ACHARYA INSTITUTE OF TECHNOLOGY
Department of Information Science and Engineering
Bengaluru-560107

COURSE OUTCOMES

DEPARTMENT	ISE	SEMESTER	2	COURSE CODE	18CPS13	COURSE ID	C103
COURSE TITLE		**C Programming for Problem Solving**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C103.1		Illustrate basic concepts of Computer and C programming.					
C103.2		Design the solution for the given problems and develop the same using C programming language.					
C103.3		Apply the concepts of looping, branching, and decision-making statements for a given problem.					
C103.4		Demonstrate the ability to write C programs using pointers, structures, unions and arrays.					
C103.5		Develop modular applications using C programming language.					
DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CS32	COURSE ID	C202
COURSE TITLE		**Analog and Digital Electronics**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C202.1		Describe the concepts of Analog, Digital Electronic Circuits and Hardware Description Language.					
C202.2		Explain the working of Analog Circuits, Combinational Logic, Sequential logic circuit and the Verilog Code					
C202.3		Apply the knowledge of Combinational Logic circuits, Sequential circuit to design the Data processing Circuit, Counters and Registers.					
C202.4							
C202.5							
DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CS33	COURSE ID	C203
COURSE TITLE		**Data Structures and Applications**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C203.1		Describe various types of data structures and algorithms, sorting and searching operations, hashing and file structures					
C203.2		Explain the working and operations of Stack, Queue, Lists, Trees and Graphs					
C203.3		Write programs for applications of Data structures and apply appropriate data structures for solving computing problems.					
C203.4							
C203.5							
DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CS34	COURSE ID	C204
COURSE TITLE		**Computer Organization**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					

C204.1	Identify the basic organization of a computer system
C204.2	Describe the communications among I/O devices, Basic processing unit, Memory and embedded systems
C204.3	Compute Arithmetic and Logical operations
C204.4	
C204.5	

DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CS35	COURSE ID	C205
COURSE TITLE		Unix and Shell Programming					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C205.1		Describe multiuser UNIX OS, its basic features, file I/O and Processes					
C205.2		Interpret UNIX Commands, Shell basics, and shell environments					
C205.3		Write programs using shell scripts and perl script					
C205.4							
C205.5							

DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CS36	COURSE ID	C206
COURSE TITLE		Discrete Mathematical Structures					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C206.1		Illustrate the fundamental concepts of set theory, reasoning, quantifiers, relations, counting principle, Graphs and Trees.					
C206.2		Employ the knowledge of quantifiers, relations, principle of counting, graphs and tree to solve computer application related problems.					
C206.3		Apply the different rules of inference, theory of probability, mathematical induction and principle of inclusion / exclusion to solve the problems.					
C206.4		Analyze syntax and knowledge gained by logic, functions, relation, graphs, trees and apply them to related areas for deriving the solutions.					
C206.5							

DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CSL37	COURSE ID	C207
COURSE TITLE		Analog and Digital Electronics Laboratory					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C207.1		Explain the basics of analog and digital Circuits.					
C207.2		Record the outputs and analyze the Working of the analog and digital circuits.					
C207.3		Design and implement learned circuit design to evaluate and interpret the working of Analog and Digital electronic circuits					
C207.4							
C207.5							

DEPARTMENT	ISE	SEMESTER	3	COURSE CODE	17CSL38	COURSE ID	C208
COURSE TITLE		Data Structures Laboratory					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					

