SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B.A I Year Political Science

Title of Paper   : Political Theory Major

Course Code   : FATPSJ4A

Course Out Comes

CO1-Student will be able to understand meaning and significance of Political theory, different ideologies and approaches.
CO2-They will be able to explain concept of state and its changing nature.
CO3-They will learn what is power and authority and how they are interwoven. These two concepts will further enhance their understanding of politics.
CO4-They will be able to learn different dimensions of sovereignty and its relation with state.
CO5-They will be able to explain liberty, equality, justice and rights. Understanding of these key political concepts will facilitate students in real political world.
They will be able to explain different models of democracy and theories of representation.

B.A I Year Political Science

Title of Paper   : Indian Constitution Major II/Minor

Course Code   : FATPSJ4B

Course Out Comes

CO1-Students will be able to understand the constitutional development in India.
CO2-They will be able to answer how constituent assembly was formed.
CO3-They will be able to describe the significance of the Preamble, Fundamental rights and Directive Principles of State Policy in the constitutional design of India.
CO4-They will be able to answer questions pertaining to the function and role of the President, Prime Minister, Governor, Chief Minister, Parliament and State legislature, and the courts in the Constitutional design of India.
CO5-They will be able to identify the power division in constitutional setup.

B.A II Year Political Science

Title of Paper   : Representative politics Thinkers

Course Code   : AT-A39 (A)

Course Out Comes

CO1- Students will aware of the nature of ancient Political thought- Indian as well as western.

CO2- Students will develop and understanding of the feature of Western Political Thought.

CO3- Students will develop an understanding of the feature of Modern Political Thought.

CO4- Students will develop an understanding of the Marxist Approach to Politics.

CO5- Develop an understanding of the Contribution of Mahatma Gandhi in Indian Politics.

B.A II Year Political Science

Title of Paper   : Constitution of Major Countries

Course Code   : AT-A39 (B)

Course Out Comes

CO1- Critically analyze the feature of British Constitution.

CO2- Critically analyze the feature of American Constitution.

CO3- Critically analyze the feature of Swiss Constitution and Direct Democracy.

CO4- Critically analyze the feature of People's Republic of China Constitution.

CO5- Critically analyze the features of Nepal, Bhutan Constitution.

B.A III Year Political Science

Title of Paper   : Indian Foreign Policy

Course Code   : AT-A44 (A)

Course Out Comes

CO1- Students will acquire the bases on which Indian Foreign policy is determined.

CO2- Students will develop an understanding of the relationship of India with different
       Countries.

CO3- Students will acquire the knowledge of the main features of the International Politics.

CO4- Students will acquire the information about the various aspects of Regional
       Organizations.

CO5- Students will develop an understanding of the role of India in the International Affairs.

B.A III Year Political Science

Title of Paper   : Public Administration

Course Code   : AT-A44 (B)

Course Out Comes

CO1- Students will acquire the knowledge of Administrative Practices and functioning of
       Administration.

CO2- Students will learn about the key Concepts of Academic discipline of Public Administration.

CO3- Students will develop the Understanding of the Methods of Recruitment, promotion and Training of employees.

CO4- Students will develop the Understanding of the Budget making process and its Implementation in India.

CO5- Students will develop the Understanding of the role of Bureaucracy and good governance.

B.A I Year Economics

Title of Paper   : Micro Economics (Major)
Course Code   : FATECJ10A

Course Out Comes

C01-   Understand rational behavior and fundamentals of microeconomics.
C02-   Consumer's and producer's behavior and their optimum decisions.
C03-   About the firms and industry, markets and their decisions about optimum production
C04-   Explain the theory of distribution and concept of economics welfare.
C05-   Factor Pricing: Wages, Interest, Profit, Rent

B.A I Year Economics

Title of Paper   : Indian Economy (Major II/Minor)
Course Code   : FATECJ10B

Course Out Comes

C01-   Indian economy, nature resources and demographic features.
C02-   sharpen the analytical skills by highlighting on broad overview of the Indian economy.
C03-   Economic Planning and various Economic Problems of India.
C04-   To develop, analyse and interpret events and issues related to Indian Economy.
C05-   Planning in India, problems of Indian economy, regional Disparities in Indian economy

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B.A II Year Economics

Title of Paper   : Macro Economics
Course Code   : AT-A41 (A)

Course Out Comes

C01-   concept of macroeconomic, national income

C02-   Classical theory of employment, Modern theory of Keynesian employment.

C03-   investment function, theory of liquidity preference

C04-   Quantity theory of money, inflation, Deflation

C05-   CBI and its functions, monetary policy, commercial bank and credit creation, black money

B.A II Year Economics

Title of Paper   : Public Finance and International Economics.
Course Code   : AT-A41 (B)

Course Out Comes

C01-   Public finance: Nature and scope, GST

C02-   Budget, deficit Budget, fiscal policy, central – state financial relation (with constitution of 15th finance commission)

C03-   International trade, economic development and its theories

C04-   Term of trade, WTO, balance of trade and balance of payment

C05-   foreign trade in India (trends and direction) Exchange rate, Export- Import policy of India

B.A III Year Economics

Title of Paper   : Development and Environment Economics.
Course Code   : AT-A46 (A)
Course Out Comes

C01-   Economic Growth & Development: Concept & Determinants.

C02-   Theory of Development: Adam Smith, Marxian, Schumpeterian, Rostow's & HR Development

C03-   Balanced and Unbalanced Growth, Harrod and Domar Model,

C04-   Gender Equality, Techniques of Development

C05-   Environment Economy Linkage and population Environment Linkage

B.A III Year Economics

Title of Paper   : Statistics
Course Code   : AT-A46 (B)

Course Out Comes

C01-   Statistics: Nature Scope& Limitations

C02-   Measure of Central Tendency & Dispersion

C03-   Correlation, Regression Analysis

C04-   Analysis of Time Series, Index

C05-   Probability Theory, Hypothesis, Research Report Writing

B.A I Year Sociology

Title of Paper   : Indian Society and Culture Paper (Major)

Course Code   : FATSOJ7A

Course Out Comes

CO1 Get an impression about the basic composition of Indian society. Its historiea   moorings, basic philosophical foundations of the society and the in situations.
CO2 The student will have extensive comprehension of Indian traditions and the opportunity to explore and express them.
CO3 They will also learn in detail about the threelayers of Indian society namely "Aranyak I. Ok (Gramya) and Nagar",
CO4 After reading this course the student will beable to understand and strengthen local/ Regional employment avenues.
CO5 Course explain social change and the factors.

B.A I Year Sociology

Title of Paper   : Basic Concepts of Sociology Major- II / Minor/Elective

Course Code   : FATSOJ7B

Course Out Comes

CO1 The course is designed to incorporate all the key concepts of Sociology which would enable the learner to develop keen insight to distinguish between the commonsense knowledge and Sociological Knowledge.
CO2 The conceptual learning of Society. Social groups. Social structure, Social institution etc, will help students in their day to day living.
CO3 By studying this paper students will get information about various employment opportunities in government, corporate, N.G.O. and self employment sector.
CO4 This paper gives students an awareness of cultural differncess and provides them with opportunity to enhance their cultural sensitivity.
CO5 The concepts of Indian social instituons, such as, family, Marriage, Kinship will enable students to consider their roles in solving many social problems.

B.A II Year Sociology

Title of Paper   : Social Processes and Change

Course Code   : AT-A40 (A)

Course Out Comes

CO1- Course teaches structure concept and characteristics of structure explain by Redcliff brown and T parsons.
CO2- Helps understanding concepts, Characteristics and process of social organization
CO3- Helps understanding concepts, Characteristics and process of social Dis- organizarion
CO4- Helps understanding the law behind social process by studying about right to information 2005 Act human right Act 1993 Gives students an overview of now society has changed over period of time.
CO5-Helps to understand how planning, urbanization, modernization has bought social change in the society.

B.A II Year Sociology

Title of Paper   : Rural Urban and Tribal Society

Course Code   : AT-A40 (B)

Course Out Comes

CO1-   Gives understanding of rural family, jajmani system
CO2-   Defines changing status of rural woman, Rural leadership

CO3-   Urban Society Slums, Juvenile. Delinquency Environmental Pollution

CO4-   Urban Society-Poverty and unemployment

CO5-   Helps in understanding the characteristics of tribal society identify tribal probes, life style of Gond, Korku, Bbilala tribes.

