# LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY
## Department of Information Technology

## Course Outcomes

**Academic Year – 2021-2022** **Semester: III (OU)**

**Student will be able to**

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C31 - Indian Constitution(MC111PO)** | | |
| C31.1 | Know the background of the present constitution of India | BTL1 |
| C31.2 | Understand the working of the union, state and local levels. | BTL2 |
| C31.3 | Gain consciousness on the fundamental rights and duties. | BTL1 |
| C31.4 | Understand the functioning and distribution of financial resourcesbetween the center and states. | BTL2 |
| C31.5 | Be exposed to the reality of hierarchical Indian social structure and the ways the grievances of the deprived sections can be addressed to raise human dignity in a democratic way. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C32 - Effective Technical Communication in English(HS201EG)** | | |
| C32.1 | Handle technical communication effectively. | BTL1 |
| C32.2 | Use different types of professional correspondence. | BTL3 |
| C32.3 | Use various techniques of report writing. | BTL3 |
| C32.4 | Acquire adequate skills of manual writing. | BTL1 |
| C32.5 | Enhance their skills of information transfer and presentations. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C33 - Finance and Accounting(HS202CM)** | | |
| C33.1 | Evaluate the financial performance of the business unit. | BTL5 |
| C33.2 | Take decisions on selection of projects. | BTL4 |
| C33.3 | Take decisions on procurement of finances. | BTL4 |
| C33.4 | Analyze the liquidity, solvency and profitability of the business unit. | BTL4 |
| C33.5 | Evaluate the overall financial functioning of an enterprise. | BTL5 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C34 Mathematics - III(Probability and statistics)( BS207MT)** | | |
| C34.1 | Understand real life and engineering problems through mathematics and acquire logical thinking and creativity. | BTL2 |
| C34.2 | Obtain the knowledge of Probability, Random variables, distributions and its applications. | BTL1 |
| C34.3 | Obtain the knowledge of some standard discrete probability distributions and its moments, kurtosis and skewness. | BTL1 |
| C34.4 | Familiar with the concepts of standard continuous probability distributions and its moments, kurtosis and skewness. | BTL2 |
| C34.5 | Learn the concepts of correlation, regression, and obtain the knowledge of sampling theory with context to test of hypothesis. | BTL2 |
| C34.6 | Get the knowledge of testing of hypothesis for various parameters. | BTL1 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C35 - Basic Electronics(ES214EC)** | | |
| C35.1 | Obtain the V - I characteristics of diode and analyze variousdiode applications like rectifiers and regulators. | BTL5 |
| C35.2 | Analyze the construction & working of active devices like BJT & FET in various modes. | BTL4 |
| C35.3 | Recognize the type of feedback and analyze its effect on amplifier characteristics and calculate the frequency of oscillation for different types of oscillator circuits. | BTL5 |
| C35.4 | Analyze and design different circuits using Ideal Op Amps; Designsimple digital circuits using logic gates. | BTL6 |
| C35.5 | Understand the principle of operation & applications of electronic devices, transducers. | BTL2 |
| C35.6 | Analyze different data acquisition systems and data converters. | BTL4 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C36 - Digital Electronics(ES216EC)** | | |
| C36.1 | Understand the deign process of digital hardware, use Boolean algebra to minimize the logical expressions and optimize the implementation of logical functions. | BTL2 |
