Course Outcomes for B.Tech-R15 Regulations

COMPUTER SCIENCE AND ENGINEERING

B. Tech I Year I Semester

(15A52101) Functional English

- The students will get the required training in LSRW skills through the prescribed texts and develop communicative competence.

(15A54101) Mathematics – I

- The students become familiar with the application of differential, integral and vector calculus, ordinary differential equations and Laplace transforms to engineering problems.
- The students attain the abilities to use mathematical knowledge to analyze and solve problems in engineering applications.

(15A05101)Computer Programming

- Able to design the flowchart and algorithm for real world problems
- Able to learn and understand new programming languages
- Able to construct modular and readable programs
- Able to write C programs for real world problems using simple and compound data types
- Adapt programming experience and language knowledge to other programming language contexts
- Employee good programming style, standards and practices during program development

(15A56101) Engineering Physics

- The different realms of physics and their applications in both scientific and technological systems are achieved through the study of physical optics, lasers and fiber optics.
- The important properties of crystals like the presence of long-range order and periodicity, structure determination using X-ray diffraction are focused along with defects in crystals and ultrasonic non-destructive techniques.
- The discrepancies between the classical estimates and laboratory observations of physical properties exhibited by materials would be lifted through the understanding of quantum picture of subatomic world.
- The electronic and magnetic properties of materials were successfully explained by free electron theory and focused on the basis for the band theory.

- The properties and device applications of semiconducting and magnetic materials are illustrated.

(15A03101) Engineering Drawing

- Explain about Engineering Drawing and Graphics
- Illustrate about Projects of Points and Lines
- Describe about Planes and Solid Projections

(15A52102) English Language Communication Skills Lab

- Becoming active participants in the learning process and acquiring proficiency in spoken English of the students
- Speaking with clarity and confidence thereby enhancing employability skills of the students

(15A56102) Engineering Physics Lab

- Experiments to determine laser sources, power of the prism
- Numerical aperture, half-effect are calculated
- Determine viscosity, calorific value of fuel

(15A05102) Computer Programming Lab

- Mastering C programming and solving various problems.
- Provide computer basics an c programming with data structures

B. Tech I Year II Semester

(15A52201) English for Professional Communication

- Have acquired ability to participate effectively in group discussions.
- Have developed ability in writing in various contexts.
- Have acquired a proper level of competence for employability

(15A54201) Mathematics – II

- The student gains the knowledge to tackle the engineering problems using the concepts of Fourier series, various transforms and partial differential equations.

(15A05201) Data Structures

- Student will be able to choose appropriate data structure as applied to specified problem definition.
- Student will be able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
- Students will be able to apply concepts learned in various domains like DBMS, compiler construction etc.

- Students will be able to use linear and non-linear data structures like stacks, queues , linked list etc.

(15A51101) Engineering Chemistry

- Differentiate between hard and soft water. Understand the disadvantages of using hard water domestically and industrially. Select and apply suitable treatments domestically and industrially.
- Understand the electrochemical sources of energy
- Understand industrially based polymers, various engineering materials.

(15A01101) Environmental Studies

- Students will get the sufficient information that will clarify modern environmental concepts like equitable use of natural resources, more sustainable life styles etc.
- Students will realize the need to change their approach so as to perceive our own environmental issues correctly, using practical approach based on observation and self learning.
- Students become conversant with the fact that there is a need to create a concern for our environment that will trigger pro-environmental action; including simple activities we can do in our daily life to protect it.
- By studying environmental sciences, students are exposed to the environment that enables one to find out solution of various environmental problems encountered on and often.

(15A05202) Data Structures Lab

- Apply problem solving techniques to find solutions to problems
- Able to identify the appropriate data structure for a given problem or application.
- Improve logical skills

(15A51102) Engineering Chemistry Lab

- Would be confident in handling energy storage systems and would be able combat chemical corrosion
- Would have acquired the practical skill to handle the analytical methods with confidence.
- Would feel comfortable to think of design materials with the requisite properties
- Would be in a position to technically address the water related problems.

(15A99201) Engineering & IT Workshop

- To provide Technical training to the students on Productivity tools like Word processors, Spreadsheets, Presentations

- To make the students know about the internal parts of a computer, assembling a computer from the parts, preparing a computer for use by installing the operating system
- To learn about Networking of computers and use Internet facility for Browsing and Searching.
- Disassemble and Assemble a Personal Computer and prepare the computer ready to use.
- Prepare the Documents using Word processors
- Prepare Slide presentations using the presentation tool
- Interconnect two or more computers for information sharing
- Access the Internet and Browse it to obtain the required information
- Install single or dual operating systems on computer

B. Tech II Year I Semester

(15A54301) Mathematics III

The student will be able to analyze engineering problems using the concepts of Matrices and Numerical methods.

