



Course Outcomes (Year 2017-18)

SEM: III

SUB: Engineering Mathematics-III

SUB CODE: 15MAT31

CO	After studying this course, students will be able to:
C201.1	Know the use of periodic signals and Fourier series to analyze circuits and system communications.
C201.2	Explain the general linear system theory for continuous-time signals and digital signal processing using the Fourier Transform and z-transform
C201.3	Employ appropriate numerical methods to solve algebraic and transcendental equations.
C201.4	Apply Green's Theorem, Divergence Theorem and Stokes' theorem in various applications in the field of electro-magnetic and gravitational fields and fluid flow problems.
C201.5	Determine the extremal of functional and solve the simple problems of the calculus of variations.

SEM: III

SUB: Analog And Digital Electronics

SUB CODE: 15CS32

CO	After studying this course, students will be able to:
C202.1	Explain the concepts of JFETs, MOSFETs and Operational Amplifiers.
C202.2	Explain the operation of Decoders, Encoders, multiplexers, Adders and subtractors, working of Latches, Flip-Flops.
C202.3	Simplify combinational logic using Karnaugh maps and Quine-McClusky technique.
C202.4	Analyze the Performance of Synchronous and asynchronous sequential circuits
C202.5	Apply the knowledge gained in the design of counters, registers and A/D and D/A converters.

SEM: III

SUB: Data Structures And Applications

SUB CODE: 15CS33

CO	After studying this course, students will be able to:
C203.1	Classify and explain the various types of data structures, operations and applications.
C203.2	Illustrate the various types of Linear Data Structures and Non-Linear data structures including their representations.
C203.3	Make use of the appropriate data structures for solving a certain computing problems.
C203.4	Build the applications of Data structures in a high-level language.



SEM: III

SUB: Computer Organization

SUB CODE: 15CS34

CO	After studying this course, students will be able to:
C204.1	Explain the basic structure of computers, machine instructions and assembly language.
C204.2	Explain the fundamentals of I/O devices and interfacing.
C204.3	Explain the working principles of memory system.
C204.4	Analyze and design the arithmetic and logical circuits.
C204.5	Explain the fundamentals of Basic Processing Unit, Embedded Systems and Large Computer Systems.

SEM: III

SUB: Unix And Shell Programming

SUB CODE: 15CS35

CO	After studying this course, students will be able to:
C205.1	Explain the basic features of UNIX OS and Interpret UNIX Commands, Shell basics, and shell environments.
C205.2	Interpret UNIX commands, shell basics and shell environment.
C205.3	Develop shell programs and demonstrate filter commands.
C205.4	Explain UNIX processes and process control.
C205.5	Develop PERL scripts.

SEM: III

SUB: Discrete Mathematical Structures

SUB CODE: 15CS36

CO	After studying this course, students will be able to:
C206.1	Demonstrate the correctness of an argument using propositional and predicate logic, and truth tables.
C206.2	Demonstrate the properties of Integers & fundamental principles of Counting.
C206.3	Make use of Relation and Function's properties to solve logical problems.
C206.4	Solve problems involving principle of Inclusion & Exclusion, and recurrence relations.
C206.5	Explain the fundamentals of Graphs and Trees.



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Course Outcomes

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SEM: III

SUB: Analog And Digital Electronics Laboratory

SUB CODE: 15CSL37

CO	After studying this course, students will be able to:
C207.1	Make Use of various Electronic devices like cathode ray oscilloscope, signal generators, digital trainer kit, millimeter and components like resistor, capacitor, opamp and integrated circuit.
C207.2	Build and demonstrate various combinational logic circuits
C207.3	Design and demonstrate various types of counters and Registers using Flip-flops
C207.4	Make Use of simulation package to design circuits.

SEM: III

SUB: Data Structures With C Laboratory

SUB CODE: 15CSL38

CO	After studying this course, students will be able to:
C208.1	Demonstrate the basic operations of linear and non-linear data structures.
C208.2	Make use of appropriate data structures to implement the applications.
C208.3	Develop, debug and demonstrate the working nature of different types of data structures and their applications



SEM: IV

SUB: Microprocessor & Microcontrollers

SUB CODE: 15CS44

CO	After studying this course, students will be able to:
C212.1	Explain the architecture of x86 microprocessors.
C212.2	Develop the assembly language code to solve problems.
C212.3	Demonstrate memory and I/O interface to x86 family and ARM processors.
C212.4	Explain the fundamentals of ARM Processor.

