

Vignan Institute of Technology and Science, Yadadri Bhuvanagiri

2020-21

Computer Science and Engineering

C S E 2-1 (Div A)-20-21	
C201 Analog and Digital Electronics [Theory regular]	
CO ID.	Course Outcome
C201.1	To introduce components such as diodes, BJTs and FETs.
C201.2	To know the applications of components.
C201.3	To give understanding of various types of amplifier circuits
C201.4	To learn basic techniques for the design of digital circuits and fundamental concepts used in the design of digital systems.
C201.5	To understand the concepts of combinational logic circuits and sequential circuits.
C202 Data Structures [Theory regular]	
CO ID.	Course Outcome
C202.1	Analyze and able to use different data structures that efficiently model the information in a problem
C202.2	Ability to assess efficiency trade-offs among different data structure implementations or combinations
C202.3	Analyze and implement various search trees to process data efficiently
C202.4	Able to use and implement graph data structure in real time applications
C202.5	Analyze and use sorting technique & various pattern matching algorithms
C203 Computer Oriented Statistical Methods [Theory regular]	
CO ID.	Course Outcome
C203.1	Basic Properties of Probability and probability distributions
C203.2	Discrete probability distributions
C203.3	Procedural of Sampling theory
C203.4	Testing of hypothesis and making inferences
C203.5	Stochastic process and Markov chains
C204 Computer Organization and Architecture [Theory regular]	
CO ID.	Course Outcome
C204.1	Understand the basics of instructions sets and their impact on processor design.
C204.2	Demonstrate an understanding of the design of the functional units of a digital computer system.
C204.3	Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.
C204.4	Design a pipeline for consistent execution of instructions with minimum hazards.
C204.5	Recognize and manipulate representations of numbers stored in digital computers
C205 Object Oriented Programming using C [Theory regular]	
CO ID.	Course Outcome
C205.1	Able to develop programs with reusability

C205.2	Develop programs for file handling
C205.3	Handle exceptions in programming
C205.4	Develop applications for a range of problems using object-oriented programming techniques
C206 Analog and Digital Electronics Lab [Practical regular]	
CO ID.	Course Outcome
C206.1	To Know the characteristics of various components
C206.2	To understand the utilization of components.
C206.3	To design and analyze small signal amplifier circuits
C206.4	To postulates of Boolean algebra and to minimize combinational functions
C206.5	To design and analyze combinational and sequential circuits
C206.6	To known about the logic families and realization of logic gates.
C207 Data Structures Lab [Practical regular]	
CO ID.	Course Outcome
C207.1	Ability to develop C programs for computing and real-life applications using basic elementslike control statements, arrays, functions, pointers and strings, and data structures like stacks,queues and linked lists.
C207.2	Ability to Implement searching and sorting algorithms
C208 IT Workshop Lab [Practical regular]	
CO ID.	Course Outcome
C208.1	Apply knowledge for computer assembling and software installation.
C208.2	Ability how to solve the trouble shooting problems
C208.3	Apply the tools for preparation of PPT, Documentation and budget sheet etc.
C209 Cpp Programming Lab [Practical regular]	
CO ID.	Course Outcome
C209.1	Able to develop programs with reusability
C209.2	Develop programs for file handling
C209.3	Handle exceptions in programming
C209.4	Develop applications for a range of problems using object-oriented programming techniques
C210 Gender Sensitization Lab [Practical regular]	
CO ID.	Course Outcome
C210.1	Students will have developed a better understanding of important issues related to gender in contemporary India.
C210.2	Students will be sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
C210.3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
C210.4	Students will acquire insight into the gendered division of labor and its relation to politics and economics.
C210.5	Men and women students and professionals will be better equipped to work and live together as equals
C210.6	Students will develop a sense of appreciation of women in all walks of life.

C210.7	Through providing accounts of studies and movements as well as the new laws that provide protection and relief to women, the textbook will empower students to understand and respond to gender violence.
C219 constitution of India [Theory regular]	
CO ID.	Course Outcome
C219.1	Able to know about Drafting and Formulation of Indian constitution
C219.2	Influence from other constitutions
C219.3	Parts of Indian constitution
C219.4	Form of Government
C219.5	Fundamental rights of Indian citizens
C S E 2-1 (Div B)-20-21	
C201 Analog and Digital Electronics [Theory regular]	
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C201.1	To introduce components such as diodes, BJTs and FETs.
C201.2	To know the applications of components.
C201.3	To give understanding of various types of amplifier circuits
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C202 Data Structures [Theory regular]	
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C202.4	Able to use and implement graph data structure in real time applications
C202.5	Analyze and use sorting technique & various pattern matching algorithms
C203 Computer Oriented Statistical Methods [Theory regular]	
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C203.1	Basic Properties of Probability and probability distributions
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C S E 2-1 (Div C)-20-21	
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C S E 3-1 (Div A)-20-21	
C301 Formal Languages and Automata Theory [Theory regular]	
CO ID.	Course Outcome
C301.1	Able to understand and design finite automata and understand their power to recognize the languages.
C301.2	Able to understand regular languages & regular expression for corresponding finite automata and able to check equivalence and minimization of finite automata.
C301.3	Able to understand and design context free grammars and their corresponding push down automata.
C301.4	Able to understand context free languages & normal forms for its corresponding grammar and design basic turing machine.
C301.5	Able to understand different types of turing machine and distinguish between decidability & undecidability with corresponding problems.
C302 Software Engineering [Theory regular]	
CO ID.	Course Outcome
C302.1	Students should able to identify the minimum requirements for the development of application.
C302.2	Students should able to develop, maintain, efficient, reliable and cost effective softwaresolutions.
C302.3	Students should able to think and evaluate assumptions and arguments.
C302.4	Students should able to translate a specification into a design, and identify the components to build the architecture for a given problem, all using an appropriate software engineering methodology
C302.5	Students should able to formulate a testing strategy for a software system, employing techniques such as unit testing, test driven development and functional testing.

C303 Computer Networks [Theory regular]	
CO ID.	Course Outcome
C303.1	Gain the knowledge of the basic computer network technology.
C303.2	Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.
C303.3	Obtain the skills of subnetting and routing mechanisms
C303.4	Familiarity with the essential protocols of computer networks, and how they can be applied in network design and implementation
C304 Web Technologies [Theory regular]	
CO ID.	Course Outcome
C304.1	Students should able to understand server side scripting with PHP language
C304.2	Students should able to understand XML, and how to parse and use XML data with java
C304.3	Students should able to introduce Server side programming with Java Servlets and JDBC.
C304.4	Students should able to introduce Server side programming with JSP and JDBC
C304.5	Students should able to gain knowledge of client side scripting, validation of forms and AJAX programming
C305 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C305.4	Understand the impact of data analytics for business decisions and strategy
C305.3	Carry out data analysis/statistical analysis
C305.5	To carry out standard data visualization and formal inference procedures
C305.1	Design Data Architecture
C305.2	Understand various Data Sources
C306 Computer Graphics [Theory regular]	
CO ID.	Course Outcome
C306.1	: Understand the various applications of graphics and interactive input and output devices.
C306.2	Design and Implement the algorithms to draw the line, circle and ellipse.
C306.3	Apply different geometrical transformations such as translation, scaling, rotation, reflection and shear in 2D
C306.4	: Understand 2D Coordinate transformation, viewing functions and various clipping algorithms
C306.5	Understand the various display methods , geometrical & coordinate transformations in 3D.
C307 Software Engineering Lab [Practical regular]	
CO ID.	Course Outcome
C307.1	Describe the principles and techniques of software engineering and develop a business plan for a startup software business
C307.2	Identify the feasible software requirements for the development of quality product
C307.3	Discuss the technical documentations and make presentations on various aspects of a software development
C307.4	Apply the constructs of unified modeling language for the efficient design of the software product

