Department of Computer Engineering

Course Outcomes (COs)

TE (Computer Engineering) -2019 Pattern

Course Code	Name of Subject/ Course	Course Outcome (COs)
SEM I		
310241	Database Management Systems	❑ Analyze and design Database Management System using ER model ❑ Implement database queries using database languages ❑ Normalize the database design using normal forms ❑ Apply Transaction Management concepts in real-time situations ❑ Use NoSQL databases for processing unstructured data ❑ Differentiate between Complex Data Types and analyze the use of appropriate data
310242	Theory of Computation	❑ Understand formal language, translation logic, essentials of translation, alphabets, language representation and apply it to design Finite Automata and its variants" ❑ Construct regular expression to present regular language and understand pumping lemma for RE ❑ Design Context Free Grammars and learn to simplify the grammar ❑ Construct Pushdown Automaton model for the Context Free Language ❑ Design Turing Machine for the different requirements outlined by theoretical computer science ❑ Analyze different classes of problems, and study concepts of NP completeness.
310243	Systems Programming and Operating System	❑ Analyze and synthesize basic System Software and design Assembler ❑ Identify suitable data structures and Design & Implement Macroprocessor ❑ Compare different loading schemes and analyze the performance of linker and loader ❑ Implement and Analyze the performance of process scheduling algorithms ❑ Identify the mechanism to deal with deadlock and concurrency issues ❑ Demonstrate memory organization and memory management policies

310244	Computer Networks and Security	❑ Summarize fundamental concepts of computer networks, architectures, protocols and technologies. ❑ Illustrate the working and functions of data link layer ❑ Analyze the working of different routing protocols and mechanisms ❑ Implement client-server applications using sockets ❑ Illustrate role of application layer with its protocols, Client-Server architectures ❑ Comprehend the basics of network security
310245A	Internet of Things and Embedded Systems	❑ Able Understand the fundamentals and need of embedded system for the Internet of Things ❑ Apply IoT enabling technologies for developing IoT systems ❑ Apply design methodology for designing and implementing IoT applications ❑ Able to Analyze IoT protocols for making IoT devices communication ❑ Able to Understand cloud based IoT systems ❑ Able to Design and Develop secured IoT applications
310246	Database Management Systems Laboratory	❑ Design E-R Model for given requirements and convert the same into database table ❑ Design schema in appropriate normal form considering actual requirements ❑ Implement SQL queries for given requirements , using different SQL concepts ❑ Implement PL/SQL Code block for given requirements ❑ Implement NoSQL queries using MongoDB ❑ Design and develop Application considering actual requirements and using Database concepts
310247	Computer Network and Security Laboratory	❑ Analyze the requirements of network types, topology and transmission media ❑ Demonstrate error control, flow control techniques and protocols and analyze them ❑ Demonstrate the subnet formation with IP allocation mechanism and apply various routing algorithms ❑ Develop Client-Server architectures and prototypes ❑ Implement web applications and services using application layer protocols ❑ Use network security services and mechanisms

310248	Laboratory Practice I	❑ Implement language translators. ❑ Implement Dynamic Link Library. ❑ Implement internals and functionalities of Operating System. ❑ Able to Design the IoT & embedded system based application ❑ Able to Develop smart applications using IoT ❑ Able to Develop IoT applications based on cloud environment
310249	Seminar and Technical Communication	❑ Analyze a latest topic of professional interest ❑ Enhance technical writing skills ❑ Identify an engineering problem, analyze it and propose a work plan to solve it ❑ Communicate with professional technical presentation skill
310250B	Audit Course 5: Professional Ethics and Etiquette	❑ Summarize the principles of proper courtesy as they are practiced in the workplace. ❑ Apply proper courtesy in different professional situations. ❑ Practice and apply appropriate etiquettes in the working environment and day to day life. ❑ Build proper practices personal and business communications of Ethics and Etiquettes.

		SEMESTER II
310251	Data Science and Big Data Analytics	❑ Analyze needs and challenges for Data Science Big Data Analytics ❑ Apply statistics for Big Data Analytics ❑ Apply the lifecycle of Big Data analytics to real world problems ❑ Implement Big Data Analytics using Python programming ❑ Implement Time series and Text analysis using Python programming ❑ Implement Data Visualization and Big Databases using the Hadoop ecosystem
310252	Web Technology	❑ Implement and analyze behavior of web pages using HTML and CSS ❑ Apply the client side technologies for web development ❑ Analyze the concepts of Servlet and JSP ❑ Analyze the Web services and frameworks ❑ Apply the server side technologies for web development ❑ Create the effective web applications for business functionalities using latest web development platforms
310253	Artificial Intelligence	❑ Identify and apply suitable intelligent agents for various AI applications ❑ Design smart systems using different informed search / uniformed search or heuristic approaches. ❑ Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem ❑ Apply the suitable algorithms to solve AI problems ❑ Implement ideas underlying modern logical inference systems. ❑ Represent modern complex problem expressive yet carefully constrained language of representation.
310254A	Information Security	❑ Demonstrate foundation knowledge of information security. ❑ Apply appropriate cryptographic techniques by learning symmetric key cryptography. ❑ Implement cryptographic techniques by using asymmetric key cryptography. ❑ Design and analyze web security solutions by deploying various cryptographic techniques along with data integrity algorithms. ❑ Identify and Evaluate Information Security threats and vulnerabilities in Information systems and apply security measures. ❑ Demonstrate the use of standards and cyber laws to enhance Information Security in thedevelopment process and infrastructure protection.

310254C	Cloud Computing	❏ Understand the different Cloud Computing environment ❏ Use appropriate data storage technique on Cloud, based on Cloud application ❏ Analyze virtualization technology and install virtualization software ❏ Develop and deploy applications on Cloud ❏ Apply security in cloud applications ❏ Use advance techniques in Cloud Computing
310255	Internship	❏ To demonstrate professional competence through industry internship. ❏ To apply knowledge gained through internships to complete academic activities in a professional manner. ❏ To choose appropriate technology and tools to solve given problem. ❏ To demonstrate abilities of a responsible professional and use ethical practices in day to day life. ❏ Creating network and social circle, and developing relationships with industry people. ❏ To analyze various career opportunities and decide carrier goals.
310256	Data Science and Big Data Analytics Laboratory	❏ Apply principles of Data Science for the analysis of real time problems ❏ Implement data representation using statistical methods ❏ Implement and evaluate data analytics algorithms ❏ Perform text preprocessing ❏ Implement data visualization techniques ❏ Use cutting edge tools and technologies to analyze Big Data
310257	Web Technology Laboratory	❏ Understand the importance of website planning and website design issues ❏ Apply the client side and server side technologies for web application development ❏ Analyze the web technology languages, frameworks and services ❏ Create three tier web based applications
310258	Laboratory Practice II	❏ Use tools and techniques in the area of Cloud Computing. ❏ Use cloud computing services for problem solving. ❏ Design and develop applications on cloud. ❏ Use tools and techniques in the area of Information Security. ❏ Use the cryptographic techniques for problem solving ❏ Design and develop security solution.
310259(A)	Audit Course 6: Digital and Social Media Marketing	❏ Understand the fundamentals and importance of digital marketing ❏ Use the power of social media for business marketing ❏ Analyze the effectiveness of digital marketing and social media over traditional process