SEM: IV

SUB: Object Oriented Concepts

SUB CODE: 15CS45

CO	After studying this course, students will be able to:
C213.1	Explain concepts of object oriented programming with C++.
C213.2	Develop Java programs to solve problems.
C213.3	Explain Inheritance, Exceptions, Packages and Interfaces in Java.
C213.4	Develop multithreaded programs.
C213.5	Develop simple event based Graphical User Interfaces using Applets and Swings.

SEM: IV

SUB: Data Communication

SUB CODE: 15CS46

CO	After studying this course, students will be able to:
C214.1	Illustrate basic computer network technology.
C214.2	Explain physical layer functionalities.
C214.3	Compare different Data Link Layer protocols.
C214.4	Explain Wireless LAN and Cellular networks.
C214.5	Explain Network layer protocols.



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Course Outcomes

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SEM: IV SUB: Design And Analysis Of Algorithm Laboratory SUB CODE: 15CSL47

CO	After studying this course, students will be able to:
C215.1	Develop Java programs to demonstrate Inheritance, Exception handling and multi-threading concepts.
C215.2	Develop a Java Program to demonstrate the stack operations.
C215.3	Develop the variety of algorithms using Greedy, dynamic programming and Backtracking techniques.
C215.4	Analyze the performance of sorting algorithms based on divide-and-conquer technique.

SEM: IV SUB: : Microprocessor And Microcontrollers Lab SUB CODE: 15CSL48

CO	After studying this course, students will be able to:
C216.1	Explain 80x86 instruction sets for assembly language.
C216.2	Solve the computing problems using assembly language.
C216.3	Experiment with hardware devices and interfacing them to x86 family
C216.4	Apply the knowledge of ARM processor fundamentals for simple problems.



SEM: V SUB: Management and Entrepreneurship for IT Industry SUB CODE: 15CS51

CO	After studying this course, students will be able to:
C301.1	Explain the basic concepts of management, planning, Organizing and Staffing.
C301.2	Summarize the appropriate leadership styles, motivation theories, communications, Coordination and controlling, methods
C301.3	Interpret the meaning of entrepreneur, entrepreneurship and role in economic development on India along with Identification of business opportunities and feasibility study
C301.4	Inferring the new ideas, Prepare project report based on guidelines of planning commission by utilizing the resources available effectively through ERP
C301.5	Explain the IPRs and institutional support in Micro and Small Enterprises as per the Indian Industrial Policy 2007.

SEM: V SUB: Computer Networks SUB CODE: 15CS52

CO	After studying this course, students will be able to:
C302.1	Explain principles of application layer protocols
C302.2	Identify transport layer services and infer UDP and TCP protocols
C302.3	Classify routers, IP and Routing Algorithms in network layer
C302.4	Explain the Wireless and Mobile Networks covering IEEE 802.11 Standard
C302.5	Explain Multimedia Networking and Network Management

SEM: V SUB: Database Management System SUB CODE: 15CS53

CO	After studying this course, students will be able to:
C303.1	Define, Identify and analyze database objects, enforce integrity constraints on a database using RDBMS.
C303.2	Use Structured Query Language (SQL) for database manipulation.
C303.3	Build simple database systems
C303.4	Develop application to interact with databases.



SEM: V

SUB: Automata Theory and Computability

SUB CODE: 15CS54

CO	After studying this course, students will be able to:
C304.1	Explain the fundamentals of automata theory and Theory of Computation.
C304.2	Construct Grammars and Automata (recognizers) for different language classes and their relative powers.
C304.3	Illustrate how to translate between different models of Computation (e.g. Deterministic and Non-deterministic)
C304.4	Apply the knowledge gained to prove or disprove various properties of formal languages. (E.g. RL, CFL etc.)
C304.5	Explain the core concepts relating to the theory of computation including decidability and complexity.