C307.5	Illustrates software testing and quality assurance techniques at the module level, and understand these techniques at the system and organization level
C308 Computer Networks and Web Technologies Lab [Practical regular]	
CO ID.	Course Outcome
C308.1	Implement data link layer framing methods
C308.2	Analyze error detection and error correction codes
C308.3	Implement and analyze routing and congestion issues in network design
C308.4	Implement Encoding and Decoding techniques used in presentation layer
C308.5	To be able to work with different network tools
C309 Advanced Communication Skills Lab [Practical regular]	
CO ID.	Course Outcome
C309.1	Acquire vocabulary and use it contextually
C309.2	Listen and speak effectively
C309.3	Develop proficiency in academic reading and writing
C309.4	Increase possibilities of job prospects
C309.5	Communicate confidently informal and informal contexts
C310 Intellectual Property Rights [Theory regular]	
CO ID.	Course Outcome
C310.1	Get an insight into the types of IPR and various international agencies and treaties relating to IPR
C310.2	Understand the various types of marks and The Trademark Act in India
C310.3	Gain information about the Patent and Copyright Law in India
C310.4	Familiarity with the essentials of trade secrets and unfair trade practices
C310.5	Knowledge about International IPR laws
C S E 3-1 (Div B)-20-21	
C301 Formal Languages and Automata Theory [Theory regular]	
CO ID.	Course Outcome
C301.1	Able to understand and design finite automata and understand their power to recognize the languages.
C301.2	Able to understand regular languages & regular expression for corresponding finite automata and able to check equivalence and minimization of finite automata.
C301.3	Able to understand and design context free grammars and their corresponding push down automata.
C301.4	Able to understand context free languages & normal forms for its corresponding grammar and design basic turing machine.
C301.5	Able to understand different types of turing machine and distinguish between decidability & undecidability with corresponding problems.
C302 Software Engineering [Theory regular]	
CO ID.	Course Outcome
C302.1	Ability to translate end-user requirements into system and software requirements, using e.g. UML, and structure the requirements in a Software Requirements Document (SRD).
C302.2	Identify and apply appropriate software architectures and patterns to carry out high level design of a system and be able to critically compare alternative choices.

C302.3	Will have experience and/or awareness of testing problems and will be able to develop a simple testing report
C303 Computer Networks [Theory regular]	
CO ID.	Course Outcome
C303.1	Gain the knowledge of the basic computer network technology.
C303.2	Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.
C303.3	Obtain the skills of subnetting and routing mechanisms
C303.4	Familiarity with the essential protocols of computer networks, and how they can be applied in network design and implementation
C304 Web Technologies [Theory regular]	
CO ID.	Course Outcome
C304.1	Students should able to understand server side scripting with PHP language
C304.2	Students should able to understand XML, and how to parse and use XML data with java
C304.3	Students should able to introduce Server side programming with Java Servlets and JDBC.
C304.4	Students should able to introduce Server side programming with JSP and JDBC
C304.5	Students should able to gain knowledge of client side scripting, validation of forms and AJAX programming
C305 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C305.1	Design Data Architecture
C305.2	Understand various Data Sources
C305.3	Carry out data analysis/statistical analysis
C305.4	Understand the impact of data analytics for business decisions and strategy
C305.5	To carry out standard data visualization and formal inference procedures
C306 Computer Graphics [Theory regular]	
CO ID.	Course Outcome
C306.1	To apply knowledge of geometric, mathematical and algorithmic concepts required for elementary graphics operations.
C306.2	To understand and implement the concept of polygon filling, windowing and clipping.
C306.3	To design and implement interactive 2D and 3D computer graphics.
C306.4	Design and develop graphics applications using modern tools like Blender by applying the knowledge of color models.
C306.5	Understand strategic approach to solve problems in the domain of Computer Graphics.
C307 Software Engineering Lab [Practical regular]	
CO ID.	Course Outcome
C307.1	Describe the principles and techniques of software engineering and develop a business plan for a startup software business
C307.2	Identify the feasible software requirements for the development of quality product
C307.3	Discuss the technical documentations and make presentations on various aspects of a software development

C307.4	Apply the constructs of unified modeling language for the efficient design of the software product
C307.5	Illustrates software testing and quality assurance techniques at the module level, and understand these techniques at the system and organization level
C308 Computer Networks and Web Technologies Lab [Practical regular]	
CO ID.	Course Outcome
C308.1	Implement data link layer framing methods
C308.2	Analyze error detection and error correction codes
C308.3	Implement and analyze routing and congestion issues in network design
C308.4	Implement Encoding and Decoding techniques used in presentation layer
C308.5	To be able to work with different network tools
C309 Advanced Communication Skills Lab [Practical regular]	
CO ID.	Course Outcome
C309.1	Acquire vocabulary and use it contextually
C309.2	Listen and speak effectively
C309.3	Develop proficiency in academic reading and writing
C309.4	Increase possibilities of job prospects
C309.5	Communicate confidently informal and informal contexts
C310 Intellectual Property Rights [Theory regular]	
CO ID.	Course Outcome
C310.1	The student can be able to know and understand the importance, federal registration and types of intellectual property rights
C310.2	The student can be able to explain the trademark evaluation and registration process
C310.3	The student can understand describe the fundamentals of copyright law and illustrate international copyright law with respect to ownership and registration of copyrights
C310.4	The student can be able to describe Trade secret law and determine trade secret status and describe misappropriation right of publicity
C310.5	The student can be able to understand international trademark law, copyright law, patent law and trade secret law and describe new developments in trade
C S E 3-1 (Div C)-20-21	
C301 Formal Languages and Automata Theory [Theory regular]	
CO ID.	Course Outcome
C301.1	Able to understand and design finite automata and understand their power to recognize the languages.
C301.2	Able to understand regular languages & regular expression for corresponding finite automata and able to check equivalence and minimization of finite automata.
C301.3	Able to understand and design context free grammars and their corresponding push down automata.
C301.4	Able to understand context free languages & normal forms for its corresponding grammar and design basic turing machine.
C301.5	Able to understand different types of turing machine and distinguish between decidability & undecidability with corresponding problems.
C302 Software Engineering [Theory regular]	
CO ID.	Course Outcome