(15A05301) Database Management Systems

- Demonstrate the basic elements of a relational database management system,
- Ability to identify the data models for relevant problems.
- Ability to design entity relationship and convert entity relationship diagrams into RDBMS and formulate SQL queries on the respect data.
- Apply normalization for the development of application software.

(15A05302) Discrete Mathematics

- Able to apply mathematical concepts and logical reasoning to solve problems in different fields of Computer science and information technology.
- Able to apply the concepts in courses like Computer Organization, DBMS, Analysis of Algorithms, Theoretical Computer Science, Cryptography, Artificial Intelligence

(15A99301) Basic Electrical and Electronics Engineering

After going through this course the student gets a thorough knowledge on basics of Network theorems, Two port networks, DC Motors and Transformers with which he/she can able to apply the above conceptual things to real-world problems and applications.

(15A04306) Digital Logic Design

- Have a thorough understanding of the fundamental concepts and techniques used in digital electronics.

- To understand and examine the structure of various number systems and its application in digital design.
- The ability to understand, analyze and design various combinational and sequential circuits.
- Ability to identify basic requirements for a design application and propose a cost effective solution.
- The ability to identify and prevent various hazards and timing problems in a digital design.
- To develop skill to build, and troubleshoot digital circuits.

(15A52301) Managerial Economics and Financial Analysis

- Determine the objectives, nature, scope, role & responsibilities of a manager of a business undertaking
- Predict the demand for a product or product mix of a company & to analyze various factors influencing demand elasticity.
- Forecast & compute the future sales level of a product by using various quantitative & qualitative techniques and with the help of past sales data.

(15A05303) Database Management Systems Laboratory

- Design databases
- Retrieve information from data bases
- Use procedures to program the data access and manipulation
- Create user interfaces and generate reports

(15A99302) Basic Electrical and Electronics Laboratory

- Understand basics electrical circuits with nodal and mesh analysis.
- Appreciate electrical network theorems.
- Apply Laplace Transform for steady state and transient analysis.
- Determine different network functions.

B. Tech II Year II Semester

(15A54401) Probability and Statistics

The student will be able to analyze the problems of engineering & industry using the techniques of testing of hypothesis, Statistical Quality Control and Queuing theory and draw appropriate inferences.

(15A05401) Software Engineering

- Define and develop a software project from requirement gathering to implementation.
- Ability to code and test the software
- Ability to plan, Estimate and Maintain software systems

(15A05402) Computer Organization

- Ability to use memory and I/O devices effectively
- Able to explore the hardware requirements for cache memory and virtual memory
- Ability to design algorithms to exploit pipelining and multiprocessors

(15A04407) Microprocessors & Interfacing

- Program the 8086 microprocessor
- Interface the 8086 microprocessor with various devices and program them

(15A05403) Object Oriented Programming using Java

- Ability to solve problems using object oriented approach and implement them using Java
- Ability to write Efficient programs with multitasking ability and handle exceptions
- Create user friendly interface

(15A05404) Formal Languages and Automata Theory

- Construct finite state diagrams while solving problems of computer science
- Find solutions to the problems using Turing machines
- Design of new grammar and language

(15A04408) Microprocessors & Interfacing Laboratory

- Able to write8086 Assembly Language programs.
- Able to understand programmable peripheral devices and their Interfacing.
- Able to write 8051 assembly Language programs.

(15A05405) Java Programming Laboratory

- Ability to write portable programs which work in all environments
- Ability to create user friendly interfaces
- Ability to solve the problem using object oriented approach and design solutions which are robust

(15A05406) Comprehensive Online Examination-I

B. Tech III Year I Semester

(15A05501) Operating Systems

- Able to use operating systems effectively.
- Write System and application programs to exploit operating system functionality.
- Add functionality to the exiting operating systems
- Design new operating systems

(15A05502) Computer Networks

- Ability to choose the transmission media depending on the requirements.
- Ability to design new protocols for computer network.
- Ability to configure a computer network logically.

(15A05503) Object Oriented Analysis and Design

- Ability to find solutions to the complex problems using object oriented approach
- Represent classes, responsibilities and states using UML notation
- Identify classes and responsibilities of the problem domain

(15A05504) Principles of Programming Languages

- Ability to select appropriate programming language for problem solving
- Ability to design new programming language.