B.A III Year Sociology

Course Code   : AT-A45 (A)

Course Out Comes

CO1- Define Sociological theory of culture change as per Pitirim Sorokin understand its features and describe and illustrate theory in building sociological knowledge

CO2- Introduce themselves to the classical theories of sociology and contributions of different thinker like Max weber and Thorstein Veblen

CO3- Understand theory of functions by R.K Merton Study of circulation of elites by vilfredo Pareto

CO4- Study of Non –violence social justice by Mahatma Gandhi and Dr. B.R. Ambedkar respectively

CO5- Know the contribution of Indian sociologists like Yogendra Singh in Modernization of Indian tradition

B.A III Year Sociology

Title of Paper   : Methods of Social Research
Course Code   : AT-A45 (B)

Course Out Comes

CO1-Focus in how the research is done in sociology and understand importance anddata analysis of scientific method

CO2-Study different – Techniques of Data collection

CO3-Learn characteristic Classification and tabulation of data for report writing

CO4-Learning classification of data by using different measure of central tendency likemean median mode and make conclusions based on those patterns.

CO5-Learn using graphical presentation and different diagrams in reports and get factbased clarity on sociology

B.A I Year Hindi

Title of Paper   : izkphu ,oa e/;dkyhudk0;
Course Code   : FATHLJ1A
Course Out Comes

CO2- e/;dkyhudk0; dh i"BHkwfedkfo|kfFk;ksdkscks/k djkukA
CO3- e/;;xhudk0; dh ikLlafxdrk ,oad`fr;k d ek/;e lslkfgR; d f'kYivkjlLkan;lsvoxrdjkukaA
CO4 - dk0; dkfo/kkvkdklkekU; ifjp; ,oaiLrfrdk'kydkifjp; djkukA
CO5 - ikphu ,oa e/;dkyhudk0; d ek/;e lsdk0; d ifr :fptkxrdjukA

B.A I Year Hindi

Title of Paper   : Hindi kathahitya
Course Code   : FATHLJ1AB
Course Out Comes

CO1- fo|kfFk;kdksfgUnhlkfgR; d bfrgkl dh ys[kuijaijklsifjp;] dkyfoHkktu] ukedj.k ,oa ;xhu i"BHkwfelsijhp; djkukA
CO2- fgUnh d izfrfuf/k dgkuhdjkk ,oa mud thou ewY;ksalsifjp; djkukA
CO3 - fgUnhlkfgR; dkfodklØe ,oa ;xthoudklaca/kA
CO4- vk/kfud ;x d lkfgR; dh izo`fRr;ksalsifjp;A
CO5- xcumiU;kl d ek/;e lsNk=kdlizsepUn ;qxhuifjfLFkfr;ksalsifjp; djkukA

B.A II Year Hindi

Title of Paper   : vokZphufgUnhdk0;
Course Code   : AT-A37 (A)
Course Out Comes

CO1- lkfgR; dh ifjHkk"kkvtt ,oalkfgR; dh fofo/k fo/kkvkdkrRoksxr v/;;uA
CO2- dk0; gsrdk0; i;kstukdkKkudjkukA
CO3- dk0; d rRokdk0; d Hksn 'kCn 'kfDr] Nan ,oavyadkjksadklgksnkkj.kifjp;A
CO4- jl d Lo:lkvax ,oaiHksnksadkfoos;u ,aovkykspukn`f"VdkfodklA

B.A II Year Hindi

Title of Paper   : vokZphufgUnhdk0;
Course Code   : AT-A37 (B)
Course Out Comes

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B.A I Year English Literature

Title of Paper   : Study of Drama /Applied Drama

Course Code   : FATELJ13A

Course Out Comes

B.A I Year English Literature

Title of Paper   : Study of Poetry / Applied Poetry

Course Code   : FATELJ13A

Course Out Comes

B.A II Year English Literature

Title of Paper   : Drama

Course Code   : AT-A38 (A)

Course Out Comes

CO1-   Interpret literary texts in English by nurturing and utilizing their ability to understand drama in a skilled, knowledgeable, and ethical manner.

CO2-   Conceptualize various types of drama viz. Tragedy, Comedy, Farce, Melodrama,

CO3- Gain knowledge in the development of English drama from 16th Century to 21st   century i.e. Shakespearean drama, Romantic Comedy, Shavian plays and One-act plays.

CO4- Understand the structure of a play and learn the dramatic devices used in writing a play and become well acquainted with the rhetorical aspect of Drama, historical contexts and psycho-social aspects.

CO5- The Scheme of examination and the allotment of marks shall be as under.

B.A II Year English Literature

Title of Paper   : Fiction

Course Code   : AT-A38 (B)

Course Out Comes

CO1-   Become well acquainted with the literary genre of Novel and Short Story and literary devices of allegory and metaphor, satire, and stream of consciousness technique.

CO2.   Conceptualize the Genre of Novel and gain knowledge in the development of English

Fiction from the 17th Century to the 21st century.

CO3.   Enhance Reading skills and understand how to represent their experience and ideas critically, creatively, and persuasively through the medium of language.

CO4.   Understand the social, historical and political backgrounds of the world of the novelists and short story writers.

CO5.   Get a wide exposure of eminent writers, their unique styles of writing and imagination to help the students enhance their creative writing skills.

B.A III Year English Literature

Title of Paper   : Contemporary Literature

Course Code   : AT-A43 (A)

Course Out Comes

CO1- Broadens the origin of English education during British Empire in India and highlights the   glory of Indian Writings in English through the works of J. L. Nehru, Mahatma Gandhi, AmartyaSen, R.K. Narayan ,JhumpaLahiri etc.

CO2-   Ignites the minds to compare the glory of Indian writings with other writings through the study of American, British poets ,dramatists , Indian poets and dramatists and other modern   poets viz. Philip Larkin,SylviaPlath,T.S. Eliot,AsifCurrimbhoy,Ruskin Bond etc.

CO3-   Inculcate interests to focus on contemporary literature and deepens the knowledge of contemporary world culture.

B.A III Year English Literature

Title of Paper   : Indian Writing in English

Course Code   : AT-A43 (B)

Course Out Comes

CO1-   Enhances aesthetic sense – admiring the beauty of life and literature.

CO2- Inculcate the essence of the other regional literature of India in English translation andIndian Literature in English through the works of R. N.Tagore, GirishKarnad, KhushwantSingh, M.R.Anand,SarojiniNaidu,SriAurobindoetc

Co3-   Enhance Reading skills and understand how to represent their experience and ideas critically,creatively, and persuasively through the medium of language.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

BCA I Year

Title of Paper : Computer Fundamentals, Organization and Architecture-Major I

Course Code : FBCFUJ1A

Course Out Comes
C01. Understand the basic structure, operation and characteristics of digital computer.

C02. Design simple combinational digital circuits based on given parameters.

C03. Understand the working of arithmetic and logic unit.

C04. Know about hierarchical memory system including cache memories and virtual memory.

C05. Know the contributions of Indian in the field of computer architecture and related technologies.

BCA I Year

Paper Title – Computer Fundamentals, and Digital Lab (Practical)

Course Code – FBCFUJ1A-P
Course out comes

C01. Familiarity with parts of the computer and peripheral devices used with the computer.

C02. Realization of the basic logic and universal gates.

C03. Verify the behavior of logic gates using truth tables.

C04. Implement Binary-to Gray, Gray-to, Binary code conversions.

C05. Design half and full adder circuit using basic gates.

BCA I Year

Title of Paper : Programming Methodology & Data Structures –Major II

Course Code : FBCMDJ1B

Course Out Comes
C01. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.

C02. Writing efficient and well-structured computer algorithms/ programs.

C03. Learn to formulate iterative solutions and array processing algorithms for problems.

C04. Use recursive techniques, pointers and searching methods in programming.

C05. Have Knowledge of complexity of basic operations like insert, delete, search on these data structures.

BCA I Year

Title of Paper : Programming Methodology & Data Structures (Practical)

Course Code – FBCMDJ1B-P

Course Outcome

C01. Develop simple algorithms and flow charts to solve a problem with programming using top down
design principles.

C02. Writing efficient and well- structured computer algorithms/ programs.

C03. Learn to formulate iterative solutions and array processing algorithms for problems.

C04. Use recursive techniques, pointers and searching methods in programming.

C05. Process ability to choose a data structure to suitably model any data used in computer applications.

BCA I Year

Title of Paper : Operating System - Minor

Course Code : FBCOSI2

Course Out Comes

C01. After the completion of this course, a students shall be able to do the following.

C02. Describe the importance of computer system resources and the role of operating system in their
management policies and algorithms.

C03. Specify objectives of modern operating systems and describe how operating systems have evolved over
time.

C04. Understand Various process management concepts and can compare various scheduling techniques,
synchronization, and deadlocks.

C05. Describe the concepts of memory management techniques.

BCA I Year

Title of Paper : Operating System (Practical)

Course Code – FBCOSI2-P

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Outcome

C01. Operate the Linux System.

C02. Do Administration.

C03. Use Vi- Editor.

BCA I Year

Paper Title – Computational Mathematics -Elective

Course Code – FBCCME3

Course Out Comes

C01. Implement trigonometric solutions for measurements in real world scenarios.