SEM: V

SUB: Introduction to Software Testing

SUB CODE: 15CS552

CO	After studying this course, students will be able to:
C305(P2).1	Derive the test cases for any given problem.
C305(P2).2	Compare the different testing techniques
C305(P2).3	Classify the problem into suitable testing model
C305(P2).4	Apply the appropriate technique for the design of flow graph.
C305(P2).5	Develop appropriate document for the software artefact.

SEM: V

SUB: Advanced Java & J2EE

SUB CODE: 15CS553

CO	After studying this course, students will be able to:
C305(P3).1	Interpret the need for advanced Java concepts like enumerations and collections in developing modular and efficient programs
C305(P3).2	Build client-server applications and TCP/IP socket programs
C305(P3).3	Illustrate database access and details for managing information using the JDBC API
C305(P3).4	Explain how servlets fit into Java-based web application architecture
C305(P3).5	Develop reusable software components using Java Beans



SEM: V SUB: Dotnet Framework for Application Development SUB CODE: 15CS564

CO	After studying this course, students will be able to:
C306(O4).1	Build applications on Visual Studio .NET platform by understanding the syntax and semantics of C#.
C306(O4).2	Explain Object Oriented Programming concepts in C# programming language.
C306(O4).3	Develop custom interfaces for applications and leverage the available built-in interfaces in building complex applications.
C306(O4).4	Illustrate the use of generics and collections in C#.
C306(O4).5	Construct queries to query in-memory data and define own operator behavior.

SEM: V SUB: Computer Networks Laboratory SUB CODE: 15CSL57

CO	After studying this course, students will be able to:
C307.1	Analyze and Compare various networking protocols.
C307.2	Analyze and evaluate familiar networking protocols using NS2 / NS3.
C307.3	Demonstrate the working of different concepts of networking.

SEM: V SUB: DBMS Laboratory with Mini Project SUB CODE: 15CSL58

CO	After studying this course, students will be able to:
C308.1	Demonstrate creation and manipulation operations on database.
C308.2	Demonstrate the working of different concepts of DBMS
C308.3	Develop and demonstrate the project developed for an application.



SEM: VI SUB: Cryptography, Network Security & Cyber Law SUB CODE: 15CS61

CO	After studying this course, students will be able to:
C309.1	Explain the concepts of Cyber security and cryptography.
C309.2	Apply the essential cryptographic algorithms for security.
C309.3	Illustrate key management issues and solutions.
C309.4	Explain security issues with respect to wireless LAN.
C309.5	Explain the need of cyber law and ethics.

SEM: VI SUB: Computer Graphics and Visualization SUB CODE: 15CS62

CO	After studying this course, students will be able to:
C310.1	Explain hardware, software and OpenGL Graphics Primitives.
C310.2	Illustrate Geometric transformations on both 2D and 3D objects.
C310.3	Apply concepts of clipping, color and Illumination Models in 2D and 3D objects.
C310.4	Apply the concepts of viewing and visible surface detection of 3D objects
C310.5	Explain curve generating concepts and interactive computer graphics using the OpenGL.

SEM: VI SUB: System Software & Compiler Design SUB CODE: 15CS63

CO	After studying this course, students will be able to:
C311.1	Explain system software such as assemblers and macro processors.
C311.2	Explain system software such as loaders and linkers
C311.3	Apply the concepts to develop lexical analyzers.
C311.4	Apply the concepts to develop syntax analyzers.
C311.5	Make use of translation technique for code generation.



SEM: VI

SUB: Operating Systems

SUB CODE: 15CS64

CO	After studying this course, students will be able to:
C312.1	Demonstrate need for Operating System and its types.
C312.2	Explain the multithreaded systems and scheduling algorithms.
C312.3	Illustrate the concept of process synchronization and Deadlock.
C312.4	Explain the concept of memory management and File System.
C312.5	Illustrate the different concepts of OS in platform of usage through case studies.

SEM: VI

SUB: Data Mining & Data Warehousing

SUB CODE: 15CS651

CO	After studying this course, students will be able to:
C313.1	Outline the multidimensional data mining and data model schemas
C313.2	Identify data mining problems and implement the data warehouse
C313.3	Construct association rules for a given data pattern.
C313.4	Choose appropriate classifiers to solve the problem.
C313.5	Choose appropriate clustering techniques to solve the problem.

