



Cambridge Institute of Technology

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Outcomes of 2017 scheme

Course Code	Course Name	Course Outcomes
17MAT31	ENGINEERING MATHEMATICS-III	<p>After Studying this course, students will be able to</p> <p>CO1: Know the use of periodic signals and Fourier series to analyze circuits and system communications.</p> <p>CO2: Explain the general linear system theory for continuous-time signals and digital signal processing using the Fourier Transform and z-transform.</p> <p>CO3: Employ appropriate numerical methods to solve algebraic and transcendental equations.</p> <p>CO4: 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.</p> <p>CO5: Determine the extremals of functionals and solve the simple problems of the calculus of variations.</p>
17CS32	ANALOG AND DIGITAL ELECTRONICS	<p>After Studying this course, students will be able to</p> <p>CO1: Explain the operation of JFETs and MOSFETs , Operational Amplifier circuits and their application</p> <p>CO2: Explain Combinational Logic, Simplification Techniques using Karnaugh Maps, Quine McClusky technique.</p> <p>CO3: Demonstrate Operation of Decoders, Encoders, Multiplexers, Adders and Subtractors, working of Latches, Flip-Flops, Designing Registers, Counters, A/D and D/A Converters</p> <p>CO4: Design of Counters, Registers and A/D & D/A converters</p>
17CS33	DATA STRUCTURES AND APPLICATIONS	<p>After studying this course, students will be able to:</p> <p>CO1: Explain different types of data structures, operations and algorithms</p> <p>CO2: Apply searching and sorting operations on files</p> <p>CO3: Make use of stack, Queue, Lists, Trees and Graphs in problem solving.</p> <p>CO4: Develop all data structures in a high-level language for problem solving.</p>
17CS34	COMPUTER ORGANIZATION	<p>After studying this course, students will be able to:</p> <p>CO1: Explain the basic organization of a computer system.</p> <p>CO2: Demonstrate functioning of different sub systems, such as processor, Input/output, and memory.</p> <p>CO3: Illustrate hardwired control and micro programmed control. pipelining, embedded and other computing systems.</p> <p>CO4: Build simple arithmetic and logical units.</p>

17CS35	UNIX AND SHELL PROGRAMMING	<p>After studying this course, students will be able to:</p> <p>CO1: Explain UNIX system and use different commands.</p> <p>CO2: Compile Shell scripts for certain functions on different subsystems.</p> <p>CO3: Demonstrate use of editors and Perl script writing</p>
17CS36	DISCRETE MATHEMATICAL STRUCTURES	<p>After studying this course, students will be able to:</p> <p>CO1: Make use of propositional and predicate logic in knowledge representation and truth verification.</p> <p>CO2: Demonstrate the application of discrete structures in different fields of computer science.</p> <p>CO3: Solve problems using recurrence relations and generating functions.</p> <p>CO4: Apply different mathematical proofs, techniques in proving theorems.</p> <p>CO5: Compare graphs, trees and their applications.</p>
17CSL37	ANALOG AND DIGITAL ELECTRONICS LABORATORY	<p>On the completion of this laboratory course, the students will be able to:</p> <p>CO1: Demonstrate various Electronic Devices like Cathode ray Oscilloscope, Signal generators, Digital Trainer Kit, Multimeters and components like Resistors, Capacitors, Op amp and Integrated Circuit.</p> <p>CO2: Design and demonstrate various combinational logic circuits.</p> <p>CO3: Design and demonstrate various types of counters and Registers using Flip-flops</p> <p>CO4: Make use of simulation package to design circuits.</p> <p>CO5: Infer the working and implementation of ALU.</p>
17CSL38	DATA STRUCTURES LABORATORY	<p>On the completion of this laboratory course, the students will be able to:</p> <p>CO1: Analyze and Compare various linear and non-linear data structures</p> <p>CO2: Demonstrate the working nature of different types of data structures and their applications</p> <p>CO3: Develop, analyze and evaluate the searching and sorting algorithms</p> <p>CO4: Choose the appropriate data structure for solving real world problems</p>
17MAT41	ENGINEERING MATHEMATICS-IV	<p>After studying this course, students will be able to:</p> <p>CO1: Solve first and second order ordinary differential equation arising in flow problems using single step and multistep numerical methods.</p> <p>CO2: Illustrate problems of potential theory, quantum mechanics and heat conduction by employing notions and properties of Bessel's functions and Legendre's polynomials.</p> <p>CO3: Explain the concepts of analytic functions, residues, poles of complex potentials and describe conformal and Bilinear transformation arising in field theory and signal processing.</p> <p>CO4: Develop probability distribution of discrete, continuous random variables and joint probability distribution occurring in digital signal processing, information theory and design engineering.</p> <p>CO5: Demonstrate testing of hypothesis of sampling distributions and illustrate examples of Markov chains related to discrete parameter stochastic process.</p>
17CS42	OBJECT ORIENTED CONCEPTS	<p>After studying this course, students will be able to</p> <p>CO1: Explain the object-oriented concepts and JAVA.</p> <p>CO2: Develop computer programs to solve real world problems in Java.</p>