C02. Implement metrics and simultaneous equations to solve complex problems.

C03. Use statistical tools efficiently.

C04. Use Mathematical Logic and predicate calculus for solving problems.

C05. Apply the concepts for set theory for finding solutions to set related problems.

BCA/BA/BSc/BCom I Year (Vocational)

Title of Paper: Web Designing
Course Code :**V1-COS-WEBT**

Course Out Comes
C01. Code a handful of useful HTML & CSS examples.

C02. Build semantic, HTML & CSS web page.

C03. Write basic Scripts.

C04. Use Names, Objects, and Methods.

C05. Add Interactivity to a Web Page.

BCA II Year

Title of Paper   **:** PROGRAMMING WITH C++ AND DATA STRUCTURES
Course Code   : BC- A12
Course Out Comes

CO1- Understand importance of object oriented programming and difference between structured oriented and object oriented programming features. Develop an in-depth understanding of object oriented paradigm with principles of classes, object and

functions.

CO2- Able to make use of objects and classes for developing programs.

CO3- Implement various object oriented concepts to solve different problems.

CO4- Apply algorithms, flowcharts and applications of graphs and trees to simplify real- time problems.

CO5- Implement the abstract data types stack queue and list.

BCA II Year

Title of Paper **:** COMPUTERBASEDNUMERICALANDSTATISTICALTECHNIQUES

Course Code   : BC- A13

Course Out Comes

CO1- Apply numerical methods to find our solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations.

CO2- Apply various interpolation methods and finite difference concepts.

CO3- Workout numerical differentiation and integration whenever and wherever routine methods are not applicable.

CO4- Work numerically on the ordinary differential equations and partial differential equations using different methods through the theory of finite differences.

CO5- Work numerically on the Correlation and Regression using different methods.

BCA II Year

Title of Paper **:** Operating System

Course Code : BC- A14

Course Out Comes

CO1- Describe & Discuss the basic concepts of operating systems.

CO2- ExplainthemechanismofProcessManagementandProcessSynchronization.

CO3- Explain Virtual memory concepts and file management methods.

CO4- IllustratediskmanagementanddescribeUNIXsystemorganizationandLINUXarchitecture.

CO5- Develop basic Shell scripts.

BCA II Year

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Title of Paper **:** Web technology and Application Development using .Net&C#

Course Code   : BC- A15
Course Out Comes

CO1-   Understand and know how to use descriptive languages like HTML and XML. They will also know how to use web programming languages (JavaScript and C#) and be capable of construction less demanding web application on their own.

CO2- Distinguish between server-side and client-side web technologies.

CO3-   Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's

CO4- Apply the Concept of Stat Management in Creating Session and Cookies.

CO5- Develop Database Connection and Create Data Grid.

BCA II Year

Title of Paper   : RDBMS & ORACLE

Course Code   : BC- A16

Course Out Comes

CO1-   Understand, effectively &explain the underlying concepts of database Technologies.

CO2-   Design and implement a databases chemo forgiven problem-domain.

CO3-   Normalize a database and query a database using SQL DML/DDL/DCL/TCL/DQL

commands. Declare and enforce integrity constraints on a database.

CO4-   Formulate Solution of Data Management Problems using SQL.

CO5-   Apply Joint on Tables and used TCL and DCL Commands.

BCA II Year

Title of Paper   : SOFTWARE ENGINEERING

Course Code   : BC- A17

Course Out Comes

CO1-   Describe theories, models, and techniques that provide a basis for the software lifecycle.

CO2-   Use software metrics to estimate various software project parameters.

CO3-   Design, test, deploy and maintain Software.

CO4-   Illustrate Software project management, Time management, Cost and Quality management.

CO5-   Describe Project Human resource management, Configuration management and use CASE tools.

BCA II Year

Title of Paper   : ORGANIZATIONAL BEHAVIOR

Course Code   : BC- A18

Course Out Comes

CO1-   Toenablesstudentstolearnthebasicsofindividualbehaviorandgroupbehavior.

CO2-   To make them understand the organizational dynamics and organizational culture.

CO3-   To make them aware about Goal setting, Interpersonal Skills, Stress &Time Management, Leadership Qualities.

CO4-   TomakethemunderstandtheconceptandimportanceofOrganizationalBehaviorinpresentscenario.

CO5-   Design and Organization Structure, Culture.

BCA II Year

Title of Paper   : Lab - I

Course Code   : PR-BC- A19

Course Out Comes

CO1-   Understand, effectively & explain the underlying concepts of database Technologies.

CO2-   Design and implement a database for a given problem-domain.

BCA II Year

Title of Paper   : Lab - II

Course Code   : PR-BC- A20

Course Out Comes

CO1-   Apply the Concept of Stat Management in Creating Session and Cookies.

CO2-   Develop Database Connection and Create Data Grid.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

BCA III Year

Title of Paper   : COMPUTER NETWORKING & INTERNET SECURITY

Course Code   : BC- A22

Course Out Comes

CO1-   To make students well familiar with computer and networking fundamentals.

CO2-   To Build an understanding of the fundamental concepts of computer networking.

CO3-   To prepare students with basic networking concepts: data communication, protocols and standards, various topologies & applications of network.

CO4-   Evaluate Deferent Cryptography technique such as RSA, MAC, SHA and HASH Functions.

CO5-   Illustrate Various level of Network Security.

BCA III Year

Title of Paper : CORE JAVA

Course Code   : BC- A23

Course Out Comes

CO1-   Use an integrated development environment to write, object-oriented Java programs.

CO2-   Use object oriented concepts in Java Programming.

CO3-   Execute programs using Inheritance and Multi-Threaded programming.

CO4-   Create Package for Reusability of code.

CO5-   Design and develop basic Applets.

BCA III Year

Title of Paper : Management Information Systems

Course Code : BC- A24

Course Out Comes

CO1- Developing and maintaining the information system.

CO2- An effective search of data from the system.

CO3- Implementation of data structures.

CO4- Understand the role of information systems in today's competitive business environment.

CO5- Analyze the relationship between information systems and organizations.

BCA III Year

Title of Paper : Python Programming
Course Code : BC- A25
Course Out Comes

CO1- Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
CO2- Demonstrate proficiency in handling Strings and File Systems.
CO3- Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
CO4- Interpret the concepts of Object- Oriented Programming as used in Python.
CO5- Implement exemplary applications related to Tinker and Databases in Python.

BCA III Year

Title of Paper : E-Governance
Course Code : BC- A26
Course Out Comes

CO1-   Need for change in current service delivery model and role of e-Governance.
CO2- Gain a familiarity with the basic concepts, terminology and technology of e- commerce/e- government.

CO3- Understand the various stages of e- governance and various models of e- governance.
CO4- Understand the major federal and state laws and regulations impacting the evolution of e- government.
CO5- Analyses the issues and challenges.

BCA III Year

Title of Paper : PRINCIPLES AND PRACTICES OF MANAGEMENT
Course Code : BC- A27
Course Out Comes

CO1- Learners would be able to develop "team–work "attitude and identify the key competencies required to be an effective manager.
CO2- Assume the role and responsibilities associated with managerial function.
CO3- Compare various approaches in management for problem solving.
CO4- To help the students gain understanding of the functions and responsibilities of managers.
CO5- Discursive the process involved cadetting and staffing.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

BCA III Year

Title of Paper : Lab I (Java Programming)
Course Code : PR-BC- A28

Course Out Comes
CO1- Use an integrated development environment to write, object-oriented Java programs.
CO2- Use object oriented concepts in Java Programming.

BCA III Year

Title of Paper : Lab II (PYTHON PROGRAMMING)
Course Code : PR-BC- A29

Course Out Comes
CO1- Interpret the concepts of Object- Oriented Programming as used in Python.
CO2- Implement exemplary applications related to Tinker and Databases in Python.

BCA III Year

Title of Paper : PROJECT: APPLICATION DEVELOPMENT USING PHP& MySQL
Course Code : IN-BC- A30
Course Out Comes

CO1-   Design and develop websites using fundamental web languages, technologies, and tools.
CO2- Understandvariouswebtechnologyandapplicationdevelopmentissuesandtrends.
CO3- Conduct independent research on a subject related to the course material.
CO4-Understand the practices and procedures being followed in the industries and providean opportunity to work on some live projects in the industry. Apply the acquired knowledge and skills in solving live problems in the Computer and I.T.industry.

BBA I Year

Title of Paper: Communication Skill (Major II)
Course Code : FBBCKJ1B

Course Out Comes
CO1- Imagination, Ethical Theory and skills to Interact, Students can learn how to do this ethically and effectively.
CO2- Students can learn and practice group communication skills. They will learn how to respond in discussions, interviews, conferences.