C302.1	Students should able to identify the minimum requirements for the development of application.
C302.2	Students should able to develop, maintain, efficient, reliable and cost effective softwaresolutions.
C302.3	Students should able to think and evaluate assumptions and arguments.
C302.4	Students should able to translate a specification into a design, and identify the components tobuild the architecture for a given problem, all using an appropriate software engineeringmethodology
C302.5	Students should able to formulate a testing strategy for a software system, employingtechniques such as unit testing, test driven development and functional testing.
C303 Computer Networks [Theory regular]	
CO ID.	Course Outcome
C303.1	Gain the knowledge of the basic computer network technology.
C303.2	Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.
C303.3	Obtain the skills of subnetting and routing mechanisms
C303.4	Familiarity with the essential protocols of computer networks, and how they can be applied in network design and implementation
C304 Web Technologies [Theory regular]	
CO ID.	Course Outcome
C304.1	Students should able to understand server side scripting with PHP language
C304.2	Students should able to understand XML, and how to parse and use XML data with java
C304.3	Students should able to introduce Server side programming with Java Servlets and JDBC..
C304.4	Students should able to introduce Server side programming with JSP and JDBC
C304.5	Students should able to gain knowledge of client side scripting, validation of forms and AJAX programming
C305 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C305.1	Understand the impact of data analytics for business decisions and strategy
C305.2	Carry out data analysis/statistical analysis
C305.3	To carry out standard data visualization and formal inference procedures
C305.4	Design Data Architecture
C305.5	Understand various Data Sources
C306 Computer Graphics [Theory regular]	
CO ID.	Course Outcome
C306.1	To apply knowledge of geometric, mathematical and algorithmic concepts required for elementary graphics operations.
C306.2	To understand and implement the concept of polygon filling, windowing and clipping.
C306.3	To design and implement interactive 2D and 3D computer graphics.
C306.4	Design and develop graphics applications using modern tools like Blender by applying the knowledge of color models.
C306.5	Understand strategic approach to solve problems in the domain of Computer Graphics.

C306.6	To understand the concept related to computer vision and virtual reality.
C307 Software Engineering Lab [Practical regular]	
CO ID.	Course Outcome
C307.1	Describe the principles and techniques of software engineering and develop a business plan for a startup software business
C307.2	Identify the feasible software requirements for the development of quality product
C307.3	Discuss the technical documentations and make presentations on various aspects of a software development
C307.4	Apply the constructs of unified modeling language for the efficient design of the software product
C307.5	Illustrates software testing and quality assurance techniques at the module level, and understand these techniques at the system and organization level
C308 Computer Networks and Web Technologies Lab [Practical regular]	
CO ID.	Course Outcome
C308.1	Implement data link layer framing methods
C308.2	Analyze error detection and error correction codes
C308.3	Implement and analyze routing and congestion issues in network design
C308.4	Implement Encoding and Decoding techniques used in presentation layer
C308.5	To be able to work with different network tools
C309 Advanced Communication Skills Lab [Practical regular]	
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C309.1	Acquire vocabulary and use it contextually
C309.2	Listen and speak effectively
C316.3	Develop proficiency in academic reading and writing
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C309.5	Communicate confidently informal and informal contexts
C310 Intellectual Property Rights [Theory regular]	
CO ID.	Course Outcome
C310.1	The student can be able to know and understand the importance, federal registration and types of intellectual property rights
C310.2	The student can be able to explain the trademark evaluation and registration process
C310.3	The student can understand describe the fundamentals of copyright law and illustrate international copyright law with respect to ownership and registration of copyrights
C310.4	The student can be able to describe Trade secret law and determine trade secret status and describe misappropriation right of publicity
C310.5	The student can be able to understand international trademark law, copyright law, patent law and trade secret law and describe new developments in trade
C S E 4-1 (Div A)-20-21	
C401 Data Mining [Theory regular]	
CO ID.	Course Outcome
C401.1	Ability to perform the preprocessing of data and apply mining techniques on it
C401.3	Ability to solve real world problems in business and scientific information using data mining

C401.4	Ability to classify web pages, extracting knowledge from theWeb
C401.2	Ability to identify the association rules, classification and clusters in large data sets
C402 Principles of Programming Languages [Theory regular]	
CO ID.	Course Outcome
C402.1	Ability to express syntax and semantics in formal notation.
C402.2	Ability to apply suitable programming paradigm for the application
C402.3	Ability to compare the features of various programming languages.
C402.4	Able to understand the programming paradigms of modern programming languages.
C402.5	Able to understand the concepts of ADT and OOP.
C402.6	Ability to program in different language paradigms and evaluate their relative benefits.
C403 Python Programming [Theory regular]	
CO ID.	Course Outcome
C403.1	To be able to introduce core programming basics and program design with functions using Python programming language.
C403.2	To understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.
C403.3	To understand the high-performance programs designed to strengthen the practical expertise.
C404 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C404.1	Understand the concepts of computational intelligence like machine learning
C404.2	Understand the Neural Networks and its usage in machine learning application
C404.3	Ability to get the skill to apply machine learning techniques to address the Computational and Instance based Learning problems
C404.4	Understand Genetic algorithmic Approach and its complexity in Machine Learning
C404.5	Ability to get the skill to analyze the learning ability for search control knowledge
C405 Cloud Computing [Theory regular]	
CO ID.	Course Outcome
C405.1	Ability to understand various service delivery models of a cloud computingarchitecture.
C405.2	Ability to understand the ways in which the cloud can be programmed and deployed
C405.3	Understanding cloud service providers.
C406 Data Mining Lab [Practical regular]	
CO ID.	Course Outcome
C406.1	Ability to perform the pre processing of data and apply mining techniques on it.
C406.2	Ability to identify the association rules, classification and clusters in large data sets.
C406.3	Ability to solve real world problems in business and scientific information using data mining
C406.4	Ability to classify web pages, extracting knowledge from the web

C407 Python Programming Lab [Practical regular]	
CO ID.	Course Outcome
C407.1	Student should be able to understand the basic concepts scripting and the contributions of scripting language
C407.2	Ability to explore python especially the object-oriented concepts, and the built-in objects of Python.
407.3	Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations
C412 Industry Oriented Mini Project [Practical regular]	
CO ID.	Course Outcome
C412.1	Students should able to estimate the ability of the student in transforming the theoretical knowledge studied so far into application software
C412.2	Students should able to gain experience in organization and implementation of a small project and thus acquire the necessary confidence to carry out main project in the final year.
C412.3	Students should able to understand and gain the knowledge of software engineering practices, so as to participate and manage large software engineering projects in future.
C412.4	Students should able to Awareness of design methodologies & its implementation.
C412.5	Students should able to Manage a project from beginning to end work independently as well as in teams
C S E 4-1 (Div B)-20-21	
C401 Data Mining [Theory regular]	
CO ID.	Course Outcome
C401.1	Ability to perform the preprocessing of data and apply mining techniques on it
C401.2	Ability to identify the association rules, classification and clusters in large data sets
C401.3	Ability to solve real world problems in business and scientific information using data mining
C401.4	Ability to classify web pages, extracting knowledge from the Web
C402 Principles of Programming Languages [Theory regular]	
CO ID.	Course Outcome
C402.1	Ability to express syntax and semantics in formal notation.
C402.2	Ability to apply suitable programming paradigm for the application
C402.3	Ability to compare the features of various programming languages.
C402.4	Able to understand the programming paradigms of modern programming languages.
C402.5	Able to understand the concepts of ADT and OOP.
C402.6	Ability to program in different language paradigms and evaluate their relative benefits.
C403 Python Programming [Theory regular]	
CO ID.	Course Outcome
C403.1	To be able to introduce core programming basics and program design with functions using Python programming language.
C403.2	To understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.