C208.1		Describe the working and operations of different data structures.					
C208.2		Write programs for linear data structures, non-linear data structures, strings, files and hashing.					
C208.3		Implement appropriate data structures for solving computing problems.					
C208.4							
C208.5							
DEPARTMENT	**ISE**	**SEMESTER**	**4**	**COURSE CODE**	**17CS42**	**COURSE ID**	**C212**
COURSE TITLE		**Object Oriented Concepts**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C212.1		Describe the Object oriented programming features.					
C212.2		Implement features of Object Oriented Concepts.					
C212.3		Apply knowledge of inheritance, Exception Handling and Packaging to build Java Projects.					
C212.4		Apply concepts of Multi-Threading and event handling to enhance Java Projects.					
C212.5		Implement GUI based Java Application using Applets and Swings.					
DEPARTMENT	**ISE**	**SEMESTER**	**4**	**COURSE CODE**	**17CS43**	**COURSE ID**	**C213**
COURSE TITLE		**Design & Analysis of Algorithms**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C213.1		Explain framework for performance analysis of Algorithms					
C213.2		Describe and analyze computational solution to well-known problems like searching, sorting, graph problems etc.					
C213.3		Apply Backtracking and Branch-and- Bound techniques to solve exponential growth problems					
C213.4		Estimate the computational complexity of different algorithms.					
C213.5							
DEPARTMENT	**ISE**	**SEMESTER**	**4**	**COURSE CODE**	**17CS44**	**COURSE ID**	**C214**
COURSE TITLE		**Microprocessors and Microcontrollers**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C214.1		Explain the basic concepts of microprocessors and microcontrollers					
C214.2		Classify the different addressing modes and Instruction set of 8086 and ARM.					
C214.3		Apply relevant Instruction set of 8086 and ARM to write the Assembly Language Program.					
C214.4							
C214.5							
DEPARTMENT	**ISE**	**SEMESTER**	**4**	**COURSE CODE**	**17CS45**	**COURSE ID**	**C215**
COURSE TITLE		**Software Engineering**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					

C215.1	Describe the fundaments of software engineering principles
C215.2	Apply the software engineering lifecycle models for planning, designing and code deployment
C215.3	Analyze the techniques and tools for the different phases of overall software engineering process
C215.4	
C215.5	

DEPARTMENT	ISE	SEMESTER	4	COURSE CODE	17CS46	COURSE ID	C216

COURSE TITLE	Data Communication

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C216.1	Understand the functionalities of switching networks, architecture of different layers of wired and wireless networks
C216.2	Demonstrate the signal conversion techniques for real time scenario.
C216.3	Apply different error correction techniques for real time scenario
C216.4	Examine the difference between IPv4 and IPv6
C216.5	

DEPARTMENT	ISE	SEMESTER	4	COURSE CODE	17CSL47	COURSE ID	C217

COURSE TITLE	Design and Analysis of Algorithms Laboratory

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C217.1	Write programs to demonstrate various features of object oriented concepts.
C217.2	Implement and analyze the efficiency of Mergesort and Quicksort algorithms
C217.3	Write the programs for Greedy Technique and Dynamic programming technique algorithms
C217.4	Implement programs for Sunset-sum and Hamiltonian Cycle problem using Backtracking method
C217.5	

DEPARTMENT	ISE	SEMESTER	4	COURSE CODE	17CSL48	COURSE ID	C218

COURSE TITLE	Microprocessors and Microcontrollers Laboratory

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C218.1	Illustrate Architecture and instruction set of 8086 and ARM
C218.2	Develop Assembly Language Program in 8086 and ARM using MASM and KEIL tools respectively
C218.3	Classify the different addressing modes and Instruction set of 8086 and ARM
C218.4	Apply relevant Instruction set of 8086 and ARM to write the Assembly Language Program
C218.5	

DEPARTMENT	ISE	SEMESTER	5	COURSE CODE	15CS51	COURSE ID	C301

COURSE TITLE	Management and Entrepreneurship for IT Industry

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS

C301.1	Describe the fundamental concepts of management and outline their importance in entrepreneurship.
C301.2	Summarize the role of entrepreneurs in economic development.
C301.3	Illustrate the use of IPR and institutional support in entrepreneurship.
C301.4	Analyze the Micro and Small Enterprises
C301.5	

DEPARTMENT	ISE	SEMESTER	5	COURSE CODE	15CS52	COURSE ID	C302
COURSE TITLE		Computer Networks					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C302.1		Illustrate the protocols in various TCP/IP layers like Application, transport and network.					
C302.2		Apply network security algorithms for different applications.					
C302.3		Apply the routing, flow control and congestion control techniques for a real time scenario.					
C302.4		Compare connection oriented and connectionless services.					
C302.5		Analyze the multimedia streaming and content distribution techniques.					

