Hope Foundation's

International Institute of Information Technology

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Department of Information Technology

Course Outcomes (COs)

SE (Department of Information Technology)-2019 Pattern

Semester-III

Course Code	Name of Subject/Course	Course Outcomes (COs)
214441	Discrete Mathematics	☐ Formulate and apply formal proof techniques and solve the problems with logical reasoning. ☐ Analyze and evaluate the combinatorial problems by using probability theory. ☐ Apply the concepts of graph theory to devise mathematical models. ☐ Analyze types of relations and functions to provide solution to computational problems. ☐ Identify techniques of number theory and its application. ☐ Identify fundamental algebraic structures.
214442	Logic Design and Computer Organization	☐ Perform basic binary arithmetic & simplify logic expressions. ☐ Grasp the operations of logic ICs and Implement combinational logic functions using ICs. ☐ Comprehend the operations of basic memory cell types and Implement sequential logic functions using ICs. ☐ Elucidate the functions & organization of various blocks of CPU. ☐ Understand CPU instruction characteristics, enhancement features of CPU. ☐ Describe an assortment of memory types (with their characteristics) used in computer systems and basic principle of interfacing input, output devices.
214443	Data Structures and Algorithms	☐ Implement and perform analysis of algorithm with respect to time and space complexity ☐ Apply appropriate searching and/or sorting techniquesto solve a problem ☐ Understand linear data structures and its applications ☐ Understand and apply binary tree concepts ☐ Apply implement learned algorithm design techniques and data structures to solve problems. ☐ Understand different hashing functions and

		use files organizations.
214444	Object Oriented Programming	☐ Differentiate various programming paradigms. ☐ Identify classes, objects, and methods to model real-world problems. ☐ Handle object creation, initialization, and destruction to model real-world problems. ☐ Identify relationship among objects using inheritance and polymorphism principles. ☐ Handle different types of exceptions and perform generic programming. ☐ Use of files for persistent data storage for real world application and apply appropriate design patterns to provide object-oriented solutions.
214445	Basics of Computer Network	☐ Understand and explain the concepts of communication theory and compare functions of OSI and TCP/IP model. ☐ Analyze data link layer services, error detection and correction, linear block codes, cyclic Codes, framing and flow control protocols. ☐ Compare different access techniques, channelization and IEEE standards. ☐ Apply the skills of subnetting, supernetting and routing mechanisms. ☐ Differentiate IPv4 and IPv6. ☐ Illustrate services and protocols used at transport layer.
214446	Logic Design Computer Organization Lab	☐ Understand working of digital electronic circuits. ☐ Apply the knowledge to appropiate IC as per design specification. ☐ Analyze the basic logic gates and various reduction techniques of digital logic circuit. ☐ Analyze, design and implement combinational logic circuits. ☐ Design Sequential Logic circuits: MOD counters using synchronous counters. ☐ Understand the basics of simulator tool & to simulate basic blocks such as ALU & memory.
214447	Data Structures and Algorithms Lab	☐ Implement different searching and sorting techniques. ☐ Implement and apply the concepts of different data structures to solve real world problems. ☐ Implement tree concepts. ☐ Differentiate between different graph techniques. ☐ Understand different algorithm design techniques (brute -force, divide and conquer, greedy, etc.) and their implementation`. ☐ Handle File operations.

214448	Object Oriented Programming Lab	☐ Handle object creation, initialization, and destruction to model real-world problems. ☐ Identify relationship among objects using inheritance and polymorphism principles. ☐ Handle different types of exceptions. ☐ Perform generic programming to model real-world problems. ☐ Use of files for persistent data storage for real world application ☐ Apply appropriate design patterns to provide object-oriented solutions.
214449	Soft Skill Lab	☐ Introspect about individual's goals, aspirations by evaluating one's SWOC and think creatively. ☐ Develop effective communication skills including Listening, Reading, Writing and Presentations. ☐ Constructively participate in group discussion, meetings and prepare and deliver presentations communication. ☐ Understanding the various rules and means of written communication. ☐ Practice professional etiquette, present oneself confidently and successfully handle personal interviews. ☐ Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.