C403.3	To understand the high-performance programs designed to strengthen the practical expertise.
C404 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C404.1	Understand the concepts of computational intelligence like machine learning
C404.2	Understand the Neural Networks and its usage in machine learning application
C404.3	Ability to get the skill to apply machine learning techniques to address the Computational and Instance based Learning problems
C404.4	Understand Genetic algorithmic Approach and its complexity in Machine Learning
C404.5	Ability to get the skill to analyze the learning ability for search control knowledge
C405 Cloud Computing [Theory regular]	
CO ID.	Course Outcome
C405.1	Ability to understand various service delivery models of a cloud computing architecture.
C405.2	Ability to understand the ways in which the cloud can be programmed and deployed
C405.3	Understanding cloud service providers.
C406 Data Mining Lab [Practical regular]	
CO ID.	Course Outcome
C406.1	Ability to perform the pre processing of data and apply mining techniques on it.
C406.2	Ability to identify the association rules, classification and clusters in large data sets.
C406.3	Ability to solve real world problems in business and scientific information using data mining
C406.4	Ability to classify web pages, extracting knowledge from the web
C407 Python Programming Lab [Practical regular]	
CO ID.	Course Outcome
C407.1	Student should be able to understand the basic concepts scripting and the contributions of scripting language
C407.2	Ability to explore python especially the object-oriented concepts, and the built-in objects of Python.
407.3	Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations
C412 Industry Oriented Mini Project [Practical regular]	
CO ID.	Course Outcome
C412.1	Students should able to estimate the ability of the student in transforming the theoretical knowledge studied so far into application software
C412.2	Students should able to gain experience in organization and implementation of a small project and thus acquire the necessary confidence to carry out main project in the final year.
C412.3	Students should able to understand and gain the knowledge of software engineering practices, so as to participate and manage large software engineering projects in future.
C412.4	Students should able to Awareness of design methodologies & its implementation.

C412.5	Students should able to Manage a project from beginning to end work independently as well as in teams
C S E 4-1 (Div C)-20-21	
C401 Data Mining [Theory regular]	
CO ID.	Course Outcome
C401.1	Ability to perform the preprocessing of data and apply mining techniques on it
C401.2	Ability to identify the association rules, classification and clusters in large data sets
C401.3	Ability to solve real world problems in business and scientific information using data mining
C401.4	Ability to classify web pages, extracting knowledge from the Web
C402 Principles of Programming Languages [Theory regular]	
CO ID.	Course Outcome
C402.1	Ability to express syntax and semantics in formal notation.
C402.2	Ability to apply suitable programming paradigm for the application
C402.3	Ability to compare the features of various programming languages.
C402.4	Able to understand the programming paradigms of modern programming languages.
C402.5	Able to understand the concepts of ADT and OOP.
C402.6	Ability to program in different language paradigms and evaluate their relative benefits.
C403 Python Programming [Theory regular]	
CO ID.	Course Outcome
C403.1	To be able to introduce core programming basics and program design with functions using Python programming language.
C403.2	To understand a range of Object-Oriented Programming, as well as in-depth data and information processing techniques.
C403.3	To understand the high-performance programs designed to strengthen the practical expertise.
C404 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C404.1	Understand the concepts of computational intelligence like machine learning
C404.2	Understand the Neural Networks and its usage in machine learning application
C404.3	Ability to get the skill to apply machine learning techniques to address the Computational and Instance based Learning problems
C404.4	Understand Genetic algorithmic Approach and its complexity in Machine Learning
C404.5	Ability to get the skill to analyze the learning ability for search control knowledge
C405 Cloud Computing [Theory regular]	
CO ID.	Course Outcome
C405.1	Ability to understand various service delivery models of a cloud computing architecture.
C405.2	Ability to understand the ways in which the cloud can be programmed and deployed
C405.3	Understanding cloud service providers.

C406 Data Mining Lab [Practical regular]	
CO ID.	Course Outcome
C406.1	Ability to perform the pre processing of data and apply mining techniques on it.
C406.2	Ability to identify the association rules, classification and clusters in large data sets.
C406.3	Ability to solve real world problems in business and scientific information using data mining
C406.4	Ability to classify web pages, extracting knowledge from the web
C407 Python Programming Lab [Practical regular]	
CO ID.	Course Outcome
C407.1	Student should be able to understand the basic concepts scripting and the contributions of scripting language
C407.2	Ability to explore python especially the object-oriented concepts, and the built-in objects of Python.
C407.3	Ability to create practical and contemporary applications such as TCP/IP network programming, Web applications, discrete event simulations
C412 Industry Oriented Mini Project [Practical regular]	
CO ID.	Course Outcome
C412.1	Students should able to estimate the ability of the student in transforming the theoretical knowledge studied so far into application software
C412.2	Students should able to gain experience in organization and implementation of a small project and thus acquire the necessary confidence to carry out main project in the final year.
C412.3	Students should able to understand and gain the knowledge of software engineering practices, so as to participate and manage large software engineering projects in future.
C412.4	Students should able to Awareness of design methodologies & its implementation.
C412.5	Students should able to Manage a project from beginning to end work independently as well as in teams
C S E 2-2 (Div A)-20-21	
C211 DISCRETE MATHEMATICS [Theory regular]	
CO ID.	Course Outcome
C211.1	Student can understand propositional logic, using which they can prove or disprove a mathematical theorem.
C211.2	Students can be able to understand properties of relations, functions, and use them in programming languages.
C211.3	Students can be able to learn algorithms and inductions and apply in program Coding.
C211.4	Students can be able to understand basic probability and recurrence relations and apply them in real world problems.
C211.5	Students can be able to understand properties of Graphs, which can be used in Networks.
C212 BUSINESS ECONOMICS & FINANCIAL ANALYSIS [Theory regular]	
CO ID.	Course Outcome
C212.1	Students get introduced to business economics and the various micro and macro economic concepts