		CO3: Develop simple GUI interfaces for a computer program to interact with users, and to comprehend the event-based GUI handling principles using Applets and swings.
17CS43	DESIGN AND ANALYSIS OF ALGORITHMS	After studying this course, students will be able to CO1: Describe computational solution to well-known problems like searching, sorting etc. CO2: Estimate the computational complexity of different algorithms. CO3: Develop an algorithm using appropriate design strategies for problem solving.
17CS44	MICROPROCESSORS AND MICROCONTROLLERS	After studying this course, students will be able to CO1: Differentiate between microprocessors and microcontrollers CO2: Develop assembly language code to solve problems CO3: Explain interfacing of various devices to x86 family and ARM processor CO4: Demonstrate interrupt routines for interfacing devices
17CS45	SOFTWARE ENGINEERING	After studying this course, students will be able to: CO1: Design a software system, component, or process to meet desired needs within realistic constraints. CO2: Assess professional and ethical responsibility CO3: Function on multi-disciplinary teams CO4: Make use of techniques, skills, and modern engineering tools necessary for engineering practice CO5: Comprehend software systems or parts of software systems.
17CS46	DATA COMMUNICATION	After studying this course, students will be able to CO1: Illustrate basic computer network technology. CO2: Identify the different types of network topologies and protocols. CO3: List and explain the layers of the OSI model and TCP/IP model. CO4: Comprehend the different types of network devices and their functions within a network CO5: Demonstrate subnetting and routing mechanisms.
17CSL47	DESIGN AND ANALYSIS OF ALGORITHM LABORATORY	The students should be able to: CO1: Design algorithms using appropriate design techniques (brute-force, greedy, dynamic programming, etc.) CO2: Develop variety of algorithms such as sorting, graph related, combinatorial, etc., in a high level language. CO3: Analyze and compare the performance of algorithms using language features. CO1: Apply and implement learned algorithm design techniques and data structures to solve realworld problems.
17CSL48	MICROPROCESSOR AND MICROCONTROLLER LABORATORY	After studying this course, students will be able to CO1: Summarize 80x86 instruction sets and comprehend the knowledge of how assembly language works. CO2: Design and develop assembly programs using 80x86 assembly language instructions CO3: Infer functioning of hardware devices and interfacing them to x86 family CO4: Choose processors for various kinds of applications.

