

| | | | CO.No. | Course Outcome | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | | | |
|----|--------|--|--------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|---|---|---|
| | C-IB | Web Technologies | CO1 | Explain the history of the internet and related internet concepts that are vital in understanding web development. | 3 | | 2 | 3 | | | | | | 3 | 3 | | | | | | | |
| | | | CO2 | Discuss the insights of internet programming and implement complete application over the web. | 3 | | 2 | 2 | | | | | | | 3 | 2 | | | | | | |
| | | | CO3 | Demonstrate the important HTML tags for designing static pages and separate design from content using Cascading Style sheet | 3 | | 2 | 3 | | | | | | | | 3 | 1 | | | | | |
| | | | CO4 | Discuss Graphics with in a web page | 3 | | 2 | 3 | | | | | | | | 3 | 2 | | | | | |
| | C-IC | Problem solving in C | CO1 | Explain the evolution and functionality of a digital computer. | 2 | | 2 | 2 | | | | | | | 3 | | | | | | | |
| | | | CO2 | Apply Logical skills to analyze a given problem. | | | 2 | 3 | | | | | | | | 2 | | | | | 3 | |
| | | | CO3 | Develop an algorithm solving given problem. | | | 2 | 3 | 2 | 3 | | | | | | | | | | | | |
| | | | CO4 | Demonstrate 'C' language constructs like iterative statements, Array processing, pointers. | | | 3 | 3 | 2 | 2 | | 2 | | | | | | | | | | |
| | | | CO5 | Experiment 'C' language constructs to the algorithm to write a 'C' language program. | 2 | | | 3 | 3 | | | | | | | | 2 | | | | | |
| II | ENG-II | English - II | CO1 | Use reading skills effectively. | 2 | 2 | | | | | | | | | 2 | | | | | 2 | | |
| | | | CO2 | Interpret different types of texts. | 2 | | 2 | | | 2 | | | | | | | | | | | | |
| | | | CO3 | Characterize what is being read. | 2 | 2 | | | | | | | | | | | 2 | | | | | |
| | | | CO4 | Build up a repository of active vocabulary. | | 3 | | | | | | 2 | | | | | 2 | | | | | 3 |
| | | | CO5 | Use good writing strategies. | 2 | | 2 | | | | | 2 | | | | | | | | | | |
| | | | CO6 | Write well for any purpose. | 2 | | | | | | | | | | | | | 2 | | | | |
| | LSC-II | Life Skill Course - II Information and Communication Technology | CO1 | List the literature of social networks and their properties. | 3 | | | | | | | | | | 2 | 3 | | | | | | |
| | | | CO2 | Select which network is suitable for whom. | 2 | | | 2 | | | | | | | | 3 | 2 | | | | | |
| | | | CO3 | Explain about the skills to use various social networking sites like twitter, flickr, etc. | 2 | | | 2 | | | | | | | | 3 | 3 | | | | | |

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| | | | C05 | Enhance conversational skill by observing the professional interviews. | | 2 | | | 2 | | 3 | | | | | | | 2 | 2 | | |
| LSC-III(A) | Life Skill Course -III Environmental Education(EE) | C01 | Demonstrate the nature, components of an ecosystem and that humans are an integral part of nature. | | | | 3 | | | 3 | 2 | 2 | 2 | | | | | | 2 | | |
| | | C02 | Realize the importance of environment, the goods and services of a healthy biodiversity, dependence of humans on environment. | 2 | | | | | | 2 | | | 3 | 2 | | | | | | 3 | |
| | | C03 | Justify the ways and ill effects of destruction of environment, population explosion on ecosystems and global problems consequent to anthropogenic activities. | | | | | 2 | | 2 | | | | | 3 | | | 2 | 2 | | |
| | | C04 | Discuss the laws/ acts made by government to prevent pollution, to protect biodiversity and environment a s a whole. | | | | 2 | | | | | | | | | 2 | | | 3 | | 2 |
| | | C05 | Acquaint with international agreements and national movements, and realize citizen's role in protecting environment and nature. | 2 | | | 3 | | 2 | | | | | | | | | | | 2 | 3 |
| | | | | | | | | | | | | | | | | | | | | | |
| LSC-III(B) | Life Skill Course -III Analytical Skills(AS) | C01 | Understand the basic concepts of arithmetic ability, quantitative ability, logical reasoning, business computations and data interpretation and obtain the associated skills. | 2 | | | 2 | 2 | 2 | | | | | | | | | | | | |
| | | C02 | Acquire competency in the use of verbal reasoning. | | | | 2 | 2 | 2 | | | | 2 | | | | | | | | 2 |
| | | C03 | Apply the skills and competencies acquired in the related areas. | | | | 2 | 2 | | 2 | | | | | | | | | | | |
| | | C04 | Solve problems pertaining to quantitative ability, logical reasoning and verbal ability inside and outstand the campus. | | | | 2 | 3 | 3 | 3 | | | | | | | | | | | 2 |
| SDC-III | Skill Development Course - III Online Businss | C01 | Identify the online business and its advantages and disadvantages | 3 | 3 | | | | | | 2 | | | 3 | 2 | | | | 2 | | |
| | | C02 | Recall new channels of marketing, their scope and steps involved | 3 | 3 | | | | | | | 2 | | | 2 | 1 | | | | 2 | |