C212.2	Get familiar with the determinants of demand and the elasticity and forecasting of future demand
C212.3	Gain an understanding about optimum utilization of resources and cost and output relationship along with the market structure and pricing strategies in light of competition
C212.4	Expertise in preparation of financial statements
C212.5	Proficient in analyzing the financial statements
C213 OPERATING SYSTEMS [Theory regular]	
CO ID.	Course Outcome
C213.1	Will be able to control access to a computer and the files that may be shared.
C213.2	Demonstrate the knowledge of the components of computer and their respective roles in Computing.
C213.3	Ability to recognize and resolve user problems with standard operating environments.
C213.4	Gain practical knowledge of how programming languages, operating systems, and Architectures interact and how to use each effectively
C214 DATABASE MANAGEMENT SYSTEMS [Theory regular]	
CO ID.	Course Outcome
C214.1	Gain knowledge of fundamentals of DBMS, database design and normal forms
C214.2	Master the basics of SQL for retrieval and management of data.
C214.3	Be acquainted with the basics of transaction processing and concurrency control.
C214.4	Familiarity with database storage structures and access techniques
C215 JAVA PROGRAMMING [Theory regular]	
CO ID.	Course Outcome
C215.1	Able to solve real world problems using Object Oriented Programming techniques through Java and understand the use of abstract classes.
C215.2	Able to understand the use of packages, interfaces and Able to solve problems using I/o classes.
C215.3	Able to handle exceptions and develop multithreaded applications with synchronization.
C215.4	Able to solve problems using java collection framework.
C215.5	Able to develop applets for web applications.
C215.6	Able to design GUI based applications
C216 Operating Systems Lab [Practical regular]	
CO ID.	Course Outcome
C216.1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.
C216.2	Able to implement C programs using Unix system calls
C217 Database Management Systems Lab [Practical regular]	
CO ID.	Course Outcome
C217.1	Design database schema for a given application and apply normalization
C217.2	Acquire skills in using SQL commands for data definition and data manipulation.
C217.3	Develop solutions for database applications using procedures, cursors and triggers

C218 Java Programming Lab [Practical regular]	
CO ID.	Course Outcome
C218.1	Able to write programs for solving real world problems using java collection frame work.
C218.2	Able to write programs using abstract classes.
C218.3	Able to write multithreaded programs.
C218.4	Able to write GUI programs using swing controls in Java.
C S E 2-2 (Div B)-20-21	
C211 DISCRETE MATHEMATICS [Theory regular]	
CO ID.	Course Outcome
C211.1	Ability to understand and construct precise mathematical proofs
C211.2	Ability to use logic and set theory to formulate precise statements
C211.3	Ability to analyze and solve counting problems on finite and discrete structures
C211.4	Ability to describe and manipulate sequences
C211.5	Ability to apply graph theory in solving computing problems
C212 BUSINESS ECONOMICS & FINANCIAL ANALYSIS [Theory regular]	
CO ID.	Course Outcome
C212.1	Students get introduced to business economics and the various micro and macro economic concepts
C212.2	Get familiar with the demand determinants and elasticity and forecasting of future demand
C212.3	Gain an understanding about the optimum utilization of resources and cost output relationships along with the market structure and pricing in light of competition
C212.4	Expertise in preparation of financial statements
C212.5	Proficient in analyzing the financial statements
C213 OPERATING SYSTEMS [Theory regular]	
CO ID.	Course Outcome
C213.1	Will be able to control access to a computer and the files that may be shared
C213.2	Demonstrate the knowledge of the components of computer and their respective roles in computing.
C213.3	Ability to recognize and resolve user problems with standard operating environments.
C213.4	Gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.
C214 DATABASE MANAGEMENT SYSTEMS [Theory regular]	
CO ID.	Course Outcome
C214.1	Gain knowledge of fundamentals of DBMS, database design and normal forms
C214.2	Master the basics of SQL for retrieval and management of data
C214.3	Be acquainted with the basics of transaction processing and concurrency control
C214.4	Familiarity with database storage structures and access techniques
C215 JAVA PROGRAMMING [Theory regular]	
CO ID.	Course Outcome
C215 1	Able to solve real world problems using Object Oriented Programming techniques through java and understand the use of abstract classes

C215.2	Able to understand the use of packages, interfaces and Able to solve problems using I/o classes.
C215.3	Able to handle exceptions and develop multithreaded applications with synchronization.
C215.4	Able to solve problems using java collection framework.
C215.5	Able to develop applets for web applications.
C215.6	Able to design GUI based applications
C216 Operating Systems Lab [Practical regular]	
CO ID.	Course Outcome
C216.1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.
C216.2	Able to implement C programs using Unix system calls
C217 Database Management Systems Lab [Practical regular]	
CO ID.	Course Outcome
C217.1	Design database schema for a given application and apply normalization
C217.2	Acquire skills in using SQL commands for data definition and data manipulation.
C217.3	Develop solutions for database applications using procedures, cursors and triggers
C218 Java Programming Lab [Practical regular]	
CO ID.	Course Outcome
C218.1	Able to write programs for solving real world problems using java collection frame work.
C218.2	Able to write programs using abstract classes.
C218.3	Able to write multithreaded programs.
C218.4	Able to write GUI programs using swing controls in Java.
C S E 2-2 (Div C)-20-21	
C211 DISCRETE MATHEMATICS [Theory regular]	
CO ID.	Course Outcome
C211.1	Ability to understand and construct precise mathematical proofs
C211.2	Ability to use logic and set theory to formulate precise statements
C211.3	Ability to analyze and solve counting problems on finite and discrete structures
C211.4	Ability to describe and manipulate sequences
C211.5	Ability to apply graph theory in solving computing problems
C212 BUSINESS ECONOMICS & FINANCIAL ANALYSIS [Theory regular]	
CO ID.	Course Outcome
C212.1	Students get introduced to business economics and the various micro and macro economic concepts
C212.2	Get familiar with the determinants of demand and the elasticity and forecasting of future demand
C212.3	Gain an understanding about the optimum utilization of resources and cost output relationship along with market structures and pricing in light of competition
C212.4	Expertise in preparation of financial statements
C212.5	Proficient in analyzing the financial statements
C213 OPERATING SYSTEMS [Theory regular]	

CO ID.	Course Outcome
C213.1	Will be able to control access to a computer and the files that may be shared
C213.2	Demonstrate the knowledge of the components of computer and their respective roles in computing.
C213.3	Ability to recognize and resolve user problems with standard operating environments.
C213.4	Gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.
C214 DATABASE MANAGEMENT SYSTEMS [Theory regular]	
CO ID.	Course Outcome
C214.1	Gain knowledge of fundamentals of DBMS, database design and normal forms
C214.3	Master the basics of SQL for retrieval and management of data.
C214.4	Be acquainted with the basics of transaction processing and concurrency control.
C214.2	Demonstrate the basic elements of a relational model. relational algebra and calculus.
C214.5	Familiarity with database storage structures and access techniques.
C215 JAVA PROGRAMMING [Theory regular]	
CO ID.	Course Outcome
C215.1	Able to solve real world problems using Object Oriented Programming techniques through Java and understand the use of abstract classes.
C215.2	Able to understand the use of packages, interfaces and Able to solve problems using I/o classes.
C215.3	Able to handle exceptions and develop multithreaded applications with synchronization.
C215.4	Able to solve problems using java collection framework.
C215.5	Able to develop applets for web applications.
C215.6	Able to design GUI based applications
C216 Operating Systems Lab [Practical regular]	
CO ID.	Course Outcome
C216.1	Simulate and implement operating system concepts such as scheduling, deadlock management, file management and memory management.
C216.2	Able to implement C programs using Unix system calls
C217 Database Management Systems Lab [Practical regular]	
CO ID.	Course Outcome
C217.1	Design database schema for a given application and apply normalization
C217.2	Acquire skills in using SQL commands for data definition and data manipulation.
C217.3	Develop solutions for database applications using procedures, cursors and triggers
C218 Java Programming Lab [Practical regular]	
CO ID.	Course Outcome
C218.1	Able to write programs for solving real world problems using java collection frame work.
C218.2	Able to write programs using abstract classes.
C218.3	Able to write multithreaded programs.