| C36.2 | Understand the number representation and design combinationalcircuits like adders, MUX etc. | BTL2 |
| C36.3 | Design Combinational circuits using PLDS and write Verilog HDLcode for basic gates and combinational circuits. | BTL6 |
| C36.4 | Analyze sequential circuits using flip-flops and design registers,counters. | BTL4 |
| C36.5 | Represent a sequential circuit using Finite State machine and applystate minimization techniques to design a FSM | BTL1 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C37 - Data Structures(PC221IT)** | | |
| C37.1 | Implement linear, non-linear data structures and balanced binarytrees | BTL3 |
| C37.2 | Understand the basic data structures arrays and linked lists. | BTL2 |
| C37.3 | Analyze time complexity of both iterative and recursive functions. | BTL4 |
| C37.4 | Define ADT necessary for solving problems based on Stacks andQueues. | BTL1 |
| C37.5 | Develop solutions using binary trees, advanced search trees, triesand graphs. | BTL6 |
| C37.6 | Use hash functions and handle collisions. | BTL3 |
| C37.7 | Understand various kinds of sorting techniques and applyappropriate techniques for solving a given problem. | BTL3 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C38 - Mathematical Foundations and Information Technology(PC222IT)** | | |
| C38.1 | Illustrate by examples the basic terminology of functions, relations,and sets and demonstrate knowledge of their associated operations. | BTL2 |
| C38.2 | Understand basics of counting, apply permutations and combinations to handle different types of objects. | BTL3 |
| C38.3 | Describe and use recursively-defined relationships to solve problems using generating functions. | BTL3 |
| C38.4 | Analyze semi group, monoid group and abelian group with suitable examples and appreciate group theory applications in computer | BTL4 |
| C38.5 | Demonstrate in practical applications the use of basic counting principles of permutations, combinations, inclusion/exclusion principle and the pigeonhole methodology. | BTL5 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C39 - Basic Electronics Lab(ES251EC)** | | |
| C39.1 | Design diode circuits & understand the application of Zener diode. | BTL6 |
| C39.2 | Analyze characteristics of BJTs & FETs. | BTL4 |
| C39.3 | Understand the different oscillator circuits. | BTL2 |
| C39.4 | Understand operation of HWR & FWR circuits with & without filters. | BTL2 |
| C39.5 | Design Analog-to-Digital converters & Digital-to-Analogconverters | BTL6 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C310 - Data Structures Lab(PC252IT)** | | |
| C310.1 | Implement various data structures using arrays, linked lists. | BTL3 |
| C310.2 | Develop ADT necessary for solving problems based on Stacks andQueues. | BTL6 |
| C310.3 | Implement binary trees, general tree structures, advanced searchtrees, heaps, graphs. | BTL3 |
| C310.4 | Implement hash functions and handle collisions. | BTL3 |
| C310.5 | Implement various kinds of sorting techniques and apply appropriate techniques for solving a given problem. | BTL3 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C311 - IT Workshop Lab(PC253IT)** | | |
| C311.1 | Implement basic syntax in python. | BTL3 |
| C311.2 | Understand python looping, control statements and string manipulations | BTL2 |
| C311.3 | Represent compound data using Python lists,tuples, and dictionaries | BTL3 |
| C311.4 | Understand file management concepts | BTL2 |
| C311.5 | Analyze and implement different kinds of OOP concept in realworld problems. | BTL4 |
| C311.6 | Implement MATLAB operations and graphic functions. | BTL3 |