CO3- Students can learn nonverbal communication, listening and organizational culture.

CO4- Students can be equipped with knowledge of professional communication through the basic principles of writing professional papers and other documents.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

BBA I Year

Title of Paper: Buisness Management
Course Code : FBBCKJ1A
Course Out Comes

CO1- Student will be able to assess the global context for planning, coordinating and monitoring managerial behavior.

CO2- Through various planning and decision-making techniques, students can learn about how businesses ensure to remain in a competitive market.

CO3- Students will understand various forms of organizational structures and their importance.

CO4- Students can learn about various strategies used by businesses to maintain and improve employee efficiency.

CO5- Students will be able to understand how organizations use different leadership styles to stay competitive.

CO5- Students will be able to understand the comparison of different market systems.

CO6- Students will be able to understand how national income is calculated.

BBA I Year

Title of Paper: BUSINESS STATISTICS (Minor)
Course Code : FBBBSI2

Course Out Comes

CO1- Statistical Research Tools will increase student's ability to understand how to perform social researches.

CO2- Student will be equipped with knowledge about analyzing professional reports analyzed.

CO3- Students will learn about Quantization, analysis of performance relationship.

BBA I Year

Title of Paper : Business organization and Management (Elective)

Course Code : FBBBME3

Course Out Comes

CO1-Develop a basic understanding about business organization and its forms.
CO2- Develop rudimentary concept of plant location, layout and size of business units and their respective important in the practical word.
CO3- Acquire an understanding of business combinations rationalization and nationalization.
CO4- Gain Insight into The Management Process and its Functions of Planning, Organizing, Staffing,

directing and Control.

BBA I Year
Title of Paper : **DIGITAL MARKETING(Vocational)**

Course Code : BB- A17
Course Out Comes
CO1- Understand digital marketing, important thereof, meaning of web site and levels of web site difference between blog, portal & amp; website.
CO2- Understand the working of SEO (search engine optimization) on page optimization, off page optimization, and will learn to prepare reports.
CO3- Learn about SMO (social media optimization) like Face book, twitter, LinkedIn, Tumblr, Pinterest and other social media services optimization.
CO4- Understand paid tools like Google ad words, display advertising techniques
CO5-Learn and apply hands on experience on tools useful to SEO for analysis on website traffic, keywords analysis and learn email marketing and ad designing.

BBA IIIYear

Title of Paper : FINANCIAL MANAGEMENT
Course Code : BB- A19
Course Out Comes

CO1- Students will have the awareness about the various types of support rendered by the institution to the entrepreneurs.

CO2- The students will be able to do the financial analysis and interpretation of any business concern independently.

CO3- The students will be able to evaluate comparative working capital management policies and their impact on the firm's profitability, liquidity, risk and operating flexibility. They will be also able to design the combination of debt and equity used to finance a firm.

CO4- The students will learn to make decisions regarding the purchase of long-term assets or the start of a business project.

CO5- The students will be able to differentiate between the different models of dividend payout policy and their calculations.

BBA IIIYear

Title of Paper : PROJECT MANAGEMENT
Course Code : BB- A20
Course Out Comes

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

CO1- Students will be competent to understand various concepts of Project Management like a project life cycle, and identify the resources needed for each stage, including involved tools and supplementary materials.

CO2- Students will describe the time needed to successfully complete a project, considering factors such as task dependencies, constraints and task lengths.

CO3- Students will be able to identify and comprehends information regarding project costs such as estimated cost, variances and profits.

CO4- Students will be able to define project scope considering factors such as customer requirements, internal/external goals and other requirements.

CO5- Demonstrate effective project execution and control techniques resulting in successful projects closure and obtain formal project acceptance.

BBA IIIYear

Title of Paper : HUMAN RESOURCE MANAMENENT
 Course Code : BB- A21
Course Out Comes

CO1- Demonstrate proficiency in fundamental human resources theories and concepts and how they apply to real world situations.

CO2- Formulate human resources policies and practice that help promote the organization's strategic goals.

CO3- Students will understand how organizations link training programs to organizational needs.

CO4- Students will learn how organizations evaluate jobs and design salary structure based on that.

CO5- Develop an understanding of the challenges of human resources management and successfully manage and resolve conflicts.

BBA IIIYear

Title of Paper : ORGANISATIONAL BEHAVIOUR
 Course Code : BBA22
 Course Out Comes

CO1- Compare and contrast theories of organizational behavior. What is organizational behavior and why is it important? This learning outcome breaks down the definition of organizational behavior and introduces you to several theories on managementframework, role of managers, skills of managers, and how managers do their jobs.

CO2- Examine the components and theories behind leadership, power, and politics are illustrated positively and negatively.

CO3- Analyze Various Stress management and coping strategies.

CO4- Compare different organizational cultures, examine characteristics of cultures, explore global implications, and examine crating and sustain a positive culture, and assessing the impact of culture on organizational behavior.

BBA IIIYear

Title of Paper : Entrepreneurial Development
Course Code : BB- A23
Course Out Comes

CO1- Students will be able to understand the significance of entrepreneurship and the role and entrepreneur plays in economic growth of the country.

CO2- Will get acquainted to various programmes for the development of entrepreneurship in Indi.

CO3- Will get insights into what helps an entrepreneur succeed in rural areas.

CO4- Get an understanding of how a business idea is conceptualized and turned into success.

CO5- Will understand the various financial, technical and marketing assistance provided for the establishment and growth of entrepreneurship.

BBA IIIYear

Title of Paper : MANAGEMETN INFORMATION SYSTEM
Course Code : BB- A24
Course Out Comes

CO1- The Student will be able to understand the utility of MIS.

CO2- The Student will be able to implement the process of MIS development

CO3- The student will be able to use MIS for decision – making.

CO4- The student will be able to know about the emerging trends in commuter.

CO5- The Student will be able to design MIS modules.

BBA IIIYear

Title of Paper : BUSINESS ENVITOMENT
Course Code : BB- A25
Course Out Comes

CO1- Understand the concept, significance and changing dimensions for Business Environment

CO2- Identify various types of Business Environment and tools for scanning the Environment.

CO3- Gain insights on role of economic systems, economics planning, government policies, Public sector and development banks, economic reforms and their Impact on business.

CO4- Appreciate the importance and impact of changing laws and regulations on a business firm.

CO5- Gain insight on patent laws, policy on research and development and new technological developments in Business Environment.

BBA IIIYear

Title of Paper : Business Laws
Course Code : BB- A26
Course Out Comes

CO1-   Describe business law in the global context.

CO2-   Describe current law, rules and regulations related to settling business disputes.

CO3-   Knowledge and understanding of substantive and procedural law.

CO4-   Legal analysis and reasoning, legal research, Problem – solving, professional skills and written and oral communication in the legal context.

CO5-   Explain basic principles of law that apply to business and business transactions.

BBA IIIYear

Title of Paper : Consumer Behavior
Course Code : BB- A27
Course Out Comes

CO1- Be able to identify the dynamics of human behavior and the basic factors that influence the consumers decision process.

CO2- Be able to demonstrate how concepts may be applied to marketing strategy.

CO3- Be able to demonstrate how concepts may be applied to marketing strategy.

CO4- Be able to seek global opportunities in marketing.

BBA IIIYear

Title of Paper : ADVERTISING MANAGEMENT AND SALES
Course Code : BB- A28
Course Out Comes

CO1-   Be able to understand concepts of advertising and the basic factors that influence the marketer's decision.

CO2- Be able to demonstrate how concepts may be applied to marketing strategy.

CO3- Be able to seek global opportunities in advertising.

BBA IIIYear

Title of Paper : Elective B Finance – Working Capital
Course Code : BB- A29

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Out Comes

CO1- Analysis of the corporate policy in financing.

CO2- Understanding the change in working capital and what should be course of action by the Finance Manager!

CO3- Practical problems of cash managements and how to resolve them

CO4- Techniques problems of cash management and how to resolve them.

CO5- The importance of control on inventories for cost control and the different measures adopted by industries and business.

BBA IIIYear

Title of Paper : Elective B Finance – Corporate Taxation
Course Code : BB- A30
Course Out Comes

CO1- Students will be able to describe how the provisions in the corporate tax laws can be used in tax planning.

CO2- Students will be able to identify the difference between tax evasion and tax planning.

CO3- They will be able to state the use of deductions of expenses to reduce the taxable income.

BBA IIIYear

Title of Paper : Elective 'e' – HRM- Human Resource
Course Code : BB- A31
Course Out Comes

CO1- Demonstrate an understanding of basic concept, goals and strategies of HRD and its importance for individual's growth and organization's success.

CO2- Students will understand how training need assessment and implementation of training program help in realizing the full potential of an individual.

CO3- Get acquainted to various methods used to evaluate the performance of employees.

