K3)

Semester :	III
Sub Code :	CS8382
Sub Name:	DIGITAL SYSTEMS LAB

1	Implement simplified combinational circuits using basic logic gates
2	Implement combinational circuits using MSI devices
3	Implement sequential circuits like counters and shift registers
4	Simulate combinational and sequential circuits in HDL
5	Design and implementation of a simple digital system

Semester : III

Sub Code : CS8383					
Sub Name: OBJECT ORIENTED PROGRAMMING LAB					

1	Develop and implement Java programs for simple applications that make use of classes(K1)	
2	Develop and implement Java programs for simple applications that make use of packages and interfaces. (	
3	Develop and implement Java programs with array list, exception handling and multithreading (K1)	
4	Design applications using generic programming and event handling. (K6)	
5	Understand the JAVA SWING Concepts to Design GUI applications. (K2)	

Semester :		IV					
Sub Code :		CS8492					
Sub Name:		Database Management Systems					

1	Discuss the concepts of database to apply the Relational,ER model for design and SQL for implementation of the
2	Recognize and identify the use of normalization and functional dependencies to refine the database system.
3	Execute various SQL queries for the Transaction Processing & Locking using concept of Concurrency control.
4	Evaluate the query processing techniques for the optimization of SQL queries.
5	Implement the indexing and hashing techniques and Analyse advanced databases differ from the traditional

Semester :		IV					
Sub Code :		CS8451					
Sub Name:		DESIGN AND ANALYSIS OF ALGORITHMS					

1	To Review the fundamentals of algorithmic problem solving and analyzing efficiency of algorithms. (K2)	
2	To Apply mathematical formulation, complexity analysis and methodologies to solve recurrence relations for algor	
3	To Compare the time complexities of various algorithms.(K4)	
4	To Critically analyze the different algorithm design techniques for a given problem.(K4)	
5	To Illustrate NP class problems and formulate solutions using standard approach.(K4)	

Semester :	IV			

Sub Code :	CS8491			
Sub Name:	**COMPUTER ARCHITECTURE**			

	1	Evaluate performance of the Computer System and decode machine language
	2	Design arithmetic and logic unit
	3	Design and analyze pipelined control units
	4	Understand parallel processing architectures.
	5	Evaluate the performance of memory and IO systems.

Semester :	IV					
Sub Code :	CS8492					
Sub Name:	**Database Management Systems**					

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	3	Execute various SQL queries for the Transaction Processing & Locking using concept of Concurrency control.
	4	Evaluate the query processing techniques for the optimization of SQL queries.
	5	Implement the indexing and hashing techniques and Analyse advanced databases differ from the traditional

Semester :	IV			
Sub Code :	CS8493			
Sub Name:	OPERATING SYSTEMS			

CO1	Understand the basic concepts and functionality of operating system. (K2)
CO2	Understand the process concepts, analysing the performance of various CPU Scheduling algorithmsm, threads and dead lock management.(K2)
CO3	Compare and contrast various memory management schemes. (K5)
CO4	Understand file management and various I/O systems (K2)
CO5	Demonstrate Linux system and mobile OS like ios and Android. (K3)

Semester :	IV			

Sub Code :	CS8494			
Sub Name:	SOFTWARE ENGINEERING			

	1	Identify the key activities in managing a software project and understand the agile methodology	
	2	Analyze different process models and apply to real world problems	
	3	Understand the concepts of requirements engineering and Analysis Modeling.	
	4	Apply systematic procedure for software design and deployment.	
	5	Compare and contrast various testing and maintenance methods.	

Semester :	IV				
Sub Code :	CS8461				
Sub Name:	**OPERATING SYSTEMS LABORATORY**				

CO1	Evaluate the performance of various CPU Scheduling Algorithms (K4)
CO2	Understand and Implement Deadlock avoidance and Deadlock Detection Algorithms (K2)
CO3	Create processes and implement IPC, Analyze and Implement Semaphores (K5)
CO4	Analyze the performance of the various Page Replacement Algorithms (K4)
CO5	Implement File Organization and File Allocation Strategies (K5)

Semester :		IV				
Sub Code :		**CS8481**				
Sub Name:		**Database Management Systems Laboratory**				