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| | | | CO3 | Summarize the procurement, payment process, security and shipping in online business | 3 | 3 | | | | | 2 | | | 2 | 2 | | | 1 | |
| | | | CO4 | Develop new marketing tools for online business | 2 | 2 | | | | | 2 | | | 2 | 1 | | | 2 | |
| | | | CO5 | List the search engine, payment gateways and SEO techniques. | 3 | 2 | | | | | 3 | | | 3 | 2 | | | 2 | |
| | C-III A | Abstract Algebra | CO1 | Acquire the basic knowledge and structure of groups, subgroups and cyclic groups. | 2 | | | 2 | 2 | 3 | | | | | | | | | |
| | | | CO2 | Get the significance of the notation of a normal subgroups. | | | | 2 | 2 | 3 | | 2 | | | | | | | |
| | | | CO3 | Get the behavior of permutations and operations on them. | | | | 2 | 2 | | | | | | | | | | 2 |
| | | | CO4 | Study the homomorphisms and isomorphisms with applications. | | | 2 | 3 | 3 | | | 2 | | | | | | | |
| | | | CO5 | Demonstrate the ring theory concepts with the help of knowledge in group theory and to prove the theorems | 2 | | | 2 | 2 | 3 | | | | | | | | | |
| | | | CO6 | Demonstrate the applications of ring theory in various fields. | 2 | | | 2 | 2 | 3 | | | | | | | | | |
| | C-III B | Expert System | CO1 | Applications of AI over Expert systems | | | 2 | | 2 | | | 2 | | 3 | | | | | |
| | | | CO2 | Knowledge representation | | | 2 | 2 | 3 | | | | | 2 | 2 | | | | |
| | | | CO3 | Natural Language Processing | | | 2 | | | | | 3 | | | 2 | | | | 2 |
| | | | CO4 | Classification | | | | 3 | 2 | | | 2 | | | | | | 2 | |
| | | | CO5 | Pattern recognition | | | 2 | | | | 2 | | | 3 | | | | | 2 |
| | C-III C | DATABASE MANAGEMENT SYSTEM | CO1 | Demonstrate the Gain knowledge of data base and DBMS. | 2 | | | 2 | 2 | | | 3 | | | | | | | |
| | | | CO2 | Demonstrate the fundamental concepts of DBMS with special emphasis on relational data model. | | | 2 | 2 | | 2 | | | | 3 | | | | | |
| | | | CO3 | Demonstrate of normalization theory and apply such knowledge to the normalization of a data base. | | | | 2 | | 2 | | | | 3 | | | | | 2 |
| | | | CO4 | Build the Model data base using ER diagrams and design data base schemes based on the model. | | | | 2 | | 2 | | | | 3 | | | | | 2 |

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|-----|------------|--|--|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|---|---|
| | | | CO5 | Build the Design a small data base using SQL | | | | 2 | | 3 | | 2 | | 3 | | | | | | | |
| | | | CO6 | Build the Store, retrieve data in data base. | | | | 2 | 2 | 2 | | | | 2 | | | | | 2 | | |
| IV | C-IV A1 | MATHEMATICS REAL ANALYSIS | CO1 | Get clear idea about the real numbers and real valued functions. | 2 | | 2 | 3 | 2 | 2 | | | | | | | | | | | |
| | | | CO2 | Obtain the skills of analyzing the concepts and choose appropriate methods for testing convergence of a sequence/ series. | | | 2 | 3 | 2 | 2 | | | | | | | | | | | |
| | | | CO3 | Test the continuity and differentiability and Riemann integration of a function. | | | 2 | 2 | 2 | | | | | | | | | | | | 3 |
| | | | CO4 | Know the geometrical interpretation of mean value theorems. | 3 | | | 2 | 2 | 2 | | | | | | | | | | | 2 |
| | C-IV A2 | LINEAR ALGEBRA | CO1 | Demonstrate the concepts of vector spaces, subspaces, bases, dimension and their properties. | 2 | | | 2 | 2 | 2 | | | | | | | | | | 2 | |
| | | | CO2 | Demonstrate the concepts of linear transformations and their properties. | 3 | | 2 | 2 | 3 | 2 | | | | | | | | | | | |
| | | | CO3 | Demonstrate Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods. | | | 2 | 2 | 3 | | | | | | | | | | | | 2 |
| | | | CO4 | Learn the properties of inner product spaces and determine orthogonality in inner product spaces. | 2 | | | 2 | 2 | | | | | | | | | | | | 2 |
| | C-IV B1 | Fundamentals Of IOT and Robotic | CO1 | Components of a robot | 2 | | 3 | 2 | 1 | | | | | | | | | | | | |
| | | | CO2 | Science behind the sensors | 2 | | 2 | 2 | 3 | | | | | | | | | | | | |
| | | | CO3 | Actuators | 2 | | 3 | 2 | 3 | | | | | | | | | | | | |
| | | | CO4 | IoT in different fields | 3 | | 2 | 2 | 2 | | | | | | | | | | | | |
| | C-IV B2 | Machine Learning | CO1 | Identify the characteristics of machine learning. | 3 | | 1 | 1 | | | | | | | 3 | 3 | | | | | |
| CO2 | | | Summarize the Model building and evaluation approaches | 3 | | 1 | 1 | | | | | | | 2 | 2 | | | | | | |
| CO3 | | | Apply Bayesian learning and regression algorithms for real-world Problems. | 2 | | 3 | 3 | | | | | | | 2 | 1 | | | | | | |