CO4- Students will have an understanding of various HRD approaches used for coping with organizational change.

CO5- Students will understand measures organizations take to maintain quality of manpower.

BBA III Year

Title of Paper : Elective e HRM- Wage and Salary Administration

Course Code : BB- A32

Course Out Comes

CO1- Students will learn how organizations evaluate jobs and design salary structure based on that.

CO2- Student will get familiarized with basic concept of wage differentials and different components of wage packages.

CO3- Students will get to know various measures organizations use to boost employee's morale and thus performance.

CO4- Understand working of different Institutions related to reward systems.

CO5- Students will have an understanding of various acts used for wage and salary administration.

B.Com I Year

Title of Paper :Financial Accounting (Major I)

Course Code : FCMFAJ1A

Course Out Comes

CO1- Acquire conceptual knowledge of basic of accounting.
CO2- Identify events that need to be recorded in the accounting records.
CO3- Develop skill of recording financial transaction and preparation reports in accordance with GAAP.
CO4- Describes the role of accounting information and its limitations.

CO5- Equip with the knowledge of accounting process and preparation off in a accounts of sole trader.

B.Com I Year

Title of Paper : Business Regulatory Frame Work
Course Code : FCMBRJ1B

Course Out Comes

CO1- The outcomes of this course are to provide the students with practical legal knowledge of General business low issues.
CO2- To understand the essential of Valid contract, the laws of acts consideration and various modes of discharge of a contracts.
CO3- To explain the various laws with regards to sale of Goods and Performance of a sale contracts and remedial measures.

CO4- To familiarize the students with the various consumers forums and to understand the meaning and the various Legislations with regards to cyber lows.

B.Com IYear

Title of Paper : Business organization and Communication (Minor)

Course Code : FCMBOI2
Course Out Comes

CO1- After completion of this course it is expected that the students shall understands the basic of business and will able to imbibe how any business can organize successfully.
CO2- The chapter related to communication shall be able to elucidate communication plays an important role in modern business scenario.
CO3- Business communication helps student to understand methods of communication in business world.
CO4- Through the Modern means of communication student get knowledge of communication tools which currently running like e-mail, video conferencing.
CO5-From this subject student also get information about information tech, modern communication system and role of social media in modern business.

B.Com IYear

Title of Paper : Money and Banking

Course Code : FCMBIE3
Course Out Comes

CO1- After completion of this course it is expected that the students shall understand about the origin of Money and Banking.
CO2- They learn about various concepts of Money, its functions, value, money market and monetary policy operations.
CO3- They understand about various banking institutions along with their basic functions and their credit creations role.
CO4- They will get about the knowledge of CENTRAL BANK of our country and assess the objectives and functions of RESERVE BANK OF INDIA (RBI).
CO5- Students will also analysis the Banking Sector Reforms and gauge at the recent trends in Banking Systems in India.

B.Com I Year

Title of Paper : Business Economics
Course Code : FCMBEE4
Course Out Comes

CO1- study micro economics definition inductive and deductive methods and its limitations.

CO2- Explain the determinates of demand and supply.

CO3- study elasticity of demand and production function

CO4- Define the term "Production" and explain what a production function is define the term "Production input" and differentia between labor, land, capital, entrepreneurship, technology.

CO5- student will get knowledge about market structure and about perfect and imperfect competition.

B.Com II Year

Title of Paper   : Corporate Accounting
Course Code : CM- A32(A)
Course Out Comes

CO1- Get basic knowledge about corporate entity.

CO2- Student will understand methods of presentation of profit, managerial remuneration and method of calculation per and post incorporation profit of company.

CO3- Student will study about financial statement foelectricaity company and calculation of goodwill and.

CO4- Get knowledge about types of company and deeply stud about holding and subsidiary companies.

CO5- Detail study about merger accounting standard 14 (about merger and reconstruction of company)

B.Com IIYear

Title of Paper   : Cost Accounting
Course Code : CM- A32(B)
Course Out Comes
CO1- understand cost accounting methods for evaluation p

CO2- Get study about basic terminology of cost account

CO3- Get Knowledge about costing and costing.

CO4- This will help students in preparing External Report based on cost and to identify cost classification based on how cost responds to change in production levels and how these changes affect managerial decision.

CO5- Student get knowledge about inter process profit and reserve.

B.Com IIYear

Title of Paper   : Cost Accounting
Course Code : CM- A33(A)

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Out Comes

CO1- Student will be able to Interpret the meaning of calculated Stabiotreal Indicators.
CO2- Student willable to Independently calculated basic statistical parameter.
CO3- This will help students in selecting appropriate statical methods and apply them in analysis of data.
CO4- Get study about correlation and regression.
CO5- Students are able to solve a variety of business related problems using systematic approach involving accepted statistical techniques.

B.Com IIYear

Title of Paper   : Principles of Management
Course Code   : CM- A33(B)
Course Out Comes
CO1- Explain basic principal and Technique of management.
CO2- Students get knowledge about primary functions of management.
CO3 - To identify and communicate the purpose and functions of management.
CO4- Help to student to determine the most effective action to be taken in specific situations.
CO5- Help integrate management principal in to management practice.

B.Com IIYear

Title of Paper : Indian Company Act
Course Code : CM- A34(A)
Course Out Comes
CO1- Basic knowledge about companies' formation, incorporation and commencement.
CO2- Detail study about company's essential document.
CO3- Get knowledge finical resource of company – Share, Debenture
CO4- To provide students with knowledge a certain core topics in company low including bound of directors and their legal duties legal protection of director.
CO5- To Give fundamental working knowledge of liquidation procedure of companies with overview of minority rights and prevention of mismanagement.

B.Com IIYear

Title of Paper : Banking & Insurance
Course Code : CM- A34(B)
Course Out Comes

CO1- Students will be well equipped with the meaning and nature of Banking and Insurance sector of India.

CO2- Students will be able to understand the core functions of Banking and Insurance Company along with their features and legal rules and regular of RBI and IRDAI.

CO3- Student will be able to easily identify and develop the knowledge about the basic process of recruitment and selection used by banking and Insurance.

CO4- Student will have ample knowledge of Banking and Insurance sector and they will also be able to apply for the various advance banking and financial courses available in the country.

B.Com IIIYear

Title of Paper   : Income Tax Law & Practice
Course Code : CM- A37(A)
Course Out Comes

CO1- Understand fundamental concepts of income tax law.

CO2- Knowledge of file IT return on Individual basis.

CO3- Learn about computation of income tax and capital gain in Business and profession.

CO4- Students will study to compute total Income and define tax complicacies and structure.

CO5- Able to understand tax assessment procedure amendments made from time to time in finance Act.

B.Com IIIYear

Title of Paper   : Goods and Service Tax (GST)
Course Code : CM- A37(B)
Course Out Comes

CO1- Understand various concept of Goods and services Tax

CO2- Student Study about apply the provision of GST and tackle with situations for their own business.

CO3- Gain knowledge on the recording and analyzing the transactions for compliance. Under GST especially in supply chain and distribution.

CO4- Getting information about the Technology and the flow of return filing under GST

CO5- Knowledge "place of supply rules" and applicability of the same under GST.

B.Com IIIYear

Title of Paper : Principles of Marketing
Course Code : CM- A39(A)
Course Out Comes
CO1- Use a vocabulary of marketing terms correctly.
CO2- Demonstrate the ability to critically evaluate a marketing program from consumer and marketing   practitioner view point, including consideration of ethical implications.
CO3- Communicate clearly, in an organized fashion, the concepts of marketing in both oral and written   work.
CO4- Demonstrate an understanding of how marketing fits with the other business disciplines within and organization.

CO5- Student will learn all sale force activities for promotion of product.

B.Com IIIYear

Title of Paper : International Marketing
Course Code : CM- A39(B)
Course Out Comes
CO1- Havedeveloped an understanding of major issue relatd to international marketing.
CO2- Have develop skill in researching and analyzing trends in global markets and modern **marketing**.
CO3- Be able to assess an organization's ability to enter and compete in international markets.
CO4- Have knowlwdge about the capture market and distribution method in international markets.
CO5- Get knowledge of documation and process of Export and export finance.

B.Com(C.A)I Year

Title of Paper   : **MS. Office(Elective)**
Course Code   : FCMMSE5
Course Out Comes

C01. To Create and manage professional documents using word.
C02.Analyze, manage and present data using excel.

C03.Create and manage presentation using power point.
C04. To insert a table, picture, or drawing into the document.
C05. To prepare the document to be sent as a circular letter.

B.Com (C.A) I Year

Title of Paper : **MS. Office**(Practical)
 Course Code : FCMMSE5-P

Course Out Comes

 C01. To use keyboard shortcuts to perform tasks.

 C02. To create a new document, open, save and print a document.
 C03.To edit and format text, change the page layout, background and borders.
 C04. To modify power point custom template presentation.