C218.4	Able to write GUI programs using swing controls in Java.
C S E 3-2 (Div A)-20-21	
C311 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C311.1	To be able to formulate the computer programs that automatically improve with learning with experience. Also, to learn the Perspectives and issues in machine learning
C311.2	To be able to learn a general practical method for learning for wide variety of functions such as Neural network models.
C311.3	To be able to understand probabilistic approaches for optimal decisions for a quantitative approach with weighing the evidences.
C311.4	To be able to understand how to apply Genetic algorithms on variety of Optimizations and learn the Learning Set of Rules.
C311.5	To be able to learn Analytics Learning and Explanation based learning with the support of Domain Theory
C312 COMPILER DESIGN [Theory regular]	
CO ID.	Course Outcome
C312.1	Demonstrate the ability to design a compiler given a set of language features.
C312.2	Demonstrate the the knowledge of patterns, tokens & regular expressions for lexical analysis.
C312.3	Acquire skills in using lex tool & yacc tool for devleoping a scanner and parser.
C312.4	Design and implement LL and LR parsers
C312.5	Design algorithms to do code optimization in order to improve the performance of a program in terms of space and time complexity
C312.6	Design algorithms to generate machine code
C313 DESIGN ANALYSIS OF ALGORITHMS [Theory regular]	
CO ID.	Course Outcome
C313.1	Ability to analyze the performance of algorithms.
C313.2	Ability to choose appropriate algorithm design techniques for solving problems.
C313.3	Ability to understand how the choice of data structures and the algorithm designmethods impact the performance of programs.
C314 SOFTWARE TESTING METHODOLOGY [Theory regular]	
CO ID.	Course Outcome
C314.1	Ability to apply the process of testing and various methodologies in teating for testing for developed software
C314.2	Ability to write test cases for given software to test it before deliveryto the customer
C315 FUNDAMENTALS OF INTERNET OF THINGS [Theory regular]	
CO ID.	Course Outcome
C315.1	Known basic protocols in sensor networks
C315.2	Program and configure Arduino boards for various designs
C315.3	Python programming and interfacing for Raspberry Pi
C315.4	Design IoT applications in different domains
C316 Machine Learning Lab [Practical regular]	
CO ID.	Course Outcome

C316.1	Understand the complexity of Machine Learning algorithms and their limitations;
C316.2	Understand modern notions in data analysis-oriented computing
C316.3	Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
C316.4	Be capable of performing experiments in Machine Learning using real-world data.
C316.5	Be able to apply algorithms on data and compare the performance of the algorithms
C317 Compiler Design Lab [Practical regular]	
CO ID.	Course Outcome
C317.1	Design and develop interactive and dynamic web applications using HTML, CSS, JavaScript and XML
C317.2	Apply client-server principles to develop scalable and enterprise web applications.
C317.3	Ability to design, develop, and implement a compiler for any language.
C317.4	Able to use lex and yacc tools for developing a scanner and a parser.
C317.5	Able to design and implement LL and LR parsers.
C318 Software Testing Methodology Lab [Practical regular]	
CO ID.	Course Outcome
C318.1	Ability to apply the process of testing and various methodologies in testing for testing for developed software
C318.2	Ability to write test cases for given software to test it before delivery to the customer
C S E 3-2 (Div B)-20-21	
C311 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C311.1	Understand the concepts of computational intelligence like machine learning
C311.2	Ability to get the skill to apply machine learning techniques to address the real time problems in different areas
C311.3	Understand the Neural Networks and its usage in machine learning application.
C312 COMPILER DESIGN [Theory regular]	
CO ID.	Course Outcome
C312.1	Demonstrate the ability to design a compiler given a set of language features.
C312.2	Demonstrate the the knowledge of patterns, tokens & regular expressions for lexical analysis.
C312.3	Acquire skills in using lex tool & yacc tool for develeoping a scanner and parser.
C312.4	Design and implement LL and LR parsers
C312.5	Design algorithms to do code optimization in order to improve the performance of a program in terms of space and time complexity.
C312.6	Design algorithms to generate machine code.
C313 DESIGN ANALYSIS OF ALGORITHMS [Theory regular]	
CO ID.	Course Outcome
C313.1	Ability to analyze the performance of algorithms.
C313.2	Ability to choose appropriate algorithm design techniques for solving problems.

C313.3	Ability to understand how the choice of data structures and the algorithm design methods impact the performance of programs.
C314 SOFTWARE TESTING METHODOLOGY [Theory regular]	
CO ID.	Course Outcome
C314.1	Ability to apply the process of testing and various methodologies in testing for testing for developed software
C314.2	Ability to write test cases for given software to test it before delivery to the customer
C315 FUNDAMENTALS OF INTERNET OF THINGS [Theory regular]	
CO ID.	Course Outcome
C315.1	Known basic protocols in sensor networks
C315.2	Program and configure Arduino boards for various designs
C315.3	Python programming and interfacing for Raspberry Pi.
C315.4	Design IoT applications in different domains
C316 Machine Learning Lab [Practical regular]	
CO ID.	Course Outcome
C316.1	Understand the complexity of Machine Learning algorithms and their limitations;
C316.2	Understand modern notions in data analysis-oriented computing
C316.3	Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
C316.4	Be capable of performing experiments in Machine Learning using real-world data.
C316.5	Be able to apply algorithms on data and compare the performance of the algorithms
C317 Compiler Design Lab [Practical regular]	
CO ID.	Course Outcome
C317.1	Design and develop interactive and dynamic web applications using HTML, CSS, JavaScript and XML
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C317.5	Able to design and implement LL and LR parsers.
C318 Software Testing Methodology Lab [Practical regular]	
CO ID.	Course Outcome
C318.1	Ability to apply the process of testing and various methodologies in testing for testing for developed software
C318.2	Ability to write test cases for given software to test it before delivery to the customer
C S E 3-2 (Div C)-20-21	
C311 Machine Learning [Theory regular]	
CO ID.	Course Outcome
C311.1	Understand the concepts of computational intelligence like machine learning
C311.2	Ability to get the skill to apply machine learning techniques to address the real time problems in different areas