SEM: VI

SUB: Python Application Programming

SUB CODE: 15CS664

CO	After studying this course, students will be able to:
C314.1	Make Use of Python syntax and semantics for flow control and functions.
C314.2	Demonstrate proficiency in handling Strings and File Systems.
C314.3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
C314.4	Interpret the concepts of Object-Oriented Programming as used in Python.
C314.5	Develop exemplary applications related to Network Programming, Web Services and Databases in Python.



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SEM: VI SUB: System Software & Operating System Laboratory SUB CODE: 15CSL67

CO	After studying this course, students will be able to:
C315.1	Demonstrate the Lexical analysis using Lexer.
C315.2	Demonstrate the syntax analysis phase of Compiler design using Parser.
C315.3	Develop the different CPU scheduling algorithms.
C315.4	Demonstrate the different memory management algorithms.
C315.5	Demonstrate the deadlock handling algorithm.

SEM: VI SUB: Computer Graphics Laboratory with mini Project SUB CODE: 15CSL68

CO	After studying this course, students will be able to:
C316.1	Demonstrate simple algorithms using OpenGL Graphics Primitives and attributes.
C316.2	Demonstrate line drawing and clipping algorithms using OpenGL functions.
C316.3	Demonstrate 2D and 3D Geometric transformations using OpenGL functions.
C316.4	Demonstrate computer graphics applications using OpenGL.
C316.5	Make use of OpenGL functions to animate real world problems.



SEM: VII

SUB: Object Oriented Modeling & Design

SUB CODE: 10CS71

CO	After studying this course, students will be able to:
C401.1	Explain Object Orientation and Modeling concepts.
C401.2	Construct class Model, state model and interaction model to solve problems.
C401.3	Make use of domain analysis, application analysis, system design and class design to solve problems.
C401.4	Explain legacy systems.
C401.5	Illustrate the design patterns

SEM: VII

SUB: Embedded Computing Systems

SUB CODE: 10CS72

CO	After studying this course, students will be able to:
C402.1	Explain Embedded System design process for complex system using microprocessors.
C402.2	Identify the instruction sets for ARM processor and memory system mechanism.
C402.3	Explain Bus base computer system and program design and analysis.
C402.4	Illustrate the concepts of real time operating system (RTOS).
C402.5	Classify different networks for embedded system design.
C402.6	Illustrate the integrated development environment (IDE) and different debugging techniques.

SEM: VII

SUB: Programming the Web

SUB CODE: 10CS73

CO	After studying this course, students will be able to:
C403.1	Explain the basic concepts of World Wide Web (WWW).
C403.2	Demonstrate the imposing of JavaScripts and CSS stylesheets in XHTML document.
C403.3	Develop XHTML document using JavaScript for user data processing and validation; and describe document object model techniques.
C403.4	Develop XML document by using suitable Document Type Definition, Schema and Namespace.
C403.5	Develop XHTML document with Common Gateway Interface (CGI) and Database Interface (DBI) standards.
C403.6	Develop XHTML document using PHP script and RoB (Ruby on Rail) framework for user data processing and database applications.



SEM: VII

SUB: Advanced Computer Architecture

SUB CODE: 10CS74

CO	After studying this course, students will be able to:
C404.1	Explain the fundamentals of computer architecture.
C404.2	Explain the basic concepts of Pipelining.
C404.3	Explain Internal Data Forwarding, Software Interlocking, Hardware Score boarding, Hazard avoidance, Branch handling and Instruction issuing techniques.
C404.4	Explain multi-processor and thread level parallelism.
C404.5	Apply memory organization and optimization techniques.
C404.6	Compare the concepts of Very Long Instruction Word (VLIW) and Explicitly Parallel Instruction Computing (EPIC).

SEM: VII

SUB: JAVA AND J2EE

SUB CODE: 10CS753

CO	After studying this course, students will be able to:
C405(B3).1	Explain & develop the java programs using object oriented concepts.
C405(B3).2	Develop the multi-threading and event handling programs.
C405(B3).3	Develop simple event based Graphical User Interfaces using Applets and Swings.
C405(B3).4	Explain the overview of Java Database Connectivity (JDBC) process.
C405(B3).5	Develop the servlets and Java Server Pages (JSP) programs.
C405(B3).6	Explain the Enterprise Java Beans (EJB).