 C05.To insert clip art and pictures to documents.

B.Com (C.A)II Year

Title of Paper : **Internet and E-Commerce**
Course Code : CM- A35(A)
Course Out Comes

CO1- Fundamental principles of E-Commerce, Tools and services.

CO2- Advantages of E-Marketing over traditional marketing.

CO3- Internet, Intranet, various tools, protocols and methodologies briefed out.

CO4- Analyze of E- Marketing and Additional Marketing.

CO5- Technology Resource of E- Security, E- Payment System.

B.Com (C.A)II Year

Title of Paper : Relational Database Management System
Course Code : CM- A35(B)
Course Out Comes

CO1- Understand, effectively &explain the underlying concepts of database Technologies.

CO2- Design and implement a database scheme a forgiven problem-domain.

CO3- Normalize a database and query a database using SQL DML/DDL/DCL/TCL/DQL

commands.

CO4- Declare and enforce integrity constraints on database.

CO5- Formulate solution of Data Management Problems Using SQL.

B.Com (C.A)II Year

Title of Paper : InternetandE-Commerce

Course Code : PR-CM- A35
Course Out Comes

CO1- Declare and enforce integrity constraints on database.

 CO2- Technology Resource of E- Security, E- Payment System.

B.Com (C.A)III Year

Title of Paper : **Web Designing**
Course Code : CM- A40(A)
Course Out Comes
CO1- Understand Web Design concept.

CO2- Complete knowledge about the form controls & their properties.

CO3- Cerate external interface using forms.

CO4- Explain the history of the internet and related internet concepts that are vital in understanding web development.

CO5- Discuss the insights of internet programming and implement complete application over the web.

B.Com (C.A)III Year

Title of Paper : **Web Designing**
Course Code : CM- A40(B)
Course Out Comes

CO1- Explain the role and importance of digital marketing in a rapidly changing business landscape.
CO2- Understanding Internet, Web Hosting and Web Server.
CO3- Understanding Google Analytics Tools.
CO4- Discuss the key elements of a digital marketing strategy, and Social Networking Side.
C05- Demonstrate practical skills in common digital marketing tools such as SEO, SEM, Social media, Blogs.

B.Com (C.A)III Year

Title of Paper : Web Designing
Course Code : IN-CM- A41
Course Out Comes
CO1- Discuss the insights of internet programming and implement complete application over the web.
CO2- Complete knowledge about the form controls & their properties.

B.Com (C.A)III Year

Title of Paper : Relational Database Management System
Course Code : PR-CM- A41
Course Out Comes

CO1- Understanding Internet, Web Hosting and Web Server.

CO2- Understanding Google Analytics Tools.

B.Sc. I Year Chemistry

Paper I – Fundamentals of Chemistry (Major I)

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Code: FSCCHJ13A

Course Outcomes

After completion of this course, the students understand:

CO1 - Ancient Indian chemical techniques.
CO2 - Various theories and principles applied to reveal atomic structure.
CO3 – Significance of quantum numbers.
CO4- Concept of periodic properties of elements.
CO5 - Theories related to chemical bonding.

Practical

Paper : Qualitative & Quantitative Chemical analysis

Course Code: FSCCHJ13A-P

Course Outcomes (COs)

After successfully completing practical course, students understand the following concepts that may help in their employment as chemist

CO1- Importance of chemical safety and lab safety while performing
CO2- Qualitative inorganic analysis
CO3-Elemental analysis of organic compounds (non-instrumental)
CO4- Qualitative identification of functional group of organic compounds
CO5-Techniques of pH measurements
CO6- Preparation of buffer solutions

Paper II – Analytical Chemistry (Major II /Minor /Elective)

Course Code : FSCCHJ13B

Course Outcomes

After completion of this course, the students understand:

CO1 - Basic concepts of Mathematics for Chemists.
CO2- Fundamentals of analytical chemistry and steps involved in analysis.
CO3- Basic knowledge of Computer for chemists.
CO4- Basic Concepts of Chemical equilibrium
CO5- Principles of Chromatography and chromatographic

techniques,

Practical

Paper : Analytical Processes and Techniques (Paper -II)

Course Code: FSCCHJ13B-P

Course Outcomes (COs)

After successfully completing practical course, students understand the following concepts that may help in their employment as chemist

CO1- Concepts and analytical methods in Chemistry.
CO2- Preparation of solutions of different concentrations.
CO3- Standardization of the solution.
CO4- Identification of Organic compounds by chromatographic techniques.
CO5- Analysis by Spectral Techniques.

Paper – Chemistry in everyday Science (Elective II)

Course Code :

Course Outcomes

After completion of this course, the students understand:

CO1 - Learn about the chemistry of ancient India, ancient construction materials and discoveries.
CO2- Gain information about acids, bases and salts involved in our day to day life.
CO3-Have an idea of food adulteration, its harmful effects, and methods to detect adulteration and the important constituents of our food.
CO4-Student will be familiar with the chemical nomenclature of the commonly used materials in daily life including toiletries, kitchen and beverages.
CO5-Have an Elementary idea of disinfectants, pesticides
    and cleaners.

B.Sc. II Year Chemistry

Paper I – Physical Chemistry

Course Code:SC-A32 (A)

Course Outcomes (COs)

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

After completion of the course, the students understand:

CO1 – Gibbs's function and Helmholtz functions, standard state, Hess's law and its applications basic concepts and laws of thermodynamics, efficiency of heat engine, concepts ofentropy

CO2 – phase equilibrium**,** phase, component and the degree of freedom, compound formation with congruent melting point and incongruent melting point. liquid-liquid mixtures, non- ideal system, partial miscible liquids, Nernst distribution law and its applications

CO3 – the concept of electrical transport, conduction in metals and in electrolyte solutions, Kohlrausch law, Arrhenius theory of electrolyte, Ostwald's dilution law, Hittorf method

CO4– different types of electrodes, Nernst equation, reversible and irreversible cells,determination of pH using hydrogen. quin hydrone and glass electrodes by potentiometric methods, mechanism of buffer action. This knowledge can help them in their career as a chemist or technician

CO5 – the idea of surface chemistry**,** Freundlich and Langmuir adsorption isotherms and catalysis and its application that can be used in their job part

Paper II – Inorganic Chemistry

Course Code:SC-A32 (B)

Course Outcomes (COs)

After pursuing the course, the students understand:

CO1 – chemistry of elements offirst transition series

CO2 – chemistry of second and third transition series, characteristic properties of d-block elements, spectral properties and stereochemistry

CO3– coordination compounds, Werner's coordination theory and concept of oxidation and reduction.

CO4 – about f- block elements

CO5 – acids, bases, Arrhenius, Bronsted- Lowry, Lewis concepts of acids and bases, non-aqueous solvents, reactions in non-aqueous solvents

Paper III – Organic Chemistry

Course Code: SC-A32 (C)

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Outcomes (COs)

After undergoing this course, the students understand:

CO1 - Electromagnetic spectrum, absorption laws, UV spectroscopy, analysis of UV spectra,IR spectroscopy, measurement and interpretation of IR spectrum of simple organic compounds. They acquire the skill to predict various functional groups present in the given IR spectra

CO2 - alcohols, their classification, nomenclature, methods of formation and various chemical reactions of mono-, di-and tri- hydric alcohols, different methods of preparations and reactions of phenol and mechanism of various rearrangement reactions

CO3 - nomenclature, synthesis of aldehydes and ketones, their physical properties, chemical reactions and mechanism of various name reactions

CO4 - nomenclature, methods of formation and various chemical reactions of carboxylic acids, halo acids, hydroxy acids, dicarboxylic acids and ethers

CO5 - nomenclature, methods of formation and various chemical reactions of nitro alkanes, halonitroarenes and amines

Practical

Course Code:PR-SC-A32

Course Outcomes (COs)

After pursuing this course, the students become able

- to analyse the given inorganic mixture containing five radicals with at least one interfering radical, to determine the percentage of acetic acid in commercial vinegar, to do redoxtitrations and estimation of hardness in water samples

- to determine the transition temperature of substance by thermometer method, enthalpy of neutralization of strong acid and strong base, to draw phase diagram of two component system by cooling curve method

- to identify the given organic compound through functional group analysis and determination of melting point with preparation of suitable derivatives, to perform paper chromatography and thin layer chromatography

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B.Sc. III Year Chemistry

Paper I Physical Chemistry

Course Code:SC- A43(A)

Course Outcomes (COs)

After completion of this course, the students understand:

CO1 - Planck's radiation law, Photoelectric effect, de-Broglie hypothesis, Schrodinger wave equation and its importance, molecular orbital theory and calculation of energy levels from wave function