	1	Use typical data definitions and manipulation commands.
	2	Design applications to test Nested and Join Queries
	3	Implement simple applications that use Views
	4	Implement applications that require a Front-end Tool
	5	Critically analyze the use of Tables, Views, Functions and Procedures

Semester :		V				
Sub Code :		CS8501				
Sub Name:		THEORY OF COMPUTATION				

1	Design automata for any given pattern		
2	Specify regular expression of string pattern		
3	Write context free grammar for any language		
4	Apply Turing machine to propose computation solutions		
5	Interpret whether a problem is decidable or not		
6	Interpret NP class problems		

Semester :		V		
Sub Code :		CS8591		
Sub Name:		COMPUTER NETWORKS		

1	Understand the concepts of protocol layering and its functions in computer networks.	
2	Analyze the performance of a network in various transmission medium.	
3	Discuss various protocols in TCP/IP protocol layers and connecting devices to build network	
4	Understand the basics of how data flows from one node to another.	
5	Classify IP addresses,Wired and Wireless LAN	
6	Analyse various Routing protocols	

Semester :		V				
Sub Code :		CS8592				
Sub Name:		OBJECT ORIENTED ANALYSIS AND DESIGN				

	At the end of the course, the students will be able to:
1	Understand the fundamentals of Unified Process, Use cases and UML diagrams.(K2)

2	Develop Domain model ,Class diagram and Use case diagram (K6)
3	Understand dynamic UML diagrams (K2)
4	Design dynamic UML diagrams(K6)
5	Apply design patterns to improve software design (K3)
6	Understand the concepts of SQA and the various testing methodologies for OO software(K2)

Semester :	V
Sub Code :	**OEC552**
Sub Name:	**SOFT COMPUTING**

	At the end of the course, the students will be able to:
1	Describe various soft computing concepts for building practical applications (K2)
2	Review the concepts of neural networks and its algorithms to address real time problems (K2)
3	Apply fuzzy rules and reasoning to develop decision making and expert system (K3)
4	Classify the importance of optimization techniques and genetic programming (K4)
5	Evaluate and compare different solutions by various soft computing approaches for a given problem (K5)
6	Compose various hybrid soft computing techniques (K6)

Semester :	V
Sub Code :	CS8581
Sub Name:	NETWORKS LABORATORY

1	Understand the network commands
2	Describe Server client communication using socket.
3	Develop application using socket programming
4	Analyse and implement various network protocols.
5	Analyse various routing protocols using simulation
6	use simulation tools to analyze the performance of various network protocols. (Apply)

Semester :	V
Sub Code :	CS8582
Sub Name:	OOAD LAB

On Completion of the course, the students should be able to:		
1	Identify the problem statement (K2)	
2	Perform OO analysis to identify the requirements for the given problem specification (K2)	
3	Design and map the basic software requirements using UML(K3)	
4	Map the object oriented design to develop code(K4)	
5	Apply the design patterns to improve the software quality(K4)	
6	Test the compliance of the software with the SRS(K3)	

Semester :	V	
Sub Code :	CS8591	
Sub Name:	COMPUTER NETWORKS	

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2	Analyze the performance of a network in various transmission medium.	
3	Discuss various protocols in TCP/IP protocol layers and connecting devices to build network	
4	Understand the basics of how data flows from one node to another.	
5	Classify IP addresses,Wired and Wireless LAN	
6	Analyse various Routing protocols	

Semester :	V	
Sub Code :	CS6511	
Sub Name:	CASE TOOLS LAB	

1	Definng problem statements	
2	Understand the basics of OO concepts and implement projects .	
3	Understand the UML concepts and apply for drawing various diagrams.	
4	Applying the UML concepts for drawing diagrams using Software tools.	
5	Apply appropriate design patterns.	
6	Collaborate to Create code from design.	