C311.3	Understand the Neural Networks and its usage in machine learning application.
C312 COMPILER DESIGN [Theory regular]	
CO ID.	Course Outcome
C312.1	Demonstrate the ability to design a compiler given a set of language features.
C312.2	Demonstrate the the knowledge of patterns, tokens & regular expressions for lexical analysis.
C312.3	Acquire skills in using lex tool & yacc tool for develeoping a scanner and parser.
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C312.6	Design algorithms to generate machine code.
C313 DESIGN ANALYSIS OF ALGORITHMS [Theory regular]	
CO ID.	Course Outcome
C313.1	Ability to analyze the performance of algorithms.
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C313.3	Ability to understand how the choice of data structures and the algorithm design methods impact the performance of programs.
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CO ID.	Course Outcome
C314.1	Ability to apply the process of testing and various methodologies in teating for testing for developed software
C314.2	Ability to write test cases for given software to test it before delivery to the customer
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CO ID.	Course Outcome
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C316.3	Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
C316.4	Be capable of performing experiments in Machine Learning using real-world data.
C316.5	Be able to apply algorithms on data and compare the performance of the algorithms
C317 Compiler Design Lab [Practical regular]	
CO ID.	Course Outcome
C317.1	Design and develop interactive and dynamic web applications using HTML, CSS, JavaScript and XML
C317.2	Apply client-server principles to develop scalable and enterprise web applications.

C317.3	Ability to design, develop, and implement a compiler for any language
C317.4	Able to use lex and yacc tools for developing a scanner and a parser.
C317.5	Able to design and implement LL and LR parsers.
C318 Software Testing Methodology Lab [Practical regular]	
CO ID.	Course Outcome
C318.1	Ability to apply the process of testing and various methodologies in testing for testing for developed software
C318.2	Ability to write test cases for given software to test it before delivery to the customer
C S E 4-2 (Div A)-20-21	
C408 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C408.1	Design Data Architecture
C408.2	Understand various Data Sources
C408.3	Carry out data analysis/statistical analysis
C408.4	Understand the impact of data analytics for business decisions and strategy
C408.5	To carry out standard data visualization and formal inference procedures
C409 MANAGEMENT INFORMATION SYSTEMS [Theory elective]	
CO ID.	Course Outcome
C409.1	Understand the usage of MIS in organizations and the constituents of the MIS
C409.2	Understand the classifications of MIS, understanding of functional MIS and the different functionalities of these MIS. This would be followed by case study on Knowledge management.
C409.3	Assess the requirement and stage in which the organization is placed. Nolan model is expected to aid such decisions
C409.4	Learn the functions and issues at each stage of system development. Further different ways in which systems can be developed are also learnt.
C410 COMPUTER FORENSICS [Theory elective]	
CO ID.	Course Outcome
C410.1	the Students will understand the usage of computers in forensic, and how to use various forensic tools for a wide variety of investigations
C410.2	the students will learn to continue their zeal in research in computer forensics
C410.3	Students will able to analyse and investigate various computer forensics problems and they can apply the forensic knowledge in their real life.
C411 Major Project [Practical regular]	
CO ID.	Course Outcome
C411.1	apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of study
C411.2	use effectively oral, written and visual communication.
C411.3	identify, analyze, and solve problems creatively through sustained critical investigation.
C S E 4-2 (Div B)-20-21	
C408 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C408.1	Design Data Architecture
C408.2	Understand various Data Sources

C408.3	Carry out data analysis/statistical analysis
C408.4	Understand the impact of data analytics for business decisions and strategy
C408.5	To carry out standard data visualization and formal inference procedures
C409 MANAGEMENT INFORMATION SYSTEMS [Theory elective]	
CO ID.	Course Outcome
C409.1	Understand the usage of MIS in organizations and the constituents of the MIS
C409.2	Understand the classifications of MIS, understanding of functional MIS and the different functionalities of these MIS. This would be followed by case study on Knowledge management.
C409.3	Assess the requirement and stage in which the organization is placed. Nolan model is expected to aid such decisions
C409.4	Learn the functions and issues at each stage of system development. Further different ways in which systems can be developed are also learnt.
C410 COMPUTER FORENSICS [Theory elective]	
CO ID.	Course Outcome
C410.1	the Students will understand the usage of computers in forensic, and how to use various forensic tools for a wide variety of investigations
C410.2	the students will learn to continue their zeal in research in computer forensics
C410.3	Students will be able to analyse and investigate various computer forensics problems and they can apply the forensic knowledge in their real life.
C411 Major Project [Practical regular]	
CO ID.	Course Outcome
C411.1	apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of study
C411.2	use effectively oral, written and visual communication.
C411.3	identify, analyze, and solve problems creatively through sustained critical investigation.
C S E 4-2 (Div C)-20-21	
C408 Data Analytics [Theory regular]	
CO ID.	Course Outcome
C408.4	Understand the impact of data analytics for business decisions and strategy
C408.3	Carry out data analysis/statistical analysis
C408.5	To carry out standard data visualization and formal inference procedures
C408.1	Design Data Architecture
C408.2	Understand various Data Sources
C409 MANAGEMENT INFORMATION SYSTEMS [Theory elective]	
CO ID.	Course Outcome
C409.1	Understand the usage of MIS in organizations and the constituents of the MIS
C409.2	Understand the classifications of MIS, understanding of functional MIS and the different functionalities of these MIS. This would be followed by case study on Knowledge management.
C409.3	Assess the requirement and stage in which the organization is placed. Nolan model is expected to aid such decisions
C409.4	Learn the functions and issues at each stage of system development. Further different ways in which systems can be developed are also learnt.
C410 COMPUTER FORENSICS [Theory elective]	

CO ID.	Course Outcome
C410.1	the Students will understand the usage of computers in forensic, and how to use various forensic tools for a wide variety of investigations
C410.2	the students will learn to continue their zeal in research in computer forensics
C410.3	Students will able to analyse and investigate various computer forensics problems and they can apply the forensic knowledge in their real life.
C411 Major Project [Practical regular]	
CO ID.	Course Outcome
C411.1	apply fundamental and disciplinary concepts and methods in ways appropriate to their principal areas of study
C411.2	use effectively oral, written and visual communication.
C411.3	identify, analyze, and solve problems creatively through sustained critical investigation.
M.TECH-CSE-1-1-20-21	
D58101 MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE [Theory regular]	
CO ID.	Course Outcome
D58101.1	To understand the mathematical fundamentals that is prerequisites for a variety of courses like Data mining, Network protocols, analysis of Web traffic, Computer security, Software engineering, Computer architecture, operating systems, distributed systems, Bioinformatics, Machine learning.
D58101.2	To develop the understanding of the mathematical and logical basis to many modern techniques in information technology like machine learning, programming language design, and concurrency.
D58101.3	To study various sampling and classification problems
D58102 ADVANCED DATA STRUCTURES [Theory regular]	
CO ID.	Course Outcome
D58102.1	The student should be able to choose appropriate data structures, understand the ADT/libraries, and use it to design algorithms for a specific problem.
D58102.2	Students should be able to understand the necessary mathematical abstraction to solve problems.
D58102.3	To familiarize students with advanced paradigms and data structure used to solve algorithmic problems
D58102.4	Student should be able to come up with analysis of efficiency and proofs of correctness.
D58103 Machine Learning [Theory regular]	
CO ID.	Course Outcome
D58103.1	Understand the concepts of computational intelligence like machine learning
D58103.2	Ability to get the skill to apply machine learning techniques to address the real time problems in different areas
D58103.3	Understand the Neural Networks and its usage in machine learning application.
D58104 NETWORK SECURITY [Theory regular]	
CO ID.	Course Outcome
D58104.1	To learn the basics of security and various types of security issues
D58104.2	To study different cryptography techniques available and various security attacks.
D58104.3	Explore network security and how they are implemented in real world.