CO2 - Electromagnetic Spectrum, Rotational Spectrum and Vibrational Spectrum

CO3- Raman Spectrum, Electronic Spectra and UV Spectroscopy, selection rules, Frank Condon principle, Woodward Fiser rule and application to organic molecules

CO4 - photochemistry and Jablonski diagram

CO5 - physical Properties and Molecular Structure

Paper II – Inorganic Chemistry

Course Code:SC-A43 (B)

Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 – phosphines

CO2 – metal ligand bonding in transition metal complexes, thermodynamic and kinetic aspects of metal complexes

CO3 – magnetic properties of transition metal complexes

CO4 – electronic spectra and organometallic compounds

CO5 – bioinorganic chemistry and metal nitrosyl complexes which may help them in their career related to medicinal chemistry

Paper III – Organic Chemistry

Course Code:SC-A43(C)

Course Outcomes (COs)

After completion of this course, the students understand:

CO1- principle and instrumentation of NMR spectroscopy and also to interpret PMR spectra of simple organic molecules

CO2- organometallic compounds of Mg, Zn and Li; the nomenclature, methods of formation and various chemical reactions of organosulphur compounds, synthesis of various organic compounds by using enolates

CO3- nomenclature, classification, chemical reactions of carbohydrates, configuration and ring structure of monosaccharides. They also have knowledge about fat, oil and detergents

CO4- the structure of proteins, RNA and DNA after studying amino acids and peptides. They also understand colour and chemical constitution of dyes

CO5- synthesis, specific chemical reactions of heterocyclic compounds, five and six membered condensed heterocyclic compounds

Practical

Course Code: PR- SC-A43

Course Outcomes (COs)

After completion of this course, the students understand:

- gravimetric estimation of Ba and Cu, preparation of inorganic complexes and organic compounds which will further help in chemical industry

- analysis of various ions presents in water samples, determine the velocity constant, partition coefficient and perform pH-metric and conductometric titrations and find the stoichiometry of complex formation by Job's method

- separation and analysisof binary organic mixture and identify two simple organic compounds

- After understanding all this the students can easily get jobs in chemical industries.

Course Outcomes - Industrial Chemistry

B.Sc. I Year Industrial Chemistry

Paper I- Industrial Aspects of Fossil Fuels, Inorganic Chemicals and Metallurgy

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Code: FSCICJ32A

Outcomes (COs)

After completion of this course, the students understand:

CO1 - Be aware of various types of fossil fuels.
CO2- Know about the uses of Petroleum products in various field.
CO3- Understand the production of important Industrially produced chemicals.
CO4- Get knowledge of industrially important raw materials
CO5- Understand the fundamentals of various metallurgical processes.
CO6- Gain knowledge about the process of glass manufacturing

Paper II- Unit Operations and Utilities in Chemical Industries

Course Code: FSCICJ32B
Course Outcomes (COs)

After pursuing this course, the students understand:

CO1- Learn broader aspects of principle, theory and technique of various unit operations related to Industrial Chemistry.
CO2- Gain knowledge of various industrial operations & how can they be performed efficiently.
CO3- Understand difference between absorption and adsorption processes,.
CO4- Understand the importance of proper mixing of various compounds
CO5- Get knowledge about Drying and Evaporation operations in different Industries.
CO6- Understand various utilities that provide mechanical support to the industries

Practical
Paper Title - Unit operations and purification of water

Course Code: FSCICJ32B-P

Course Outcomes (COs)

After completion of this course, the students can:

CO1- To get the basic understanding of purification of solid by crystallization, sublimation and adsorption processes.
CO2- Understand the process of distillation for preparation of distil water
CO3- Learn the application of soxhlet apparatus to get Tulsi and Mint extract.
CO4- Know the process of Rose water preparation.

CO5- Understand the process of purification of Potable water.

B.Sc. II Year Industrial Chemistry

Paper I

Course Code:SC-A37(A)

Course Outcomes (COs)

After pursuing this course the students understand:

CO1 - inorganic materials like cement, ceramics, polymeric materials, plastics and their manufacturing processes

CO2 - glass and various types of corrosion relevant to chemical industry

CO3 - the process of nitration, halogenation

CO4 – sulphonation

CO5 -industrial pollution with reference to water and air pollutants

Paper II

Course Code:SC-A37(B)

Course Outcomes (COs)

After completion of this course the students understand:

CO1 - principle, construction and working of instruments for the measurement of temperature, pressure, liquid level, density, viscosity

CO2 - the process of oxidation and reduction

CO3 - concept of hydrogenation and esterification

CO4 - management of solid waste, soil conditioning, ozone depletion, carbon credits

CO5 - principle and equipment of aerobic and anaerobic treatment

Practical

Course Code:PR-SC-A37

Course Outcomes (COs)

After completion of this course, the students can:

- do Unit process such as Preparations using nitration, sulphonation, halogenations

- make use of instrumental methods of analysis

- do sampling and analysis of different parameters of water samples

- determine Flash point and Ignition points of oils and lubricants

B.Sc.III Year Industrial Chemistry

Paper I

Course Code:SC-A48(A)
Course Outcomes:

After pursuing this course, the students understand:

CO1 – basics skills of project cost estimation

CO2 – pricing policy

CO3 – concept of scientific management in industry

CO4 – basic concepts of chromatographic techniques and spectroscopy

CO5 – sampling, collecting and processing of data, NMR-Spectroscopy, Atomic Adsorption, Flame Photometry. Neutron diffraction, X-ray fluorescence.

Paper II

Course Code:SC-A48(B)
Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 - various Physical and Chemical processes used for the recovery of important compounds

CO2 - need for waste recycles, conversion of waste-in to useful products

CO3 - synthetic fibers, properties and applications of synthetic fibers

CO4 - characterization of waste, management and recovery of important compounds from the waste of some industries

CO5 - recovery of compounds from oil industries, dyestuff industries, fertilizers industries, textile industries, Soap and plant, setting of Small Scale Unitssuch as agarbatties, wax candles, shoe polish, chalk, crayons, plaster of Paris and safety matches.

Practical

Course Code:PR-SC-A48

Course Outcomes (COs)

After completion of this course, the students can:

- determine iodine value and saponification value of oils or fats

- determine calorific value of Petroleum based fuel

- do separation of important metals Fe, Ni, Cr, etc from effluents and their estimation

- do separation of ions and metals by thin layer chromatography and paper chromatography

- study of adsorption of acetic acid on charcoal and prove the validity of Freundlich's adsorption isotherm

- be familiar with chemical industries and pollutants from these industries. Participation in seminars and workshops can develop research skills in them.

M.Sc. Semester I Chemistry

Theory

Paper II norganic Chemistry -I

Course Code: CHE-701

Course Outcomes (COs)

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Course Outcome (Annual)

After pursuing this course, the students understand:

CO1 - stereochemistry and bonding in main group compounds, $d\pi$-$p\pi$ bond, Bent rule

CO2 - stepwise and overall formation constants, factors affecting the stability of metal complexes with reference to the nature of metal ion and ligand, chelate effect, determination of binary formation constants by potentiometry and spectrophotometry

CO3 - concept of reaction mechanism of transition metal complexes

CO4 - metal ligand bonding

CO5 - HSAB theory

PaperII Organic Chemistry - I

Course Code: CHE-702

Course Outcomes (COs)

After completion of this course, the students understand:

CO1 - nature of bonding in organic molecules

CO2 - basic concept of symmetry in the molecules, optical activity in the presence and in the absence of chiral carbon, the stereochemistry of compounds containing nitrogen, Sulphur and phosphorus.

CO3 - conformational analysis and linear free energy relationship, The Hammett equation, Taft equation

CO4 - different types of reaction mechanisms, kinetic and thermos dynamic control and methods of determination of mechanisms

CO5 - concept of o aliphatic nucleophilic substitution

PaperIII Physical Chemistry - I

Course Code: CHE-703

Course Outcomes (COs):

After undergoing this course, the students understand:

CO1 - the quantum mechanics, Schrodinger equation and its model systems

CO2 -various approximate methods and their application to the Helium atom, Molecular Orbital Theory and its various applications

CO3 - Angular Momentum, Eigen functions, Eigen values of angular momentum.

CO4 - classical thermodynamics, laws of thermodynamics, non-ideal systems and application of phase rule to three component systems.

CO5 - statistical thermodynamics, concepts of distribution and applications of partition functions.