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|--|-------------|--|--------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| | | | CO4 | Apply supervised learning algorithms to solve the real-world Problems. | 2 | | 3 | 3 | | | | | | 2 | 1 | | | | |
| | | | CO5 | Apply unsupervised learning algorithms for the real world data. | 2 | | 3 | 3 | | | | | | 1 | 1 | | | | |
| | C- IV C1 | Object oriented programming using java | CO1 | Demonstrate the benefits of a well-structured program. | 2 | | | 3 | 2 | | | | | 2 | | | | | |
| | | | CO2 | Demonstrate different computer programming paradigms. | | | 2 | 2 | 2 | | | | | 2 | | | | | |
| | | | CO3 | Demonstrate underlying principles of object – oriented programming in java | 3 | | 2 | 2 | 2 | | | | | 2 | | | | | |
| | | | CO4 | Develop problem-solving and programming skill using OOP concepts | | | | 2 | 2 | 3 | | 2 | | | | | | | 2 |
| | | | CO5 | Develop the ability to solve real-world problems through software development high-level programming language like java | | | 2 | 2 | | 3 | | 2 | | | 2 | | | | 2 |
| | C-IV C2 | OPERATING SYSTEMS | CO1 | Know computers system resources and the roll of operating system in resource management. | 2 | | | 2 | 2 | | | | | 3 | | | | | |
| | | | CO2 | Demonstrate operating system architectural design and its services. | 2 | | 2 | 3 | 2 | | | | | | | | | | |
| | | | CO3 | Gain knowledge of various types of operating system including Unix and Android. | | | 2 | 3 | 2 | | | | | 2 | | | | | |
| | | | CO4 | Demonstrate various process management concepts including scheduling, synchronization, and deadlocks. | | | 2 | 2 | 3 | 2 | | | | | | | | | 3 |
| | | | CO5 | Have a basic knowledge about multithreading. | 2 | | 2 | 2 | | 3 | | | | | | | | | |
| | | | CO6 | Comprehend different approaches for memory management . | | | 2 | 3 | | 2 | | | | | | | | | 2 |
| | | | CO7 | Understand and identify potential threats to operating systems and the security features design to guard against them. | | | 2 | 3 | | 2 | | | | | | | | | 2 |
| | | | CO8 | Specify objectives of modern operating systems and describe how operating systems have evolved over time. | 2 | | 2 | 3 | | | | | | 2 | | | | | |
| | | | CO9 | Describe the functions of a contemporary | 2 | | 2 | 3 | | | | | | 2 | | | | | |