D58104.4	To get an insight of various issues of Web security and biometric authentication.
D58105 Advanced Data Structures Lab [Practical regular]	
CO ID.	Course Outcome
D58105.1	Introduces the basic concepts of Abstract Data Types.
D58105.2	Reviews basic data structures such as stacks and queues.
D58105.3	Introduces a variety of data structures such as hash tables, search trees, tries, heaps, graphs, and B-trees.
D58105.4	Introduces sorting and pattern matching algorithms.
D58106 Machine Learning Lab [Practical regular]	
CO ID.	Course Outcome
D58106.1	Understand the complexity of Machine Learning algorithms and their limitations;
D58106.2	Understand modern notions in data analysis-oriented computing
D58106.3	Be capable of confidently applying common Machine Learning algorithms in practice and implementing their own;
D58106.4	Be capable of performing experiments in Machine Learning using real-world data.
D58106.5	Be able to apply algorithms on data and compare the performance of the algorithms
D58107 RESEARCH METHODOLOGY AND IPR [Theory regular]	
CO ID.	Course Outcome
D58107.1	To understand the research problem
D58107.2	To know the literature studies, plagiarism and ethics
D58107.3	To get the knowledge about technical writing
D58107.4	To analyze the nature of intellectual property rights and new developments
D58107.5	To know the patent rights
D58108 ENGLISH FOR RESEARCH PAPER WRITTING [Theory regular]	
CO ID.	Course Outcome
D58108.1	Understand that how to improve your writing skills and level of readability
D58108.2	Learn about what to write in each section
D58108.3	Understand the skills needed when writing a Title Ensure the good quality of paper at very firsttime submission
M.TECH-CSE-1-2-20-21	
D58109 Advanced Algorithms [Theory regular]	
CO ID.	Course Outcome
D58109.1	Determine the appropriate data structure for solving a particular set of problems.
D58109.2	Analyze the complexity/performance of different algorithms.
D5819.3	Categorize the different problems in various classes according to their complexity.
D58109.4	Students should have an insight of recent activities in the field of the advanced data structure.
D58110 Advanced Computer Architecture [Theory regular]	
CO ID.	Course Outcome

D58110.1	To impart the concepts and principles of parallel and advanced computer architectures.
D58110.2	To develop the design techniques of Scalable and multithreaded Architectures.
D58110.3	To Apply the concepts and techniques of parallel and advanced computer architectures to design modern computer systems
D58111 Data Science [Theory regular]	
CO ID.	Course Outcome
D58111.1	Understand how data is collected, managed and stored for data science
D58111.2	Understand the key concepts in data science, including their real-world applications and the toolkit used by data scientists
D58111.3	Implement data collection and management scripts using MongoDB
D58112 Cyber Security [Theory regular]	
CO ID.	Course Outcome
D58112.1	To learn about cyber crimes and how they are planned.
D58112.2	To learn the vulnerabilities of mobile and wireless devices.
D58112.3	To learn about the crimes in mobile and wireless devices.
D58113 Advanced Algorithms Lab [Practical regular]	
CO ID.	Course Outcome
D58113.1	The student can able to attain knowledge in advance algorithms
D58115 Mini project with seminar [Practical regular]	
CO ID.	Course Outcome
D58115.1	Understand that how to improve your writing skills and level of readability.
D58115.2	Learn about what to write in each section.
D58115.3	Understand the skills needed when writing a Title Ensure the good quality of paper at very firsttime submission
D58116 constitution of India [Theory regular]	
CO ID.	Course Outcome
D58116.1	Able to know about Drafting and Formulation of Indian constitution
D58116.2	Influence from other constitutions
D58116.3	Parts of Indian constitution
D58116.4	Form of Government
D58116.5	Fundamental rights of Indian citizens
D58114 Data Science Lab [Practical regular]	
CO ID.	Course Outcome
D58114.1	Provide you with the knowledge and expertise to become a proficient data scientist.
D58114.2	Demonstrate an understanding of statistics and machine learning concepts that are vital for data scienc
D58114.3	Produce Python code to statistically analyse a dataset
D58114.4	Critically evaluate data visualizations based on their design and use for communicating stories from data;
M.TECH CSE 2-1-20-21	
D58201 Digital Forensics [Theory regular]	
CO ID.	Course Outcome

D58201.1	Provides an in-depth study of the rapidly changing and fascinating field of computer forensics.
D58201.2	Combines both the technical expertise and the knowledge required to investigate, detect and prevent digital crimes.
D58201.3	Knowledge on digital forensics legislations, digital crime, forensics processes and procedures, data acquisition and validation, e-discovery tools
D58201.4	E-evidence collection and preservation, investigating operating systems and file systems, network forensics, art of steganography and mobile device forensics
D58202 Artificial Neural Networks [Theory regular]	
CO ID.	Course Outcome
D58202.1	To introduce the foundations of Artificial Neural Networks
D58202.2	To acquire the knowledge on Deep Learning Concepts
D58202.3	To learn various types of Artificial Neural Networks
D58202.4	To gain knowledge to apply optimization strategies
D58203 Dissertation Work Review - II [Practical regular]	
CO ID.	Course Outcome
D58203.1	earn to demonstrate a critical understanding of key concepts in disaster risk reduction and humanitarian response.
D58203.2	critically evaluate disaster risk reduction and humanitarian response policy and practice from multiple perspectives.
D58203.3	develop an understanding of standards of humanitarian response and practical relevance in specific types of disasters and conflict situations.
D58203.4	planning and programming in different countries, particularly their home country or the countries they work in
M.TECH CSE 2-2-20-21	
D58204 Dissertation Work Review - III [Practical regular]	
CO ID.	Course Outcome
D58204.1	To get a working knowledge in illustrious Sanskrit, the scientific language in the world
D58204.2	Learning of Sanskrit to improve brain functioning
D58204.3	Learning of Sanskrit to develop the logic in mathematics, science & other subjects enhancing the memory power
D58204.4	The engineering scholars equipped with Sanskrit will be able to explore the huge knowledge from ancient literature