Semester :	VI
Sub Code :	CS8602
Sub Name:	COMPILER DESIGN

1	Understand different phases of compiler.
2	Apply different parsing algorithms to develop the parsers for a given grammar.
3	Analyze various syntax-directed translation schemes to generate intermediate code
4	Understand different run time environment and storage organization techniques
5	Design a simple Code Generator using code generation Algorithm
6	Implement different code optimization techniques

Semester :	VI
Sub Code :	**CS8603**
Sub Name:	**Distributed Systems**

	At the end of the course, the students will be able to:		
1	Outline the foundations and issues of distributed systems (K1)		
2	Understand the clock synchronisation and message ordering (K2)		
3	Analyse the various Group Communication Techniques (K4)		
4	Illustrate the distributed mutex and deadlock detection (K3)		
5	Evaluating the various recovery and consenus techniques in distributed systems (K5)		
6	Describe the concepts of P2P and distributed shared memory (K2)		

Semester :		VI		
Sub Code :		CS8651		
Sub Name:		INTERNET PROGRAMMING		

1	Construct a basic website using HTML and Cascading Style Sheets.

	2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
	3	Develop server side programs using Servlets and JSP.
	4	Construct simple web pages in PHP
	5	Represent web data using XML and develop dynamic web pages usiing AJAX
	6	Use web services to develop interactive web applications

Semester :	VI
Sub Code :	CS8691
Sub Name:	ARTIFICIAL INTELLIGENCE

	At the end of the course, the students will be able to:
1	Understand the various characteristics of Intelligent agents and problem solving approach to AI problem.(K2)
2	Illustrate appropriate search algorithms for solving any AI problem. (K3)
3	Define the Scope of AI using various Game Playing Algorithm.(K1)
4	Interpret the knowledge representation using predicate logic concept.(K2)
5	Design software agents to solve a problem (K6)
6	Illustrate various AI applications for Natural Language Processing.(K4)

Semester :	VI
Sub Code :	CS8661
Sub Name:	INTERNET PROGRAMMING LAB

1	Construct Web pages using HTML and style sheets.
2	Build dynamic web pages with validation using Java Script objects and by applying different event handling
3	Develop dynamic web pages using server side scripting.
4	Use PHP programming to develop web applications.
5	Construct web applications using AJAX and XML
6	Develop web services in Java

Semester :	VI						
Sub Code :	CS8662						
Sub Name:	MOBILE APPLICATION DEVELOPMENT LABORATORY						

	At the end of the course, the students will be able to:	
1	Create an application that uses GUI components, Font, Colors, Layout Managers and event listeners. (K6)	
2	Apply the components and structure of mobile application development frameworks for Android and windows OS	
3	Understand how to work with various mobile application development frameworks. (K2)	
4	Apply the basic and important design concepts and issues of development of mobile applications. (K3)	
5	Classify the capabilities and limitations of mobile devices.(K4)	
6	Determine various mobile applications using emulators (K5)	

Semester :		VI	
Sub Code :		CS8611	
Sub Name:		MINI PROJECT	

1	Use literature to identify the objective, scope and the concept of the work.	k3
2	Apply suitable methods and materials to carry out experiments by conserving eco-system	k3
3	Develop a prototype/experimental set-up necessary to complete the project	k5
4	Discuss the results obtained to derive conclusions	k2
5	Defend the work by preparing a report as per the University format.	k5
6	Compile the experimental information to publish in journals/conference	k6

Semester :		VII		
Sub Code :		CS8073		
Sub Name:		C# AND .NET PROGRAMMING		

1	Understanding the basic of C# language and its advanced features.	
2	Applying the C# language in various application in the .Net Framework	

3	Understanding the concept of windows-based application	
4	Creating ADO.NET, ASP.NET, mobile applications using .NET compact framework	
5	Applying advanced concepts in data connectivity, WPF, WCF and WWF with C# and .NET.	
6	Understanding the working of base class libraries, their operations and manipulation of data using XML	

Semester :		VII				
Sub Code :		CS8079				
Sub Name:		HUMAN COMPUTER INTERACTION				

1	To explain the importance of HCI study and principles of user-centered design (UCD) approach.	
2	To develop understanding of human factors in HCI design.	
3	To discuss various models, paradigms and context of interactions.	
4	To design and evaluate effective user-interfaces following a structured and organized user-centered desi	
5	To understand and design mobile and web interfaces using tools.	
6	To illustrate the real time scenario with HCI concepts.	