(15A05505) Software Testing

- Understand the basic testing procedures.
- Able to support in generating test cases and test suites.
- Able to test the applications manually by applying different testing methods and automation tools.
- Apply tools to resolve the problems in Real time environment.

MOOCS-I

(15A05506) Introduction to Big Data

- To gain knowledge about working of Hadoop File System.
- Ability to analyze Big Data using different tools.

(15A05507) R Programming

- Ability to Work on a real life Project, implementing R Analytics to create Business Insights.
- Ability to analyze the data and results using R, a flexible and completely cross-platform.
- Ability to use a wide range of analytical methods and produce presentation quality graphics.

(15A05508) Introduction to Operations Management

- Identify an operations system with some known standard configurations
- Make an assessment of the complexity of an operations system
- Understand the various components of a supply chain and the need to configure them appropriately
- Identify methods for reducing bullwhip effect in supply chains

- Understand and relate the concept of Lean Management to one's own business situation
- Understand & use specific tools and techniques to analyze quality problems

(15A05509) Object Oriented Analysis and Design & Software Testing Laboratory

- Find solutions to the problems using object oriented approach
- Represent using UML notation and interact with the customer to refine the UML diagrams

(15A05510) Operating Systems Laboratory

- Ensure the development of applied skills in operating systems related areas.
- Able to write software routines modules or implementing various concepts of operating system.

(15A99501) Social Values & Ethics (Audit Course)

B. Tech III Year II Semester

(15A05601) Compiler Design

- Able to design a compiler for a simple programming language
- Able to use the tools related to compiler design effectively and efficiently
- Ability to write optimized code

(15A05602) Data Warehousing & Mining

- Understand the basic concepts of data warehouse and data Mining
- Apply pre-processing techniques for data cleansing
- Analyze and evaluate performance of algorithms for Association Rules
- Analyze Classification and Clustering algorithms

(15A05603) Design Patterns

- Know the underlying object oriented principles of design patterns.
- Understand the context in which the pattern can be applied.
- Understand how the application of a pattern affects the system quality and its tradeoffs.

(15A05604) Design and Analysis of Algorithms

- Analyze the complexity of the algorithms
- Use techniques divide and conquer, greedy, dynamic programming, backtracking, branch and bound to solve the problems.
- Identify and analyze criteria and specifications appropriate to new problems, and choose the appropriate algorithmic design technique for their solution.
- Able to prove that a certain problem is NP-Complete.

(15A05605) Web and Internet Technologies

- Ability to create dynamic and interactive web sites
- Gain knowledge of client side scripting using java sript and DHTML.
- Demonstrate understanding of what is XML and how to parse and use XML data
- Able to do server side programming with Java Servelets, JSP and PHP.
- Able to design rich client presentation using AJAX.

CBCC-I

(15A05606) a. Artificial Intelligence

- Select a search algorithm for a problem and estimate its time and space complexities.
- Possess the skill for representing knowledge using the appropriate technique for a given problem
- Possess the ability to apply AI techniques to solve problems of game playing, expert systems, machine learning and natural language processing.

(15A05607) b. Linux Environment System

- Able to describe and use the LINUX operating system.
- Able to describe and use the fundamental LINUX system tools and utilities.
- Able to describe and write shell scripts in order to perform basic shell programming.
- Able to describe and understand the LINUX file system.

(15A05608) c. System Applications & Product (SAP)

1. Adopt and apply an integrated perspective to business processes
2. Effectively use SAP® ERP to execute the key steps in the procurement process.
3. Ability to use SAP ERP to extract meaningful information about the production process.
4. Extract and evaluate meaningful information about the material planning process using the SAP ERP system.

(15A01608) d. Intellectual Property Rights

a) Intellectual Property Rights and what they mean
b) Trade Marks and Patents and how to register them
c) Laws Protecting the Trade Marks and Patents
d) Copy Right and laws related to it.

(15A05609) Web and Internet Technologies Laboratory

- Ability to create dynamic and interactive web sites.
- Gain knowledge of client side scripting using java sript and DHTML.
- Demonstrate understanding of what is XML and how to parse and use XML data
- Able to do server side programming with Java Servelets, JSP and PHP.