Semester-IV

Course Code	Name of Subject/Course	Course Outcomes (COs)
207003	Engineering Mathematics III	☐ Solve Linear differential equations, essential in modelling and design of computer-based systems. ☐ Apply concept of Fourier transform and Z-transform and its applications to continuous and discrete systems and image processing. ☐ Apply Statistical methods like correlation and regression analysis for data analysis and predictions in machine learning. ☐ Apply probability theory for data analysis and predictions in machine learning. ☐ Solve Algebraic and Transcendental equations and System of linear equations using numerical techniques. ☐ Obtain Interpolating polynomials, numerical differentiation and integration, numerical solutions of ordinary differential equations used in modern scientific computing.
214451	Processor	☐ Apprehend architecture and memory

	Architecture	organization of PIC 18 microcontroller. ☐ Implement embedded C programming for PIC 18 ☐ Use concepts of timers and interrupts of PIC 18. ☐ Study interfacing of PIC 18 with hardware devices ☐ Demonstrate real life applications using PIC 18. ☐ Analyze architectural details of ARM processor.
214452	Database Management System	☐ Understand and apply fundamental elements of database management systems. ☐ Design ER-models to represent simple database application scenarios. ☐ Formulate SQL queries on data for relational databases. ☐ Improve the database design by normalization & and will be able to incorporate query processing. ☐ Apply ACID properties for transaction management and concurrency control. ☐ Analyze various database architectures and technologies.
214453	Computer Graphics	☐ Apply mathematical and logical aspects for developing elementary graphics operations like scan conversion of points, lines, circle, and apply it for problem solving. ☐ Employ techniques of geometrical transforms to produce, position and manipulate Objects in 2 dimensional space. ☐ Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output device. ☐ Apply concepts of rendering and shading using computer graphics tools in design, development and testing of 2D, 3D modeling applications. ☐ Apply concepts of animation, curves and fractals using computer graphics tools in design, development and testing of 2D, 3D modeling applications. ☐ Perceive the concepts of virtual reality.
214454	Software Engineering	☐ Classify various software application domains ☐ Analyze software requirements by using various modeling techniques ☐ Translate the requirement models into design models. ☐ Apply planning and estimation to any project. ☐ Use quality attributes and testing principles in software development life cycle.

		☐ Discuss recent trends in Software engineering by using CASE and agile tools.
214455	Programming Skill Development Lab	☐ Apply concepts related to embedded C programming. ☐ Develop and Execute embedded C program to perform array addition, block transfer, sorting operations ☐ Implement timers and interrupt programming of PIC 18. ☐ Implement working modes of PIC18FXXX microcontroller. ☐ Perform interfacing of real-world input and output devices to PIC18FXXX microcontroller. ☐ Use source prototype platform like Raspberry-Pi/Beagle board/Arduino.
214456	Database Management System Lab	☐ Install and configure database systems. ☐ Analyze database models & entity relationship models. ☐ Design and implement a database schema for a given problem-domain ☐ Populate and query a database using SQL DDL / DML / DCL commands. ☐ Apply PL/SQL concepts like stored procedures, stored functions,cursor and packages. ☐ Design a backend database of any one organization: CASE STUDY
214457	Computer Graphics Lab	☐ Explore the OpenGL Library ☐ Apply line & circle drawing algorithms to draw the objects. ☐ Apply polygon filling methods for the object. ☐ Apply polygon clipping algorithms for the object. ☐ Apply the 2D transformations on the object. ☐ Implement the curve generation algorithms & Demonstrate the animation of any object using animation principles.
214458	Project Based Learning	☐ Design solution to real life problems and analyze its concerns through shared cognition. ☐ Apply learning by doing approach in PBL to promote lifelong learning. ☐ Tackle technical challenges for solving real world problems with team efforts ☐ Collaborate and engage in multi-disciplinary learning environments.