DEPARTMENT	ISE	SEMESTER	5	COURSE CODE	15CS53	COURSE ID	C303
COURSE TITLE		Database Management Systems					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C303.1		Describe the fundamental concepts, Architecture, Data model and applications of database management systems					
C303.2		Explain the concepts of Relational algebra, SQL , Normalization and Online transaction processing					
C303.3		Write queries using relational algebra and SQL for the given database application					
C303.4		Design Entity-Relationship, Schema diagrams to represent simple database application scenarios					
C303.5							

DEPARTMENT	ISE	SEMESTER	5	COURSE CODE	15CS54	COURSE ID	C304
COURSE TITLE		Automata theory and Computability					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C304.1		Illustrate different types of Automata models					
C304.2		Apply different methods of formal languages in solving any given problems					
C304.3		Design Automata models in terms of deterministic and non deterministic for a given specification					
C304.4							
C304.5							

DEPARTMENT	ISE	SEMESTER	5	COURSE CODE	15CS553	COURSE ID	C305
COURSE TITLE		Advanced JAVA and J2EE					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					

C305.1		Describe Enumerations, Autoboxing, Collections, String methods, Servlets and JDBC concepts.					
C305.2		Illustrate Advanced Java concepts like Autoboxing/unboxing, Annotations, Collection Interfaces and String handling methods.					
C305.3		Apply Java Database Connectivity to bridge with database and transaction processing.					
C305.4		Demonstrate the use of Servlets and Java Server Pages in Client-Server based Web Applications.					
C305.5							
DEPARTMENT	**ISE**	**SEMESTER**	**5**	**COURSE CODE**	**15CS564**	**COURSE ID**	**C306**
COURSE TITLE		**Dot Net Frame work for Application Development**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C306.1		Recall the Syntactic constructs of Object Oriented programming concepts with C# Programming language.					
C306.2		Describe the concepts of properties, indexers and collections					
C306.3		Apply custom interfaces, Indexers, LINQ and Event Handling mechanism for developing applications.					
C306.4							
C306.5							
DEPARTMENT	**ISE**	**SEMESTER**	**5**	**COURSE CODE**	**15CSL57**	**COURSE ID**	**C307**
COURSE TITLE		**Computer Network Laboratory**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C307.1		Apply the routing, congestion control algorithms for a set of inputs.					
C307.2		Demonstrate Inter Process Communication, error detection and encryption technique.					
C307.3		Analyze the performance of wired and wireless network for different topologies using simulator.					
C307.4		Evaluate the performance of GSM and CDMA network using simulator.					
C307.5							
DEPARTMENT	**ISE**	**SEMESTER**	**5**	**COURSE CODE**	**15CSL58**	**COURSE ID**	**C308**
COURSE TITLE		**DBMS Laboratory with Mini project**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C308.1		Design an Entity Relationship diagram and relational schema for the given problem specification					
C308.2		Create and maintain tables using SQL					
C308.3		Populate and query a database using SQL DML/DDL Commands					
C308.4		Design and build a database application using SQL & front end tools					
C308.5							
DEPARTMENT	**ISE**	**SEMESTER**	**6**	**COURSE CODE**	**15CS61**	**COURSE ID**	**C311**
COURSE TITLE		**Cryptography, Network Security and Cyber Law**					

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS						
C311.1	Describe the basic concepts of Cryptography, Cyber security and the need of cyber Law						
C311.2	Demonstrate the basic cryptographic techniques and application of mathematics in cryptography.						
C311.3	Illustrate the working of Public key cryptography and Key exchange algorithms						
C311.4	Identify security threats caused by malware and propose security mechanisms like Firewall based , IDS and Access control						
C311.5	Analyze various Authentication and Key agreement protocols						
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15IS62	COURSE ID	C312
COURSE TITLE	File Structures						
COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS						
C312.1	Describe the file operations in C, C++ and Unix, Organization of data on Secondary storage devices, record structure, field structure, data access.						
C312.2	Illustrate the file structure concept like indexing, B- trees, B+ trees, hashing for storing and efficient retrieval of data from file system.						
C312.3	Compute the space requirement for storing the file on tape, disk and record distribution in hashing.						
C312.4	Design and Implement efficient file structure.						
C312.5							
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15IS63	COURSE ID	C313
COURSE TITLE	Software Testing						
COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS						
C313.1	Outline the principles of Validation, verification, Planning and monitoring the process.						
C313.2	Analyze different levels of testing.						
C313.3	Design and develop test cases for application.						
C313.4	Apply software testing techniques for proposed application.						
C313.5							
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15CS64	COURSE ID	C314
COURSE TITLE	Operating Systems						
COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS						
C314.1	Demonstrate the need for Operating Systems, Process management and Memory management.						
C314.2	Identify algorithm and solutions for Process Synchronization, Memory management and disk scheduling.						
C314.3	Apply different algorithm and methods for the efficient management of different resources.						
C314.4	Analyze the concept of multithreading and file system implementation. [						
C314.5							

DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15CS653	COURSE ID	C315
COURSE TITLE		**Operation Research**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C315.1		Illustrate various OR problem solving technique					
C315.2		Apply and solve Linear Programming Problems using various Simplex methods.					
C315.3		Analyze Optimization techniques to provide solution to nonlinear programming problems.					
C315.4		Determine Operations research problems and obtain their solutions.					
C315.5							
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15CS664	COURSE ID	C316
COURSE TITLE		**Python Application Programming**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C316.1		Describe the syntax and semantics of python programming like flow control, data structure and regular expressions.					
C316.2		Explain the syntax of object oriented programming, network programming and database query in python.					
C316.3		Write program using data structures and other constructs in python programming language					
C316.4		Write python application related to network programming, web services and databases in python.					
C316.5		Examine the different python constructs					
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15ISL67	COURSE ID	C317
COURSE TITLE		**Software Testing Laboratory**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C317.1		Describe Requirements for Any problem statement.					
C317.2		Design and Develop Test Plan.					
C317.3		Design test cases by using black box and white box techniques.					
C317.4							
C317.5							
DEPARTMENT	ISE	SEMESTER	6	COURSE CODE	15ISL68	COURSE ID	C318
COURSE TITLE		**File Structures Laboratory with Mini Project**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C318.1		Write the programs for sequential access, random access, indexing, Co-sequential matching and K-way Merging.					
C318.2		Design and Implement efficient file structure.					
C318.3							
C318.4							
C318.5							

ACHARYA INSTITUTE OF TECHNOLOGY
Department of Information Science and Engineering
Bengaluru-560107

DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15CS71	COURSE ID	C401

COURSE TITLE	Web Technology and its Applications

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C401.1	Define the basic concepts of web technology like HTML tags, CSS(Cascading style sheet), forms, etc
C401.2	Describe the structure and various elements of HTML, Cascading style sheet(CSS), JavaScript, PHP, JQary, Ajax and web services
C401.3	Implement client side programming and server side programming using languages HTML tags, CSS
C401.4	
C401.5	

DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15IS72	COURSE ID	C402

COURSE TITLE	Software Architecture & Design Patterns

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C402.1	Illustrate the working of System Analysis, MVC Architecture, and distributed systems
C402.2	Design patterns with higher performance and lower complexity
C402.3	Demonstrate various design patterns and principles
C402.4	Apply MVC architecture to different systems
C402.5	

DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15CS73	COURSE ID	C403

COURSE TITLE	Machine Learning

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C403.1	Demonstrate good understanding of the fundamental issues and challenges of machine learning in-terms of data and algorithms complexity
C403.2	Use the mathematical concepts to Solve the real-world applications of supervised, unsupervised and reinforcement learning methods
C403.3	Analyze machine learning techniques and computing environment that are suitable for the applications under consideration
C403.4	Identify appropriate models to evaluate different machine learning algorithms and methods for standard and user-defined datasets
C403.5	

DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15CS742	COURSE ID	C404

COURSE TITLE	Cloud Computing and its Applications

COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C404.1	Identify the need of cloud computing, virtualization and classify services of cloud computing.
C404.2	Illustrate existing cloud computing architecture styles, including AWS, GAE used for Industry.
C404.3	Model different cloud programming technique and methods for real time applications.

