R. M. D. ENGINEERING COLLEGE
Kavaraipettai
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ANNA UNIVERSITY, CHENNAI
AFFILIATED INSTITUTIONS

B.E. COMPUTER SCIENCE AND ENGINEERING

REGULATIONS – 2017

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes: Upon the completion of the course, a student can able to
1	C201	MA8351	Discrete Mathematics	C201.1	Have knowledge of the concepts needed to test the logic of a program..
				C201.2	Have an understanding in identifying structures on many levels.
				C201.3	Be aware of a class of functions which transform a finite set into another finite set which relates to input and output functions in computer science.
				C201.4	Be aware of the counting principles
				C201.5	Be exposed to concepts and properties of algebraic structures such as groups, rings and fields
2	C202	CS8351	Digital Principles and Design	C202.1	Simplify Boolean functions using KMap
				C202.2	Design and Analyze Combinational and Sequential Circuits.
				C202.3	Implement designs using Programmable Logic Devices.
				C202.4	Write HDL code for combinational and Sequential Circuits.
3	C203	CS8391	Data Structures	C203.1	Implement abstract data types using arrays and linked list.
				C203.2	Apply the different linear data structures like stack and queue to various computing problems.
				C203.3	Implement different types of trees and apply them to problem solutions.

				C203.4	Discuss graph structure and understand various operations on graphs and their applicability.
				C203.5	Analyze the various sorting and searching algorithms.
				C203.6	Understand the hashing technique and hash functions.
4	C204	CS8392	Object Oriented Programming	C204.1	Develop Java programs using OOP principles
				C204.2	Develop Java programs using the concepts of inheritance and interfaces
				C204.3	Build Java applications using exceptions and I/O streams
				C204.4	Develop Java applications with threads and generics classes
				C204.5	Develop interactive Java programs using swings
5	C205	EC 8395	Communication Engineering	C205.1	Ability to comprehend and appreciate the significance and role of this course in the present contemporary world
				C205.2	Apply analog and digital communication techniques
				C205.3	Use data and pulse communication techniques.
				C205.4	Analyze Source and Error control coding.
6	C206	CS8381	Data Structures Laboratory	C206.1	Write functions to implement linear and non-linear data structure operations
				C206.2	Suggest appropriate linear / non-linear data structure operations for solving a given
				C206.3	Appropriately use the linear / non-linear data structure operations for a given problem
				C206.4	Apply appropriate hash functions that result in a collision free scenario for data storage and retrieval
7	C207	CS8383	Object Oriented Programming Laboratory	C207.1	Develop and implement Java programs for simple applications that make use of classes
				C207.2	Develop and implement Java programs with arraylist, exception handling and multithreading .
				C207.3	Design applications using file processing, generic programming and event handling

8	C208	CS8382	Digital Systems Laboratory	C208.1	Implement simplified combinational circuits using basic logic gates
				C208.2	Implement combinational circuits using MSI devices
				C208.3	Implement sequential circuits like registers and counters
				C208.4	Simulate combinational and sequential circuits using HDL
9	C209	HS8381	Interpersonal Skills/Listening &Speaking	C209.1	Listen and respond appropriately
				C209.2	Participate in group discussions
				C209.3	Make effective presentations
				C209.4	Participate confidently and appropriately in conversations both formal and informal
10	C210	MA8402	Probability and Queueing Theory	C210.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
				C210.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications
				C210.3	Apply the concept of random processes in engineering disciplines
				C210.4	Acquire skills in analyzing queueing models
				C210.5	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner
11	C211	CS8491	Computer Architecture	C211.1	Understand the basics structure of computers, operations and instructions
				C211.2	Design arithmetic and logic unit.
				C211.3	Understand pipelined execution and design control unit
				C211.4	Understand parallel processing architectures
				C211.5	Understand the various memory systems and I/O communication.
12	C212	CS8492	Database Management Systems	C212.1	Classify the modern and futuristic database applications based on size and complexity
				C212.2	Map ER model to Relational model to perform database design effectively