17CS51	MANAGEMENT AND ENTREPRENEURSHIP FOR IT INDUSTRY	<p>The students should be able to:</p> <p>CO1: Define management, organization, entrepreneur, planning, staffing, ERP and outline their importance in entrepreneurship</p> <p>CO2: Utilize the resources available effectively through ERP</p> <p>CO3: Make use of IPRs and institutional support in entrepreneurship</p>
17CS52	COMPUTER NETWORKS	<p>The students should be able to:</p> <p>CO1: Explain principles of application layer protocols</p> <p>CO2: Outline transport layer services and infer UDP and TCP protocols</p> <p>CO3: Classify routers, IP and Routing Algorithms in network layer</p> <p>CO4: Explain the Wireless and Mobile Networks covering IEEE 802.11 Standard</p> <p>CO5: Define Multimedia Networking and Network Management</p>
17CS53	DATABASE MANAGEMENT SYSTEM	<p>The students should be able to:</p> <p>CO1: Summarize the concepts of database objects; enforce integrity constraints on a database using RDBMS.</p> <p>CO2: Use Structured Query Language (SQL) for database manipulation.</p> <p>CO3: Design simple database systems</p> <p>CO4: Design code for some application to interact with databases.</p>
17CS54	AUTOMATA THEORY AND COMPUTABILITY	<p>The students should be able to:</p> <p>CO1: Tell the core concepts in automata theory and Theory of Computation</p> <p>CO2: Explain how to translate between different models of Computation (e.g., Deterministic and Non-deterministic and Software models).</p> <p>CO3: Interpret Grammars and Automata (recognizers) for different language classes and become knowledgeable about restricted models of Computation (Regular, Context Free) and their relative powers.</p> <p>CO4: Develop skills in formal reasoning and reduction of a problem to a formal model, with an emphasis on semantic precision and conciseness.</p> <p>CO5: Classify a problem with respect to different models of Computation.</p>
17CS551	OBJECT ORIENTED MODELING AND DESIGN	<p>The students should be able to:</p> <p>CO1: Describe the concepts of object-oriented and basic class modelling.</p> <p>CO2: Draw class diagrams, sequence diagrams and interaction diagrams to solve problems.</p> <p>CO3: Choose and apply a befitting design pattern for the given problem.</p>
17CS553	ADVANCED JAVA AND J2EE	<p>The students should be able to:</p> <p>CO1: Interpret the need for advanced Java concepts like enumerations and collections in developing modular and efficient programs</p> <p>CO2: Build client-server applications and TCP/IP socket programs</p> <p>CO3: Illustrate database access and details for managing information using the JDBC API</p> <p>CO4: Describe how servlets fit into Java-based web application architecture</p> <p>CO5: Develop reusable software components using Java Beans</p>

17CS562	ARTIFICIAL INTELLIGENCE	The students should be able to: CO1: Identify the AI based problems CO2: Apply techniques to solve the AI problems CO3: Define learning and explain various learning techniques CO4: Discuss expert systems
17CS564	DOT NET FRAMEWORK FOR APPLICATION DEVELOPMENT	The students should be able to: CO1: Build applications on Visual Studio .NET platform by understanding the syntax and semantics of C# CO2: Demonstrate Object Oriented Programming concepts in C# programming language. CO3: Design custom interfaces for applications and leverage the available built-in interfaces in building complex applications. CO4: Illustrate the use of generics and collections in C#. CO5: Compose queries to query in-memory data and define own operator behaviour
17CS565	CLOUD COMPUTING	The students should be able to: CO1: Explain the concepts and terminologies of cloud computing CO2: Demonstrate cloud frameworks and technologies CO3: Define data intensive computing CO4: Demonstrate cloud applications
17CSL57	COMPUTER NETWORK LABORATORY	The students should be able to: CO1: Analyze and Compare various networking protocols. CO2: Demonstrate the working of different concepts of networking. CO3: Implement and analyze networking protocols in NS2 / NS3
17CSL58	DBMS LABORATORY WITH MINI PROJECT	The students should be able to: CO1: Use Structured Query Language (SQL) for database Creation and manipulation. CO2: Demonstrate the working of different concepts of DBMS CO3: Implement and test the project developed for an application.
17CS61	CRYPTOGRAPHY, NETWORK SECURITY AND CYBER LAW	The students should be able to: CO1: Discuss the cryptography and its need to various applications CO2: Design and Develop simple cryptography algorithms CO3: Understand the cyber security and need cyber Law
17CS62	COMPUTER GRAPHICS AND VISUALIZATION	The students should be able to: CO1: Design and implement algorithms for 2D graphics primitives and attributes. CO2: Illustrate Geometric transformations on both 2D and 3D objects. CO3: Understand the concepts of clipping and visible surface detection in 2D and 3D viewing, and Illumination Models. CO4: Discuss about suitable hardware and software for developing graphics packages using OpenGL.
17CS63	SYSTEM SOFTWARE AND COMPILER DESIGN	The students should be able to: CO1: Illustrate system software such as assemblers, loaders, linkers and microprocessors.

