Third Year of Computer Engineering (2015 Course)

310241: Theory of Computation

Course Objectives:

1. To Study abstract computing models.
2. To learn Grammar and Turing Machine.
3. To learn about the theory of computability and complexity.

Course Outcomes:

On completion of the course, student will be able to–

1. Able to design deterministic Turing machine for all inputs and all outputs.
2. Able to subdivide problem space based on input subdivision using constraints.
3. Able to apply linguistic theory.

310242 : Database Management Systems

Course Objectives :

1. To understand the fundamental concepts of database management. These concepts include aspects of database design, database languages, and database-system implementation.
2. To provide a strong formal foundation in database concepts, technology and practice.
3. To give systematic database design approaches covering conceptual design, logical design and an overview of physical design.
4. Be familiar with the basic issues of transaction processing and concurrency control.
5. To learn and understand various Database Architectures and Applications.
6. To learn a powerful, flexible and scalable general purpose database to handle big data.

Course Outcomes :

On completion of the course, student will be able to–

1. Design E-R Model for given requirements and convert the same into database tables.
2. Use database techniques such as SQL & PL/SQL.
3. Use modern database techniques such as NOSQL.
4. Explain transaction Management in relational database System.
5. Describe different database architecture and analyses the use of appropriate architecture in real time environment.
6. Students will be able to use advanced database Programming concepts Big Data – HADOOP.

310243: Software Engineering and Project Management

Course Objectives:

1. To learn and understand the principles of Software Engineering
2. To be acquainted with methods of capturing, specifying, visualizing and analyzing software requirements.
3. To apply Design and Testing principles to S/W project development.
4. To understand project management through life cycle of the project.
5. To understand software quality attributes.

Course Outcomes:

On completion of the course, student will be able to–

1. Decide on a process model for a developing a software project.
2. Classify software applications and Identify unique features of various domains.
3. Design test cases of a software system.
4. Understand basics of IT Project management.
5. Plan, schedule and execute a project considering the risk management.
6. Apply quality attributes in software development life cycle.

310244: Information Systems and Engineering Economics

Course Objectives:

1. To prepare the students to various forms of the Information Systems and its application in organizations.
2. To expose the students to the managerial issues relating to information systems and help them identify and evaluate various options in Information Systems.
3. To Prepare engineering students to analyze cost / revenue data and should able to do economic analyses in the decision making process to justify or reject alternatives / projects on an economic basis for an organization .

Course Outcomes:

On completion of the course, student will be able to–

1. Understand the need, usage and importance of an Information System to an organization.
2. Understand the activities that are undertaken while managing, designing, planning, implementation, and deployment of computerized information system in an organization.
3. Further the student would be aware of various Information System solutions like ERP, CRM, Data warehouses and the issues in successful implementation of these technology solutions in any organizations.
4. Outline the past history, present position and expected performance of a company engaged in engineering practice or in the computer industry.
5. Perform and evaluate present worth, future worth and annual worth analyses on one of more economic alternatives.
6. Be able to carry out and evaluate benefit/cost, life cycle and breakeven analyses on one or more economic alternatives.

310245: Computer Networks

Course Objectives:

1. To understand the fundamental concepts of networking standards, protocols and technologies.
2. To learn different techniques for framing, error control, flow control and routing.
3. To learn role of protocols at various layers in the protocol stacks.
4. To learn network programming.
5. To develop an understanding of modern network architectures from a design and performance perspective.

Course Outcomes:

On completion of the course, student will be able to–

1. Analyze the requirements for a given organizational structure to select the most appropriate networking architecture, topologies, transmission mediums, and technologies.
2. Demonstrate design issues, flow control and error control.
3. Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.
4. Illustrate applications of Computer Network capabilities, selection and usage for various sectors of user community.
5. Illustrate Client-Server architectures and prototypes by the means of correct standards and technology.
6. Demonstrate different routing and switching algorithms.

310250: Design and Analysis of Algorithms

Course Objectives:

1. To develop problem solving abilities using mathematical theories.
2. To analyze the performance of algorithms.
3. To study algorithmic design strategies.

Course Outcomes:

1. On completion of the course, student will be able to–
2. Formulate the problem.
3. Analyze the asymptotic performance of algorithms.
4. Decide and apply algorithmic strategies to solve given problem.
5. Find optimal solution by applying various methods.

310251: Systems Programming and Operating System

Course Objectives:

1. To understand basics of System Programming.
2. To learn and understand data structures used in design of system software.
3. To learn and understand basics of compilers and tools.
4. To understand functions of operating system.
5. To learn and understand process, resource and memory management.

Course Outcomes:

On completion of the course, student will be able to–

1. Analyze and synthesize system software
2. Use tools like LEX & YACC.
3. Implement operating system functions.

310252: Embedded Systems and Internet of Things

Course Objectives:

1. To understand fundamentals of IoT and embedded system including essence, basic design strategy and process modeling.
2. To introduce students a set of advanced topics in embedded IoT and lead them to understand research in network.
3. To develop comprehensive approach towards building small low cost embedded IoT system.
4. To understand fundamentals of security in IoT,.
5. To learn to implement secure infrastructure for IoT.
6. To learn real world application scenarios of IoT along with its societal and economic impact using case studies.

Course Outcomes:

On completion of the course, student will be able to–

1. Implement an architectural design for IoT for specified requirement.
2. Solve the given societal challenge using IoT.
3. Choose between available technologies and devices for stated IoT challenge.

310253: Software Modeling and Design

Course Objectives:

1. To understand and apply Object Oriented(OO) concept for designing OO based model/application.
2. To transform Requirement document to Appropriate design.
3. To understand different architectural designs and to transform them into proper model.
4. To choose and use modern design tools for project development and implementation.
5. To choose and use appropriate test tool for testing web-based/desktop application.

Course Outcomes:

On completion of the course, student will be able to–

1. Analyze the problem statement (SRS) and choose proper design technique for designing web-based/ desktop application.
2. Design and analyze an application using UML modeling as fundamental tool.
3. Apply design patterns to understand reusability in OO design.
4. Decide and apply appropriate modern tool for designing and modeling.
5. Decide and apply appropriate modern testing tool for testing web-based/desktop application.

310254: Web Technology

Course Objectives:

1. To understand the principles and methodologies of web based applications development process.
2. To understand current client side and server side web technologies.
3. To understand current client side and server side frameworks.
4. To understand web services and content management.

Course Outcomes:

On completion of the course, student will be able to–

1. analyze given assignment to select sustainable web development design methodology.
2. develop web based application using suitable client side and server side web technologies.
3. develop solution to complex problems using appropriate method, technologies, frameworks, web services and content management.

310255: Seminar and Technical Communication

Course Objectives:

1. To explore the basic principles of communication (verbal and non-verbal) and active, empathetic listening, speaking and writing techniques.
2. To expose the student to new technologies, researches, products, algorithms, services.

Course Outcomes:

On completion of the course, student will–

1. Be able to be familiar with basic technical writing concepts and terms, such as audience analysis, jargon, format, visuals, and presentation.
2. Be able to improve skills to read, understand, and interpret material on technology.

Improve communication and writing skills.