SEM: VII

SUB: C# & .NET Concepts

SUB CODE: 10CS761

CO	After studying this course, students will be able to:
C406(C1).1	Explain the philosophy of .NET platform.
C406(C1).2	Build simple C# applications.
C406(C1).3	Illustrate the object oriented programming using C# fundamentals.
C406(C1).4	Explain exceptions, object lifetime, Interfaces and Collections in C#.
C406(C1).5	Illustrate callback interfaces, delegates and events.
C406(C1).6	Explain .NET Assemblies.



SEM: VII

SUB: Storage Area Networks

SUB CODE: 10CS765

CO	After studying this course, students will be able to:
C406(C5).1	Explain the components of datacenter, disk drive components and its performance.
C406(C5).2	Compare RAID Levels and enhance performance of the system using Intelligent Storage System (ISS).
C406(C5).3	Explain the concepts of DAS, iSCSI protocols, NAS and FC SAN.
C406(C5).4	Explain CAS system to store fixed content and virtualization techniques to enhance the performance.
C406(C5).5	Explain the concept of business continuity, Backup and Recovery methods.
C406(C5).6	Explain replication and data security methods.

SEM: VII

SUB: Networks Laboratory

SUB CODE: 10CSL77

CO	After studying this course, students will be able to:
C407.1	Analyze and Compare various networking protocols.
C407.2	Analyze and evaluate familiar networking protocols using NCTUNS.
C407.3	Demonstrate the working of different concepts of networking.

SEM: VII

SUB: Web Programming Laboratory

SUB CODE: 10CSL78

CO	After studying this course, students will be able to:
C408.1	Demonstrate Configuration of Apache Web Server and MySQL Database Server.
C408.2	Develop Web Pages using CSS and Javascript
C408.3	Develop XML document and display using CSS and XSLT.
C408.4	Develop Perl Scripts to demonstrate basic perl features
C408.5	Demonstrate use of Cookies and session variables using PHP Script
C408.6	Develop DB application using server side scripts such as Perl, PHP and Ruby on Rails



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SEM: VIII

SUB: Software Architecture

SUB CODE: 10IS81

CO	After studying this course, students will be able to:
C409.1	Explain the basic concepts of software architecture and software architectural business cycle.
C409.2	Explain various architectural styles with case studies.
C409.3	Explain various quality attributes of software architecture and tactics to achieve them.
C409.4	Illustrate the concepts of various architectural patterns.
C409.5	Illustrate the concepts of some design patterns.
C409.6	Explain the concept of designing and documenting software architecture.

SEM: VIII

SUB: System Simulation & Modeling

SUB CODE: 10CS82

CO	After studying this course, students will be able to:
C410.1	Apply basic concepts of system simulation to solve problems on queuing systems.
C410.2	Develop a common framework for the modeling of complex system by using discrete-event simulation.
C410.3	Explain the basic concepts of discrete, continuous and empirical distributions.
C410.4	Make use of congruential and Inverse Transform techniques to generate random number & random variates respectively.
C410.5	Explain input models and estimate the performance of systems using output models.
C410.6	Explain the verification, validation and optimization of simulation models by comparing with the real systems.



SEM: VIII

SUB: Information & Network Security

SUB CODE: 10CS835

CO	After studying this course, students will be able to:
C411(D5).1	Explain the policies and standards of information security.
C411(D5).2	Explain different security technologies such as firewalls, Virtual Private Networks, Intrusion Detection and Prevention Systems.
C411(D5).3	Illustrate the concepts of network security and cryptography.
C411(D5).4	Explain application specific security mechanisms of E-mail and Web access.
C411(D5).5	Explain the concepts of IP Security.

SEM: VIII

SUB: Software Testing

SUB CODE: 10CS842

CO	After studying this course, students will be able to:
C412(E2).1	Explain the perspective of testing with examples.
C412(E2).2	Make use of testing methods to derive test cases.
C412(E2).3	Explain the concepts of path, data flow, integration, system and interaction testing.
C412(E2).4	Illustrate the basic principles of software testing process.
C412(E2).5	Explain fault based testing and test execution.
C412(E2).6	Develop testing documents after planning and monitoring the process.