		<p>CO2: Design and develop lexical analyzers, parsers and code generators</p> <p>CO3: Discuss about lex and yacc tools for implementing different concepts of system software</p>
17CS64	OPERATING SYSTEMS	<p>The students should be able to:</p> <p>CO1: Demonstrate need for OS and different types of OS</p> <p>CO2: Discuss suitable techniques for management of different resources</p> <p>CO3: Illustrate processor, memory, storage and file system commands</p> <p>CO4: Explain the different concepts of OS in platform of usage through case studies</p>
17CS651	DATA MINING AND DATA WAREHOUSING	<p>The students should be able to:</p> <p>CO1: Understands data mining problems and implement the data warehouse</p> <p>CO2: Demonstrate the association rules for a given data pattern.</p> <p>CO3: Discuss between classification and clustering solution.</p>
17CS664	PYTHON APPLICATION PROGRAMMING	<p>The students should be able to:</p> <p>CO1: Understand Python syntax and semantics and be fluent in the use of Python flow control and functions.</p> <p>CO2: Demonstrate proficiency in handling Strings and File Systems.</p> <p>CO3: Implement Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.</p> <p>CO4: Interpret the concepts of Object-Oriented Programming as used in Python.</p> <p>CO1: Implement exemplary applications related to Network Programming, Web Services and Databases in Python.</p>
17CSL67	SYSTEM SOFTWARE AND OPERATING SYSTEM LABORATORY	<p>The students should be able to:</p> <p>CO1: Implement and demonstrate Lexer's and Parser's</p> <p>CO2: Implement different algorithms required for management, scheduling, allocation and communication used in operating system.</p>
17CSL68	COMPUTER GRAPHICS LABORATORY WITH MINI PROJECT	<p>The students should be able to:</p> <p>CO1: Apply the concepts of computer graphics</p> <p>CO2: Implement computer graphics applications using OpenGL</p> <p>CO3: Implement real world problems using OpenGL</p>
17CS71	WEB TECHNOLOGY AND ITS APPLICATIONS	<p>After studying this course, students will be able to</p> <p>CO1: Define HTML and CSS syntax and semantics to build web pages.</p> <p>CO2: Understand the concepts of Construct , visually format tables and forms using HTML using CSS</p> <p>CO3: Develop Client-Side Scripts using JavaScript and Server-Side Scripts using PHP to generate and display the contents dynamically.</p> <p>CO4: List the principles of object oriented development using PHP</p> <p>CO5: Illustrate JavaScript frameworks like jQuery and Backbone which facilitates developer to focus on core features.</p>
17CS72	ADVANCED COMPUTER ARCHITECTURES	<p>The students should be able to:</p> <p>CO1: Understand the concepts of parallel computing and hardware technologies</p>