Semester :		VII		
Sub Code :		CS8791		
Sub Name:		CLOUD COMPUTING		

	On Completion of the course, the students should be able to:	
1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing.	
2	Explainthe key and enabling technologies that help in the development of cloud.	
3	Demonstrate and use the architecture of compute and storage cloud, service and delivery models.	
4	Illustrate the core issues of cloud computing such as resource management and security.	
5	Install and use current cloud technologies.	
6	Build an cloud application by choosing the appropriate technologies, algorithms and approaches for	

Semester :		VII		
Sub Code :		CS8792		
Sub Name:		Cryptography and Network Security		

	On Completion of the course, the students should be able to:				
1	Discuss the mechanisms, attacks and services in security using cryptography.				
2	Apply basics of mathematics in encryption and authentication algorithms.				
3	Review the System security standards in OSI Layers.				
4	Evaluate the data integrity using Symmetric Encryption algorithms.				
5	Evaluate the data integrity based on Asymmetric Encryption algorithms.				
6	Apply Data authentications mechanism for a web based application.				

Semester :	VII
Sub Code :	CS8082
Sub Name:	MACHINE LEARNING TECHNIQUES

1	Understand the basic concepts, fundamental issues and challenges of machine learning algorithms	K2
2	Apply problem solving techniques which involve perception, reasoning and learning	K3
3	Understand Genetics and Neural Networks Algorithms	K2
4	Design and implement basic machine learning algorithms using tools.	K3
5	Use various algorithms in machine learnig applications such as Bayesian learning, Computational	K3
6	Apply appropriate machine learning algorithm to the real world problem.	K3

Semester :	VII
Sub Code :	CS8711
Sub Name:	CLOUD COMPUTING LAB

1	Configure various virtualization tools such as Virtual Box, VMware workstation.
2	Design and deploy a web application in a PaaS environment
3	Learn how to simulate a cloud environment to implement new schedulers.
4	Install and use a generic cloud environment that can be used as a private cloud.
5	Manipulate large data sets in a parallel environment.
6	Install a google app engine create a program

Semester :	VII
Sub Code :	IT8761
Sub Name:	Security Lab

1	Implement the classical substitution and transposition techniques
2	Implement the various Symmetric Key Algorithms
3	Implement the various Asymmetric Key Algorithms
4	Evaluate security mechanisms using Hash Functions
5	Implement different Digital signature algorithms
6	Use different open source tools for network security and analysis

Semester :	VIII
Sub Code :	CS8074
Sub Name:	CYBER FORENSICS

1	Understand the basics of Computer Forensics
2	Evaluate the different types of computer forensics technology
3	Analyze and validate forensics data

4	Apply the methods for data recovery, evidence collection and data seizure	
5	knowledge on duplication and preservation of digital evidence.	
6	Evaluate the different types of computer forensics tools	

Semester :		VIII
Sub Code :		CS8078
Sub Name:		GREEN COMPUTING

1	Outline green computing practices to minimize negative impacts on the environment.	
2	Apply the energy saving practice skills in Business Processes.	
3	Evaluate technology tools that can reduce paper waste and carbon footprint by the stakeholders.	
4	Describe the ways to minimize equipment disposal requirements .	
5	Analyze the issues related with Green compliance.	
6	Apply Green IT Strategies to various sectors	

Semester :		VIII
Sub Code :		GE8076
Sub Name:		Professional Ethics in Engineering

1	Describe the human values with regard to the individual life style for the society	
2	Explain the role of ethics to the engineering field	
3	Describe how engineering is applied in association with ethics based on engineering experimentation	
4	Explain the engineering ethics based safety, responsibilities and rights	
5	Discuss the global issues of professional ethics in engineering	
6	Experiment the professional ethics in engineering based product development	

Semester :		VIII
Sub Code :		IT8075
Sub Name:		Software Project Management

1	Understand Project Management principles while developing software.	
2	Gain extensive knowledge about the basic project management concepts, framework and the process models.	

3	Obtain adequate knowledge about software process models and software effort estimation techniques.	
4	Applying the network planning models and estimate the risks involved in various project activities.	
5	Define the checkpoints, project reporting structure, project progress and tracking mechanisms using project manage	
6	Learn staff selection process and the issues related to people management	

Semester :		VIII
Sub Code :		CS8811
Sub Name:		PROJECT WORK

1	State technically and economically feasible problems.			
2	Identify and survey the relevant literature for getting exposed to related solutions			
3	Analyse, design, and develop adaptable solutions using modern tools			
4	Implement and integrate framed solutions of the problem.			
5	Evaluate the solutions to trace against the user requirements.			
6	Deploy and Demonstrate the solutions for future scope for improvement.			

(K1)

ithms.(K3)

based mobiles. (K3)

gn UCD process.

ment principles.