# Course Outcomes

**Academic Year – 2021-2022** **Semester: V (OU)**

**Student will be able to**

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes:C51 – Web Application Development (PC 501 IT)** | | |
| C51.1 | Design and develop dynamic web sites using Html 5.0, CSS, JQuery. | BTL6 |
| C51.2 | Develop web content publishing applications that accesses data inXML or JSON format | BTL6 |
| C51.3 | Apply Styles to the web content using CSS. | BTL3 |
| C51.4 | Develop single page web applications using Angular JS | BTL6 |
| C51.5 | Design and develop big data applications using Mean stack and SMACK stack Frameworks. | BTL6 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes:C52 - Operating Systems (PC 502 IT)** | | |
| C52.1 | Explain the fundamental concepts and functions of operating system. | BTL1 |
| C52.2 | Understand process scheduling in a multi-programming environment and implementing process scheduling algorithms. | BTL2 |
| C52.3 | Write application and system calls related programs for managing processes, memory, I/O and inter-process Communication related system calls. | BTL3 |
| C52.4 | Understand memory management, disk management techniques, including virtual memory and file system structure. | BTL2 |
| C52.5 | Explain protection and security related issues of the computer system. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C53- Automata Theory (PC 503 IT)** | | |
| C53.1 | Design and use deterministic, nondeterministic, and epsilon transition finite state automata and illustrate state transition on symbols of input words and establish the corresponding language of automata. | BTL6 |
| C53.2 | Analyze Regular Expressions and use Laws and establish the corresponding Regular Language. Prove a given language is regular or otherwise. Use Closure and Decision Properties of Regular Language | BTL4 |
| C53.3 | Analyze ambiguity. Develop Context Free Grammars, Parse Tees and establish Context Free Language. Use Closure and Decision Properties of Regular Language. | BTL4 |
| C53.4 | Design Pushdown Automata and illustrate the working. Develop deterministic Pushdown Automata and establish equivalence of language of PDA and CFG. | BTL6 |
| C53.5 | Design Turing Machine and illustrate its working, implement programming techniques for Turing Machines, analyze extended and restricted Turing Machines for computational abilities, and establish the Recursively Enumerable language of Turing Machine. | BTL6 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C54 – Computer Networks (PC 504 IT)** | | |
| C54.1 | Explain the function of each layer of OSI and trace the flow of information from one node to another node in the network | BTL2 |
| C54.2 | Understand the principles of IP addressing and internet routing | BTL2 |
| C54.3 | Describe the working of various networked applications such as DNS, mail, file transfer and www | BTL2 |
| C54.4 | Implement client-server socket-based networked applications | BTL3 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes:C55 – Software Engineering(PC 505 IT)** | | |
| C55.1 | Define different software development processes and their usability in different problem domains. | BTL2 |
| C55.2 | Explain the process of requirements collection, analyzing, and modelling requirements for effective understanding and communication with stakeholders. | BTL2 |
| C55.3 | Design and Develop the architecture of real world problems towards developing a blueprint for implementation. | BTL6 |
| C55.4 | Understand the concepts of software quality, testing and maintenance. | BTL2 |
| C55.5 | Discuss the concepts related to Risk management and Software project Estimation. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes:C56 – Artificial Intelligence (PE 511 IT)** | | |
| C56.1 | Identify problems that are amenable to solution using State space search algorithms. | BTL5 |
| C56.2 | Understand and analyze working of an AI technique using Heuristic Search. | BTL4 |
| C56.3 | Understand and design the Bayesian Networks. | BTL2 |
| C56.4 | Apply the program and apply Reinforcement Learning. | BTL3 |
| C56.5 | Understand and apply the concepts of Markov Decision process. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes:C57– Computer Networks Lab (PC531 IT)** | | |
| C57.1 | Understand the usage of basic commands ipconig, ifconfig, netstat, ping, arp, telnet, ftp, finger, traceroute, whois of LINUX platform. | BTL2 |
| C57.2 | Develop and Implement Client-Server Socket based programs using TCP, and UDP sockets. | BTL6 |
| C57.3 | Develop and Implement Distance Vector Routing Algorithm. | BTL6 |
| C57.4 | Develop and Implement RSA Public Key algorithm. | BTL6 |
| C57.5 | Construct simple network by using any modern Open Source. Network Simulation Tool | BTL6 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes:C58 – Web Application Development Lab (PC541 IT)** | | |
| C58.1 | Design Web pages and perform form validation using HTML 5.0 In built functions. | BTL6 |
| C58.2 | Apply Styles to the web content using CSS. | BTL3 |
| C58.3 | Create and process web publishing content using XML and JSON. | BTL6 |
| C58.4 | Use JQuery to perform client side Dynamics. | BTL3 |
| C58.5 | Create single page applications (Front End) using Angular JS. | BTL6 |
| C58.6 | Design Big data applications using Mean stack or SMACK stack Frameworks. | BTL6 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes:C59– Operating systems Lab(PC532 IT)** | | |
| C59.1 | Explore the LINUX low level I/O and Construct applications using process management and file management System calls. | BTL2 |
| C59.2 | Demonstrate how threads can be created and simultaneously handled in LINUX POSIX environment. | BTL2 |
| C59.3 | Understand possible Inter-Process Communication implementations using LINUX IPC Constructs. | BTL2 |
| C59.4 | Assess the working behavior of various synchronization approaches used in Deadlock management. | BTL2 |
| C59.5 | Analyze the performance of process scheduling algorithms, page replacement Algorithms, and Disk scheduling Algorithms. | BTL4 |