		CO2: Illustrate and contrast the parallel architectures CO3: Recall parallel programming concepts
17CS73	MACHINE LEARNING	After studying this course, students will be able to CO1: Recall the problems for machine learning. And select the either supervised, unsupervised or reinforcement learning. CO2: Understand theory of probability and statistics related to machine learning CO3: Illustrate concept learning, ANN, Bayes classifier, k nearest neighbor, Q,
17CS741	NATURAL LANGUAGE PROCESSING	The students should be able to: CO1: Analyze the natural language text. CO2: Define the importance of natural language. CO3: Understand the concepts Text mining. CO4: Illustrate information retrieval techniques.
17CS742	CLOUD COMPUTING AND ITS APPLICATIONS	The students should be able to: CO1: Understand the concepts of cloud computing, virtualization and classify services of cloud computing CO2: Illustrate architecture and programming in cloud CO3: Define the platforms for development of cloud applications and List the application of cloud.
17CS743	INFORMATION AND NETWORK SECURITY	The students should be able to: CO1: Analyze the Digital security lapses CO2: Illustrate the need of key management
17CS753	DIGITAL IMAGE PROCESSING	The students should be able to: CO1: Explain fundamentals of image processing CO2: Compare transformation algorithms CO3: Contrast enhancement, segmentation and compression techniques
17CS754	STORAGE AREA NETWORKS	The students should be able to: CO1: Identify key challenges in managing information and analyze different storage networking technologies and virtualization CO2: Explain components and the implementation of NAS CO3: Describe CAS architecture and types of archives and forms of virtualization CO4: Illustrate the storage infrastructure and management activities
17CSL76	MACHINE LEARNING LABORATORY	The students should be able to: CO1: Understand the implementation procedures for the machine learning algorithms. CO2: Design Java/Python programs for various Learning algorithms. CO3: Apply appropriate data sets to the Machine Learning algorithms. CO4: Identify and apply Machine Learning algorithms to solve real world problems.
17CSL77	WEB TECHNOLOGY LABORATORY WITH MINI PROJECT	The students should be able to: CO1: Design and develop dynamic web pages with good aesthetic sense of designing and latest technical know-how's.

		<p>CO2: Understand the concepts of Web Application Terminologies, Internet Tools other web services.</p> <p>CO3: Recall how to link and publish web sites</p>
17CS81	INTERNET OF THINGS TECHNOLOGY	<p>After studying this course, students will be able to</p> <p>CO1: Interpret the impact and challenges posed by IoT networks leading to new architectural models.</p> <p>CO2: Compare and contrast the deployment of smart objects and the technologies to connect them to network.</p> <p>CO3: Appraise the role of IoT protocols for efficient network communication.</p> <p>CO4: Elaborate the need for Data Analytics and Security in IoT.</p> <p>CO5: Illustrate different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.</p>
17CS82	BIG DATA ANALYTICS	<p>The students should be able to:</p> <p>CO1: Explain the concepts of HDFS and MapReduce framework</p> <p>CO2: Investigate Hadoop related tools for Big Data Analytics and perform basic Hadoop Administration</p> <p>CO3: Recognize the role of Business Intelligence, Data warehousing and Visualization in decision making</p> <p>CO4: Infer the importance of core data mining techniques for data analytics</p> <p>CO5: Compare and contrast different Text Mining Techniques</p>
17CS832	USER INTERFACE DESIGN	<p>The Students should be able to:</p> <p>CO1: Design the User Interface, design, menu creation ,windows creation and connection between menus and windows.</p>
17CS84	INTERNSHIP / PROFESSIONAL PRACTISE	<p>The students should be able to:</p> <p>CO1: Adapt easily to the industry environment</p> <p>CO2: Take part in team work</p> <p>CO3: Make use of modern tools</p> <p>CO4: Decide upon project planning and financing.</p> <p>CO5: Adapt ethical values.</p> <p>CO6: Motivate for lifelong learning</p>
17CSP85	PROJECT WORK PHASE II	<p>The students should be able to:</p> <p>CO1: Identify a issue and derive problem related to society, environment, economics, energy and technology</p> <p>CO2: Formulate and Analyze the problem and determine the scope of the solution chosen</p> <p>CO3: Determine , dissect, and estimate the parameters, required in the solution.</p> <p>CO4: Evaluate the solution by considering the standard data / Objective function and by using appropriate performance metrics.</p> <p>CO5: Compile the report and take part in present / publishing the finding in a reputed conference / publications</p> <p>CO6: Attempt to obtain ownership of the solution / product developed.</p>

17CSS86	SEMINAR	<p>The students should be able to:</p> <p>CO1: Survey the changes in the technologies relevant to the topic selected</p> <p>CO2: Discuss the technology and interpret the impact on the society, environment and domain.</p> <p>CO3: Compile report of the study and present to the audience, following the ethics</p>
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