| | | | | operating system | | | | | | | | | | | | | | | | | |
|---|------------|-----------------------------------|--------|--|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|---|---|
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| V | C-V A1 | Numerical Methods | C01 | Demonstrate the subject of various numerical methods that are used to obtain approximate solutions | 2 | | | 2 | 3 | 2 | | 2 | | | | | | | | | |
| | | | C02 | Demonstrate various finite difference concepts and interpolation methods. | 2 | | | 2 | 2 | 2 | | | 3 | | | | | | | | |
| | | | C03 | Workout numerical differentiation and integration whenever and wherever routine methods are not applicable. | | | | | 2 | 2 | 2 | | | 2 | | | | | | | 2 |
| | | | C04 | Find numerical solutions of ordinary differential equations by using various numerical methods. | 2 | | | | 2 | 2 | | | | 2 | | | | | | | |
| | | | C05 | Analyze and Justify the accuracy of numerical methods. | 2 | | | | 2 | 2 | 2 | | | | | | | | | | 2 |
| | C- V A2 | Mathematical Special Functions | C01 | Demonstrate the Beta and Gamma functions, their properties and relation between these two functions, Demonstrate the orthogonal properties of Chebyshev polynomials and recurrence relations. | 2 | | | | 2 | 3 | | | | | | | | | | 2 | |
| | | | C02 | Find power series solutions of ordinary differential equations | | | | 3 | 2 | 2 | 2 | | 2 | | | | | | | | |
| | | | C03 | solve Hermite equation and write the Hermite Polynomial of order (degree) n, also find the generating function for Hermite Polynomials, study the orthogonal properties of Hermite Polynomials and recurrence relations. | 2 | | | 2 | 2 | | | | | 2 | | | | | | | |
| | | | C04 | Solve Legendre equation and write the Legendre equation of first kind, also find the generating function for Legendre Polynomials, Demonstrate the orthogonal properties of Legendre Polynomials. | | | | | 2 | 2 | 2 | | | | 3 | | | | | | |
| | | | C05 | Solve Bessel equation and write the Bessel equation of first kind of order n, also find the generating function for Bessel function Demonstrate the orthogonal properties of Bessel unction. | | | | | | 2 | 2 | 2 | | | 2 | | | | | | |

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| C-V B1 | Data Analytics Using R | C01 | Able to articulate meaningful lines of inquiry that might be explored through the collection, organization, visualization, and analysis of data in a context associated with their primary field of study using (as appropriate) numerical, textual, spatial, and/or visual data | | | | 2 | | | | | | | 2 | | | | 2 | 3 | | |
| | | C02 | Student will understand what data are, how they are collected, the role of metadata in understanding a given set of data, and how to assess the quality/reliability of data | 2 | | | | | 2 | 3 | | | | | | 3 | | | | | |
| | | C03 | Students will be able to use at beginning level of proficiency the tools of statistics and machine learning to ask questions of and explore patterns in data | | | | 3 | | | | | 2 | | | | 2 | | | | | 3 |
| | | C04 | For a given exploration of data, students will be able to communicate both in writing and verbally the limitations of data, the methods of acquisition, the interpretation of visualized data, and the results of statistical analysis | | | | | 3 | | 2 | 2 | 3 | | | | | | | | | |
| | | C05 | Data visualizations in graphically. | | | | 2 | | | 2 | | | | | 3 | 2 | | | | | |
| C- V B2 | Dataware Housing And Mining | C01 | Learn & Understand stages of Data warehousing | | | | 2 | | | | | | 2 | | | | 2 | | 3 | | |
| | | C02 | Student will Analyse Data Preprocessing Techniques like Cleaning, Integration etc., | | | | 3 | | | | | | | 3 | | 2 | | | | 2 | |
| | | C03 | Evaluate Similarity & Dissimilarity techniques | | 2 | | | 3 | | 3 | | | | | | 3 | | | | | |
| | | C04 | Understand Association rules for Market basket analysis | | | | 2 | | | 2 | | | | | | 3 | | | | | 3 |
| | | C05 | Develop a data mining application for data analysis using various tools. | | | | | 3 | | | | 2 | | | 2 | | | | | 3 | |
| C- V C1 | Web Interface Designing Technologies | C01 | Demonstrate and appreciate the web architecture and services. | 2 | | | 2 | 2 | | | | | | 3 | | | | | | | |
| | | C02 | Gain knowledge about various components of a website. | | | | 3 | 2 | | | 3 | | | 2 | | | | | | | |
| | | C03 | Demonstrate skills regarding creation of a static website and an interface to dynamic website. | | | | | 3 | 2 | | | | | | 3 | | | | | | 2 |

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| | | | C04 | Learn how to install word press and gain the knowledge of installing various plugins to use in their websites. | 2 | | | 2 | 2 | | | | | 2 | | | | | | | |
| C- V C2 | Web Applications Development using PHP & MYSQL | C01 | Write simple programs in PHP. | 2 | | | 3 | 2 | | | | | | 2 | | | | | | | |
| | | C02 | Demonstrate how to use regular expressions, handle exceptions, and validate data using PHP. | 2 | | | 2 | 2 | | | | | | | 3 | | | | | | |
| | | C03 | Use Built functions and construct User defined functions in PHP programming. | | | | 3 | 2 | | | | | | | 3 | 2 | | | | | |
| | | C04 | Write PHP scripts to handle HTML forms. | | | | 2 | 2 | | | | | | | 2 | 2 | | | | | |
| | | C05 | Write programs to create dynamic and interactive web based applications using PHP and MYSQL. | | | | 2 | 3 | | | | | | | 3 | | | | | | |
| | | C06 | Know how to use PHP with a MySQL database and can write database driven webpages. | | | | 2 | 3 | 2 | | | | | | 3 | | | | | | 2 |