# Course Outcomes

**Academic Year – 2021-2022** **Year: III & Semester: I (JNTUH)**

**Student will be able to**

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C311 – Formal Languages and Automata Theory (CS501PC)** | | |
| C311.1 | Understand the concept of abstract machines and their power to recognize the languages. | BTL2 |
| C311.2 | Employ finite state machines for modeling and solving computing problems. | BTL3 |
| C311.3 | Design context free grammars for formal languages. | BTL6 |
| C311.4 | Distinguish between decidability and un decidability. | BTL4 |
| C311.5 | Proficiency with mathematical tools and formal methods. | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C312 – Software Engineering (CS502PC)** | | |
| C312.1 | Translate end-user requirements into system and software requirements, using e.g.UML, and structure the requirements in a Software Requirements Document (SRD). | BTL6 |
| C312.2 | Identify and apply appropriate software architectures and patterns tocarry out high level design of a system and be able to critically compare alternative choices. | BTL3 |
| C312.3 | Have experience and/or awareness of testing problems and will be able to develop a simple testing report | BTL4 |
| C312.4 | Understand software requirement engineering and its application using various models | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C313 – Data Communications and Computer Networks (IT503PC)** | | |
| C313.1 | Understand and explore the basics of Computer Networks and Various Protocols and World Wide Web concepts. | BTL2 |
| C313.2 | Administrate a network and flow of information further he/she can understand easily the concepts of network security, Mobile and ad hoc networks. | BTL2 |
| C313.3 | Analyze the services and features of various protocol layers in data networks. | BTL4 |
| C313.4 | Analyze TCP/IP and their protocols. | BTL4 |
| C313.5 | Differentiate wired and wireless computer networks. | BTL4 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C314 – Web Programming(IT504PC)** | | |
| C314.1 | Design web pages. | BTL6 |
| C314.2 | Use technologies of Web Programming. | BTL3 |
| C314.3 | Apply object-oriented aspects to Scripting. | BTL3 |
| C314.4 | Create databases with connectivity using JDBC. | BTL6 |
| C314.5 | Build web-based application using sockets. | BTL6 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C315 – Principle of Programming Languages(CS515PE)** | | |
| C315.1 | Acquire the skills for expressing syntax and semantics in formalnotation. | BTL3 |
| C315.2 | Identify and apply a suitable programming paradigm for a given computing application. | BTL3 |
| C315.3 | Gain knowledge of and able to compare the features of various programming languages. | BTL1 |
| C315.4 | Use formal systems, including Formal Language Descriptions, Lambda Calculus, and Denotational Semantics, to explain and model various programming language concepts. | BTL3 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C316 – Machine Learning(IT523PE)** | | |
| C316.1 | Understand the concepts of computational intelligence like machine learning | BTL2 |
| C316.2 | Apply machine learning techniques to address the real time problems in different area | BTL3 |
| C316.3 | Understand the Neural Networks and its usage in machine learning application. | BTL2 |
| C316.4 | Understand a wide variety of learning algorithm | BTL2 |
| C316.5 | Understand how to evaluate models generated from data | BTL2 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C317 – Software Engineering Lab(CS505PC)** | | |
| C317.1 | Translate end-user requirements into system and software requirements. | BTL6 |
| C317.2 | Generate a high-level design of the system from the software Requirements. | BTL6 |
| C317.3 | Have experience and/or awareness of testing problems and will be able to develop a simple testing report. | BTL2 |
| C317.4 | Translate end-user requirements into system and software requirements, using e.g.UML, and structure the requirements in a Software Requirements Document (SRD). | BTL6 |
| C317.5 | Develop a software project by using various software engineering principles and methods in each of the phases of software development. | BTL6 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C318 – Computer Networks and Web Technologies Lab (IT506PC)** | | |
| C318.1 | Implement data link layer farming methods. | BTL3 |
| C318.2 | Analyze error detection and error correction codes. | BTL4 |
| C318.3 | Implement and analyze routing and congestion issues in networkdesign. | BTL4 |
| C318.4 | Implement Encoding and Decoding techniques used in presentation Layer. | BTL3 |
| C318.5 | Work with different network tools. | BTL2 |