(15A05610) Data Warehousing & Mining Laboratory

- Ability to build Data Warehouse and Explore WEKA
- Ability to perform data preprocessing tasks and Demonstrate performing association rule mining on data sets
- Ability to perform classification, clustering and regression on data sets
- Ability to design data mining algorithms

(15A52602) Advanced English Language Communication Skills(AELCS) Laboratory) (Audit Course)

(15A05611) Comprehensive Online Examination-II

B. Tech IV Year I Semester

(15A52601)Management Science

This course enables the student to know the principles and applications of management knowledge and exposure to the latest developments in the field. This helps to take effective and efficient management decisions on physical and human resources of an organization. Beside the knowledge of Management Science facilitates for his/her personal and professional development.

(15A05701) Grid & Cloud Computing

- Apply the security models in the grid and the cloud environment.
- Use the grid and cloud tool kits.
- Apply the concept of virtualization.
- Apply grid computing techniques to solve large scale scientific problems

(15A05702) Information Security

- Protect the network from both internal and external attacks
- Design of new security approaches
- Ability to choose the appropriate security algorithm based on the requirements.

(15A05703) Mobile Application Development

- Create data sharing with different applications and sending and intercepting SMS.
- Develop applications using services and publishing android applications.
- To demonstrate their skills of using Android software development tools

CBCC-II

(15A05704) a. Software Architecture

- The student will be able to:
- Design and motivate software architecture for large scale software systems

- Recognize major software architectural styles, design patterns, and frameworks
- Describe a software architecture using various documentation approaches and architectural
- description languages
- Generate architectural alternatives for a problem and select among them
- Use well-understood paradigms for designing new systems

(15A05705) b. Computer Graphics

- Acquire familiarity with the relevant mathematics of computer graphics.
- Be able to design basic graphics application programs, including animation
- Be able to design applications that display graphic images to given specifications

(15A05706) c. Machine Learning

- Ability to understand what is learning and why it is essential to the design of intelligent machines.
- Ability to design and implement various machine learning algorithms in a wide range of real-world applications.
- Acquire knowledge deep learning and be able to implement deep learning models for language, vision, speech, decision making, and more

CBCC-II

(15A05707) Software Project Management

- Describe and determine the purpose and importance of project management from the perspectives of planning, tracking and completion of project.
- Compare and differentiate organization structures and project structures
- Implement a project to manage project schedule, expenses and resources with the application of suitable project management tools

(15A05708) Distributed Systems

- Design process and resource management systems.
- Apply remote method invocation and objects.
- Apply network virtualization.
- Discuss trends in Distributed Systems.

(15A05709) Real Time Systems

- Characterize real-time systems and describe their functions
- Analyze, design and implement a real-time system
- Apply formal methods to the analysis and design of real-time systems
- Apply formal methods for scheduling real-time systems
- Characterize and describe reliability and fault tolerance issues and approaches

(15A05710) Grid & Cloud Computing Laboratory

The student should be able to
Design and Implement applications on the Cloud.
Design and implement applications on the Grid.
Use the grid and cloud tool kits.

(15A05711) Mobile Application Development Laboratory

- Create data sharing with different applications and sending and intercepting SMS.
- Develop applications using services and publishing android applications.
- To demonstrate their skills of using Android software development tools

B. Tech IV Year I Semester

MOOCS-II

(15A05801) Data Analytics

- Ability to work with different data types.
- Ability to solve various problems related to businesses.
- Ability to effectively utilize the time and involve in collaborative tasks.

(15A05802) Mobile Computing

- Students able to use mobile computing more effectively
- Students gain understanding of the current topics in MANETs and WSNs, both from an industry and research point of views.
- Acquire skills to design and implement a basic mobile ad hoc or wireless sensor network via simulations.

(15A05803) Innovations and IT Management

- Ability to do Business over the Internet.
- Ability to solve Business problems by applying analytics.
- Ability to use ICT to participate in Democratic process.

MOOCS-III

(15A05804) Building Large Scale Software Systems

- Student able to understand coupling and cohesion
- Student able to design large c and c++ programs using Linux kernel
- Student able to understand how to design Linux kernel
- Ability to solve various problems related to Object Oriented Software using patterns

(15A05805) Enabling Technologies for Data Science & Analytics: IoT

- Able to understand the application areas of IoT

- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
- Able to understand building blocks of Internet of Things and characteristics.

(15A05806) Cyber Security

- Analyze threats and risks within context of the cyber security architecture
- Appraise cyber security incidents to apply appropriate response
- Evaluate decision making outcomes of cyber security scenarios

(15A05807) Comprehensive Viva-Voce

(15A05808) Technical Seminar

(15A05809) Project Work