				C212.3	Write queries using normalization criteria and optimize queries
				C212.4	Compare and contrast various indexing strategies in different database systems
				C212.5	Appraise how advanced databases differ from traditional databases
13	C213	CS8451	Design and Analysis of Algorithms	C213.1	Participate confidently and appropriately in conversations both formal and informal
				C213.2	Analyze the time and space complexity of algorithms.
				C213.3	Critically analyze the different algorithm design techniques for a given problem
				C213.4	Modify existing algorithms to improve efficiency
14	C214	CS8493	Operating Systems	C214.1	Analyze various scheduling algorithms.
				C214.2	Understand deadlock, prevention and avoidance algorithms
				C214.3	Compare and contrast various memory management schemes
				C214.4	Understand the functionality of file systems
				C214.5	Perform administrative tasks on Linux Servers
				C214.6	Compare the Mobile Operating Systems such as iOS and Android Operating Systems
15	C215	CS8494	Software Engineering	C215.1	Identify the key activities in managing a software project
				C215.2	Compare different process models
				C215.3	Understand the concepts of requirements engineering and Analysis Modeling.
				C215.4	Apply systematic procedure for software design and deployment
				C215.5	Compare and contrast the various testing and maintenance.
				C215.6	Manage project schedule, estimate project cost and effort required
16	C216	CS8481	Database Management Systems Laboratory	C216.1	Use typical data definitions and manipulation commands.
				C216.2	Design applications to test Nested and Join Queries
				C216.3	Implement simple applications that use Views

				C216.4	Implement applications that require a Front-end Tool
				C216.5	Critically analyze the use of Tables, Views, Functions and Procedures
17	C217	CS8461	Operating Systems Laboratory	C217.1	Compare the performance of various CPU Scheduling Algorithms
				C217.2	Implement Deadlock avoidance and Detection Algorithms
				C217.3	Implement Semaphores
				C217.4	Create processes and implement IPC
				C217.5	Analyze the performance of the various Page Replacement Algorithms
				C217.6	Implement File Organization and File Allocation Strategies
18	C218	HS8461	Advanced Reading and Writing	C218.1	Write different types of essays.
				C218.2	Write winning job applications.
				C218.3	Read and evaluate texts critically.
				C218.4	Display critical thinking in various professional contexts
19	C301	MA8551	Algebra and Number Theory	C301.1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems
				C301.2	Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts
				C301.3	Demonstrate accurate and efficient use of advanced algebraic techniques
				C301.4	Demonstrate their mastery by solving non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text.
				C301.5	Apply integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject
20	C302	CS8591	Computer Networks	C302.1	Understand the basic layers and its functions in computer networks
				C302.2	Evaluate the performance of a network
				C302.3	Understand the basics of how data flows from one node to another

				C302.4	Analyze and design routing algorithm and protocols for various functions in the network Layer
				C302.5	Design protocols for various functions in the network
				C302.6	Understand the working of various application layer protocols.
21	C303	EC8691	Microprocessors and Microcontrollers	C303.1	Understand and execute programs based on 8086 microprocessor
				C303.2	Design Memory Interfacing circuits.
				C303.3	Design and interface I/O circuits
				C303.4	Design and implement 8051 microcontroller based systems.
22	C304	CS8501	Theory of Computation	C304.1	Construct automata, regular expression for any pattern
				C304.2	Write Context free grammar for any construct
				C304.3	Design Turing machines for any language
				C304.4	Develop computation solutions using Turing machines.
				C304.5	Derive whether a problem is decidable or not
23	C305	CS8592	Object Oriented Analysis and Design	C305.1	Derive whether a problem is decidable or not
				C305.2	Design software applications using OO concepts
				C305.3	Identify various scenarios based on software requirements
				C305.4	Transform UML based software design into pattern based design using design patterns
				C305.5	Understand the various testing methodologies for OO software
24	C306	OCE552	Geographic Information System	C306.1	Have basic idea about the fundamentals of GIS.
				C306.2	Understand the types of data models.
				C306.3	Gain knowledge on data quality and standards.
				C306.4	Get knowledge about data input and topology.
				C306.5	Understand data management functions and data output

25	C307	EC8681	Microprocessors and Microcontrollers Laboratory	C307.1	Write ALP Programs for fixed and Floating Point and Arithmetic operations
				C307.2	Interface different I/Os with processor
				C307.3	Generate waveforms using Microprocessors
				C307.4	Execute Programs in 8051
				C307.5	Explain the difference between simulator and Emulator
26	C308	CS8582	Object Oriented Analysis and Design Laboratory	C308.1	Perform OO analysis and design for a given problem specification
				C308.2	Identify and map basic software requirements in UML mapping
				C308.3	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns
				C308.4	Test the compliance of the software with the SRS
27	C309	CS8581	Networks Laboratory	C309.1	Implement various protocols using TCP and UDP.
				C309.2	Compare the performance of different transport layer protocols.
				C309.3	Use simulation tools to analyze the performance of various network protocols.
				C309.4	Analyze various routing algorithms.
				C309.5	Implement error correction codes
28	C310	CS8651	Internet Programming	C310.1	Construct a basic website using HTML and Cascading Style Sheets.
				C310.2	Build dynamic web page with validation using Java Script objects and by applying different event handling mechanisms.
				C310.3	Develop server side programs using Servlets and JSP
				C310.4	Construct simple web pages in PHP and to represent data in XML format.
				C310.5	Use AJAX and web services to develop interactive web applications
29	C311	CS8691	Artificial Intelligence	C311.1	Use appropriate search algorithms for any AI problem
				C311.2	Represent a problem using first order and predicate logic