C404.4	Distinguish the usage of different type of clouds and service models.
C404.5	

DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15IS753	COURSE ID	C405
COURSE TITLE		Information Management System					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C405.1		Recognize the need, importance, role and the major strategic applications of information system in business.					
C405.2		Explain how information systems integrate and support enterprise-wide business processes and business applications.					
C405.3		Illustrate the role of IT and the different information systems in today's dynamic business decision making environment.					
C405.4		Interpret how to use information technology to solve business problems.					
C405.5		Select the suitable information technologies for implementing an information system for a real world scenario.					
DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15CSL76	COURSE ID	C406
COURSE TITLE		Machine Learning Laboratory					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C406.1		List and explain the design principles and theoretical models used in machine learning					
C406.2		Summarize and record the outputs of supervised, unsupervised & reinforcement learning algorithms					
C406.3		Develop programs for the learnt algorithms for standard & user-defined datasets using python programming language					
C406.4							
C406.5							
DEPARTMENT	ISE	SEMESTER	7	COURSE CODE	15CSL77	COURSE ID	C407
COURSE TITLE		Web Technology Lab With Mini Project					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C407.1		Explain the basic concepts of Web Technology.					
C407.2		Describe client side and Server Side scripting technologies for performing specific task.					
C407.3		Demonstrate and test the code on web browser.					
C407.4		Develop dynamic web application using HTML5, CSS,XML , JSON, JavaScript, PHP,AJAX and MYSQL					
C407.5							
DEPARTMENT	ISE	SEMESTER	8	COURSE CODE	15CS81	COURSE ID	C411
COURSE TITLE		Internet of Things and Applications					
COURSE OUTCOME NO		COURSE OUTCOME STATEMENTS					
C411.1		Describe the impact and challenges posed by IoT networks leading to new architectural models.					

C411.2		Identify the deployment of smart objects and the technologies to connect them to network.					
C411.3		Compare and contrast the role of IoT protocols for efficient network communication.					
C411.4		Appraise different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.					
C411.5							
DEPARTMENT	**ISE**	**SEMESTER**	**8**	**COURSE CODE**	**15CS82**	**COURSE ID**	**C412**
COURSE TITLE		**Big Data Analytics**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C412.1		Understand Hadoop Distributed File system and MapReduce Programming.					
C412.2		Apply Hadoop related tools for Big Data Analytics and perform basic Hadoop Administration.					
C412.3		Examine the importance of core data mining techniques for data analytics.					
C412.4		Identify the role of Business Intelligence, Data warehousing and Visualization in Decision making.					
C412.5		Evaluate different Text Mining Techniques.					
DEPARTMENT	**ISE**	**SEMESTER**	**8**	**COURSE CODE**	**15CS834**	**COURSE ID**	**C413**
COURSE TITLE		**System Modeling and Simulation**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C413.1		Describe the fundamentals of Discrete Event System simulation, General principles, Statistical models, queuing Models, Random number generation and distributions of Simulation modeling					
C413.2		Solve the problems relating to simulation examples, random numbers, random variate and input models					
C413.3		Apply different goodness of fit tests to validate system model					
C413.4		Analyze the different random number generation techniques and distribution of given input data by using the goodness of fit tests					
C413.5							
DEPARTMENT	**ISE**	**SEMESTER**	**8**	**COURSE CODE**	**15ISP85**	**COURSE ID**	**C415**
COURSE TITLE		**Project work phase II**					
COURSE OUTCOME NO		**COURSE OUTCOME STATEMENTS**					
C415.1		Demonstrate an ability to identify and formulate a hypothesis for a given problem and test through appropriate experiments.					
C415.2		Apply relevant modern tools to solve the chosen technical problem.					
C415.3		Analyze and evaluate the experimental results and propose suitable modifications to improve performance.					
C415.4		Work effectively as a member or a leader of a team.					
C415.5		Communicate technical content effectively through written report and oral presentations.					
DEPARTMENT	**ISE**	**SEMESTER**	**8**	**COURSE CODE**	**15ISS86**	**COURSE ID**	**C416**

ACHARYA INSTITUTE OF TECHNOLOGY
Department of Information Science and Engineering
Bengaluru-560107

COURSE TITLE	Seminar
COURSE OUTCOME NO	COURSE OUTCOME STATEMENTS
C416.1	Select recent advances in a specific technical field by performing a comprehensive literature survey
C416.2	Compare the different solution methods, various software tools and methods for the Identified problem
C416.3	Discuss the advantages and disadvantages of approach, along with possible future directions.
C416.4	Communicate technical content effectively through written and oral presentations
C416.5	