# Course Outcomes

**Academic Year – 2021-2022** **Year: IV & Semester: I (JNTUH)**

**Student will be able to**

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C411 – Information Security(IT701PC)** | | |
| C411.1 | Demonstrate the knowledge of cryptography, network security concepts and applications. | BTL3 |
| C411.2 | Apply security principles in system design. | BTL3 |
| C411.3 | Apply critical thinking and problem solving skills to detect current and future attacks on an organizations computer systems and networks | BTL3 |
| C411.4 | Apply business principles to analyze and interpret data for planning, decision making , and problem solving in information security environment | BTL3 |
| C411.5 | Understand the difference between threats and attacks | BTL4 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C412 – Data Mining(CS703PC)** | | |
| C412.1 | Understand the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system. | BTL2 |
| C412.2 | Apply preprocessing methods for any given raw data. | BTL3 |
| C412.3 | Extract interesting patterns from large amounts of data. | BTL6 |
| C412.4 | Discover the role played by data mining in various fields. | BTL6 |
| C412.5 | Choose and employ suitable data mining algorithms to build analytical applications | BTL2 |
| C412.6 | Evaluate the accuracy of supervised and unsupervised models and Algorithms | BTL5 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C413 – Cloud Computing(CS714PE)** | | |
| C413.1 | Understand various service delivery models of a cloud computing architecture. | BTL2 |
| C413.2 | Understand the ways in which the cloud can be programmed and deployed. | BTL2 |
| C413.3 | Understanding cloud service providers. | BTL2 |
| C413.4 | Analyze various cloud programming models and apply them to solve problems on the cloud | BTL4 |
| C413.5 | Discuss system, network and storage virtualization and outline their role in enabling the cloud computing system model. | BTL2 |

| CO. No. | Description | Bloom's Taxonomy Level |
|---|---|---|
| **Course Outcomes: C414 - Software Process and Project Management(CS725PE)** | | |
| C414.1 | Gain knowledge of software economics, phases in the life cycle of software development, project organization, project control and process instrumentation | BTL1 |
| C414.2 | Analyze the major and minor milestones, artifacts and metrics from management and technical perspective | BTL4 |
| C414.3 | Design and develop software product using conventional and modern principles of software project management | BTL6 |
| C414.4 | Identify the different project contexts and suggest an appropriate management strategy. | BTL2 |
| C414.5 | Determine an appropriate project management approach through an evaluation of the business context and scope of the project. | BTL5 |
| **CO. No.** | **Description** | **Bloom's Taxonomy Level** |
| **Course Outcomes: C415 –Information Security Lab(IT703PC)** | | |
| C415.1 | Formulate information security governance, and related legal and regulatory issues. | BTL3 |
| C415.2 | Device how threats to an organization are discovered, analyzed, and dealt with. | BTL4 |
| C415.3 | Evaluate network security threats and countermeasures. | BTL5 |
| C415.4 | Construct network security designs using available secure solutions (such as PGP, SSL, IPSec, etc) | BTL6 |
| C415.5 | Acquire the knowledge of advanced security issues and technologies (such as DDoS attack detection and containment, and anonymous communications) | BTL3 |