				C311.3	Provide the apt agent strategy to solve a given problem
				C311.4	Design software agents to solve a problem
				C311.5	Design applications for NLP that use Artificial Intelligence
30	C312	CS8601	Mobile Computing	C312.1	Explain the basics of mobile telecommunication systems
				C312.2	Illustrate the generations of telecommunication systems in wireless networks
				C312.3	Determine the functionality of MAC, network layer and Identify a routing protocol for a given Ad hoc network
				C312.4	Explain the functionality of Transport and Application layers
				C312.5	Develop a mobile application using android/blackberry/ios/Windows SDK
31	C313	CS8602	Compiler Design	C313.1	Understand the different phases of compiler.
				C313.2	Design a lexical analyzer for a sample language.
				C313.3	Apply different parsing algorithms to develop the parsers for given grammar.
				C313.4	Understand syntax-directed translation and run-time environment.
				C313.5	Learn to implement code optimization techniques and a simple code generator.
				C313.6	Design and implement a scanner and a parser using LEX and YACC tools.
33	C314	CS8603	Distributed Systems	C314.1	Explain the foundations and issues of distributed systems
				C314.2	Understand the various synchronization issues and global state for distributed systems

				C314.3	Understand the Mutual Exclusion and Deadlock detection algorithms in distributed systems
				C314.4	Describe the agreement protocols and fault tolerance mechanisms in distributed systems
				C314.5	Describe the features of peer-to-peer and distributed shared memory systems
34	C315	IT8076	Software Testing	C315.1	Understand the impact of defects in software development process
				C315.2	Design test cases suitable for a software development for different domains
				C315.3	Identify suitable tests to be carried out
				C315.4	Prepare test planning based on the document
				C315.5	Develop and validate a test plan
				C315.6	Document test plans and test cases designed
35	C316	CS8661	Internet Programming Laboratory	C316.1	Construct Web pages using HTML/XML and style sheets.
				C316.2	Build dynamic web pages with validation using Java Script objects and by applying different event handling mechanisms.
				C316.3	Develop dynamic web pages using server side scripting.
				C316.4	Use PHP programming to develop web applications.
				C316.5	Construct web applications using AJAX and web services
36	C317	CS8662	Mobile Application Development Laboratory	C317.1	Develop mobile applications using GUI and Layouts.
				C317.2	Develop mobile applications using Event Listener.
				C317.3	Develop mobile applications using Databases.
				C317.4	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multi- threading and GPS.
				C317.5	Analyze and discover own mobile app for simple needs.
37	C318	HS8581	Professional Communication	C318.1	Make effective presentations
				C318.2	Participate confidently in Group Discussions.

				C318.3	Attend job interviews and be successful in them
				C318.4	Develop adequate Soft Skills required for the workplace
38	C319	CS8611	Mini Project	C319.1	Identify the problem domain, collect and review the literature, and define the problem
				C319.2	Analyse the engineering problems and apply appropriate modern software tools/technologies
				C319.3	Develop creative solutions to problems and conceive innovative approaches in developing and designing of software systems for the development of society and the engineering profession
				C319.4	Analyses the impact of professional engineering solutions on ethics, society, and the environment as a responsible software professional or team player.
				C319.5	Write high quality engineering documents that can be understandable by both technical and nontechnical people.
				C319.6	Understand the need for further knowledge and continuously work on improving own knowledge through learning latest tools and technologies used in the field of IT/ITES

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IV YEAR – SEMESTER VII

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39	C401	MG8591	Principles Of Management	C401.1	Understand the basic principles of Management
				C401.2	Apprehend the planning process in the organization
				C401.3	Realize the concept of organization
				C401.4	Demonstrate the ability to directing, leadership and communicate effectively
				C401.5	Analysis isolate issues and formulate best control methods.
				C401.6	Understand the Practical Importance of Management Skills
40	C402	CS8792	Cryptography And Network Security	C402.1	Understand the fundamentals of networks security, security architecture, threats and vulnerabilities

				C402.2	Apply the different cryptographic operations of symmetric cryptographic algorithms
				C402.3	Apply the different cryptographic operations of public key cryptography
				C402.4	Apply the various Authentication schemes to simulate different applications.
				C402.5	To understand various Security practices and System security standards
41	C403	CS8791	Cloud Computing	C403.1	Articulate the main concepts, key technologies, strengths and limitations of cloud computing
				C403.2	Learn the key and enabling technologies that help in the development of cloud
				C403.3	Develop the ability to understand and use the architecture of compute and storage cloud, service and delivery models
				C403.4	Explain the core issues of cloud computing such as resource management and security
				C403.5	Be able to install and use current cloud technologies
				C403.6	Evaluate and choose the appropriate technologies, algorithms and approaches for implementation and use of cloud
42	C404	OME752	Supply Chain Management	C404.1	Understand fundamental supply chain management concepts..
				C404.2	Understand the design factors and various design options of distribution networks in industries
				C404.3	Understand the framework of supply chain networks and functions
				C404.4	Understand the foundational role of logistics as it relates to transportation and warehousing.
				C404.5	Understand the various sourcing decisions in supply chain
				C404.6	Understand the supply chain management in IT industries
43	C405	CS8079	Human Computer Interaction	C405.1	Design effective dialog for HCI
				C405.2	Design effective HCI for individuals and persons with disabilities

				C405.3	Assess the importance of user feedback
				C405.4	Explain the HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.
				C405.5	Develop meaningful user interface
44	C406		Project Based Experiential Learning Program (Nalaiya Thiran)	C406.1	Identify the appropriate problem to be solved
				C406.2	Identify the relevant literature for getting exposed to related solutions
				C406.3	Analyse, design and develop adaptable and reusable solutions and select software tools for implementation
				C406.4	Exhibit Ethical principles in engineering practices
				C406.5	Perform task as an individual and /or a team member to manage the task in time
				C406.6	Express the engineering activities with effective presentation and report
45	C407	CS8711	Cloud Computing Laboratory	C407.1	Configure various virtualization tools such as Virtual Box, VMware workstation.
				C407.2	Design and deploy a web application in a PaaS environment.
				C407.3	Understand how to simulate a cloud environment to implement new schedulers.
				C407.4	Install and use a generic cloud environment that can be used as a private cloud.
				C407.5	Manipulate large data sets in a parallel environment
46	C408	IT8761	Security Laboratory	C408.1	Develop code for classical Encryption Techniques to solve the problems.
				C408.2	Build cryptosystems by applying symmetric and public key encryption algorithms.
				C408.3	Construct code for authentication algorithms.
				C408.4	Develop a signature scheme using Digital signature standard.
				C408.5	Demonstrate the network security system using open source tools

47	C409	GE8076	Professional Ethics In Engineering	C409.1	Create awareness on human values and apply ethics in society.
				C409.2	Identify an ethical issue and assess variety of moral issues using ethical theories in engineering
				C409.3	Analyze engineering, social experimentation and engineers as responsible experimenters
				C409.4	Realize engineer's safety and their responsibilities, professional rights, employee rights, and intellectual property rights.
				C409.5	Interpret various types of ethics like business ethics, environmental ethics and computer ethics.
				C409.6	Take part an engineers as managers, consulting engineers, engineers as expert witness and advisors
48	C410	CS8080	Information Retrieval Techniques	C410.1	Use an open source search engine framework and explore its capabilities.
				C410.2	Apply appropriate method of classification or clustering.
				C410.3	Design and implement innovative features in a search engine.
				C410.4	Design and implement a recommender system
49	C411	CS8811	Project Work	C411.1	Identify the problem domain, collect and review the literature, and define the problem
				C411.2	Analyse the engineering problems and apply appropriate modern software tools/technologies
				C411.3	Develop creative solutions to problems and conceive innovative approaches in developing and designing of software systems for the development of society and the engineering profession
				C411.4	Analyses the impact of professional engineering solutions on ethics, society, and the environment as a responsible software professional or team player.
				C411.5	Write high quality engineering documents that can be understandable by both technical and nontechnical people.

				C411.6	Understand the need for further knowledge and continuously work on improving own knowledge through learning latest tools and technologies used in the field of IT/ITES

HoD/CSE