Paper IV Group Theory and Spectroscopy

Course Code: CHE-704

Course Outcomes (COs):

After pursuing this course, the students understand:

CO1 - concept of symmetry, symmetry elements, symmetry operation, group, sub group, representation of group by matrices and character tables

CO2 - Microwave Spectroscopy, rotational transitions in rigid and non- rigid rotor

CO3 - Infrared Spectroscopy will give knowledge about vibrational energy of diatomic molecules and harmonicity, vibration of polyatomic molecules, selection rules, factors affecting band position and intensities

CO4 - Raman spectroscopy gives knowledge about classical and quantum theory of Raman effect, spectra, Resonance Raman Spectroscopy and CARS

CO5 - electronic spectroscopy, Frank-Condon principle and concept of photoelectron spectroscopy

Paper(a) Mathematics for Chemists

Course Code: CHE-705

Course Outcomes (COs):

After completion of this course, the students understand:

CO1 – basics of vectors, vector calculus and matrix algebra

CO2 – differential calculus

CO3 – integral calculus

CO4 - elementary first order and second order differential equations and its application to chemical kinetics, quantum chemistry etc.

CO5 - permutations, combinations and probability

PaperV(b) Biology for Chemists

Course Code: CHE-706

Course Outcomes (COs):

After completion of this course, the students understand:

CO1 - basics of cell structure and functions, metabolic processes and origin of life

CO2 - structure and basic functions of carbohydrates

CO3 - lipids

CO4 - aminoacids, peptides and proteins

CO5 - nucleic acids

Practical

A. Inorganic Chemistry

Course Code: PR-CHE-701

Course Outcomes (COs):

After pursuing this course, the students can:

- analyses inorganic mixture containing eight radicals including insoluble and rare earths,
- perform chromatographic techniques like column chromatography, paper chromatography
- prepare various inorganic compounds and perform spectral analysis and magnetic susceptibility measurement of these compounds

B. Organic Chemistry

Course Code: PR-CHE-702

Course Outcomes (COs):

After completion of this course, the students can:

- separate, purify and perform identification of simple organic compounds of binary mixture and ternary mixture
- synthesize simple organic compounds by different reactions and characterize the products by spectral techniques

C.Physical Chemistry

Course Code: PR-CHE-703

Course Outcomes (COs):

After completion of this course, the students can:

- do calibration of volumetric apparatus like burette, pipette etc.;
- determine velocity constant, order of the reaction and energy of activation for saponification, solubility and solubility product of sparingly soluble salts and strength of strong and weak acid;
- determine molecular weight by cryoscopy method, activity coefficient of an electrolyte, degree of dissociation of weak electrolyte;
- study surface tension concentration relationship,
- determine congruent composition and temperature of a binary system and also learn to construct phase diagram for three component system

M.Sc.SemesterIIChemistry

PaperIInorganic Chemistry - II

Course Code: CHE-707

Course Outcomes (COs)
After completion of this course, the students understand:

CO1 - spectroscopic ground states, correlation, Orgel and Tanabe-Sugano diagrams for

transition metal complexes (d^1-d^9 states)

CO2 - magnetic properties of transition metal complexes

CO3 - metal π-complexes like metal carbonyl, their structure and bonding

CO4 - metal clusters that is higher boranes, carboranes, metalloboranes and metallo-carboranes

CO5 - optical rotatory dispersion and circular dichroism

PaperII Organic Chemistry - II

Course Code: CHE-708

Course Outcomes (COs)

After completion of this course, the students understand:

CO1 – mechanism of aromatic electrophilic and 52ucleophillic substitution

CO2 – free radical reactions and rearrangements

CO3 – mechanistic and stereochemical aspects of addition reactions

CO4 – addition to carbon-hetero multiple bonds and elimination reactions

CO5 – pericyclic reactions and sigmatropic rearrangements.

PaperIII Physical Chemistry-II

Course Code: CHE-709

Course Outcomes (COs):

After completion of this course, the students understand:

CO1 – chemical dynamics, Arrhenius equation and activated complex theory

CO2 - surface tension, adsorption and related topics

CO3 - macromolecules

CO4 - non equilibrium thermodynamics, importance of entropy production and entropy mechanism

CO5 - electrochemistry of solutions

PaperIV Spectroscopy II and Diffraction Methods

Course Code: CHE-710

Course Outcomes (COs):

After completion of this course, the students understand:

CO1 - Nuclear Magnetic Resonance spectroscopy, chemical shift, spin- spin interaction, spin decoupling and FT NMR

CO2 – various concepts and applications of Nuclear Quadrupole Resonance Spectroscopy

CO3 - basic principles of Electron Spin Resonance Spectroscopy, its various concepts and applications

CO4 - X-ray diffraction, Bragg's condition, various methods of X-ray Structure, analysis of crystals, identification of unit cell

CO5 - concept of electron diffraction and neutron diffraction.

PaperV Computers for Chemists

Course Code: CHE-711

Course Outcomes (COs):

After pursuing this course, the students understand:

CO1 - basic structure and functioning of computer

CO2 – computer language and programming in FORTRAN/C/BASIC

CO3 – programming in chemistry

CO4 - use of computer programs

CO5 - applications of internet for chemistry with search engines

This is a theory cum-laboratory course with more emphasis on laboratory work.

Practical

A. Inorganic Chemistry

Course Code: PR-CHE-707

Course Outcomes (COs)

After completion of this course, the students can:

- separate and determine two metal ions using volumetric and gravimetric methods
- separate cations and anions by column chromatography and ion exchange chromatography.
- prepare selected inorganic compounds and also learn their structural spectral studies

B. Organic Chemistry

Course Code: PR-CHE-708

Course Outcomes (COs):

After completion of this course, the students can:

- synthesize organic compounds with name reactions

- perform quantitative analysis along with determination of some parameters of oil and water samples

C. Physical Chemistry

Course Code: PR-CHE-709

Course Outcomes (COs):

After completion of this course, the students can:
- determine the velocity constants of hydrolysis of an ester, oxidation of iodide ions by hydrogen peroxide etc. with the help of chemical kinetics experiments
- determine the strengths of halides in a mixture, valency of mercurous ions, formation constant, stoichiometry of the complex potentiometrically
- determine dissociation constant, thermodynamic constants
- experiments using pH meter and polarimeter

M.Sc. Semester III Chemistry

Theory

Paper I Application of Spectroscopy-I

Course Code -CHE-712

Course Outcomes (COs)

After completion of this course, the students understand:

CO1 - d - d transitions taking place in octahedral, tetrahedral and square planar metal complexes

CO2 - mode of bonding of ambidentate ligands and applications of Resonance Raman spectroscopy

CO3 - NMR spectroscopy., chemical shift, shielding, DE shielding, spin - spin interaction and an idea of chemical shift values of different types of organic compounds

CO4 - chemical exchange effect of deuteration, complex spin- spin interaction and NOE

CO5 - Mossbauer Spectroscopy, basic principles, technique and spectral parameters

Paper II   Photochemistry

Course Code - CHE-713

Course Outcomes (COs)

After completion of this course, the students understand:

CO1 - photochemical reactions, excitations, fate of excited molecule, transfer of excitation energy

CO2 - determination of reaction mechanism

CO3 - photochemistry of alkenes and aromatic compounds

CO4 - photochemistry of carbonyl compounds

CO5 - miscellaneous photochemical reactions like formation of smog, photochemistry of vision

Paper III   Environmental Chemistry

Course Code - CHE-714

Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 - atmosphere, atmospheric chemistry, tropospheric chemistry, biogeochemical cycles

CO2 - air pollution, greenhouse effect, acid rain and stratospheric ozone depletion

CO3 - aquatic chemistry, water pollution

CO4 - environmental toxicology, toxic heavy metals, toxic organic compounds, polychlorinated biphenyls, poly nuclear aromatic hydrocarbons

CO5 - composition of soil, soil pollution and some environmental disasters

Paper IVPolymers Course Code - CHE-715(OP1)

Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 - basic concepts of polymers, polymerization conditions, polymer reactions

CO2 - polymer characterization, polymerization in homogeneous and heterogeneous systems

CO3 - analysis and testing of polymers

CO4 -concepts of inorganic polymers

CO5 - structure, properties, and applications of different types of polymers

Paper V   Industrial Chemistry-Heavy Chemicals & Petroleum

Course Code - CHE-715(OP2)

Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 - water pollutants, thermal pollution, various methods of water purification

CO2 - large scale production of different gases and heavy chemicals

CO3 - coal, its origin, composition etc. and economic importance

CO4 - petroleum, its origin, refining, composition etc. and its economic importance

CO5 - fats and oils, hydrogenation of unsaturated oils, manufacture of vanaspati and margarine

Practical

A. Inorganic Chemistry
Course Code: PR-CHE -717

Course Outcomes (COs)

 After pursuing this course, the students can:

- determine quantitatively three component mixtures volumetrically and gravimetrically
- perform chromatographic techniques like paper chromatography and thin layer chromatography for the separation of metal ions.

Bioorganic Chemistry

Course Code : PR-CHE -717

Course Outcomes(COs):

After pursuing this course, the students can:

- do the estimation of elements and functional groups in organic compounds
- perform the technique of paper chromatography

C. Physical Chemistry
Course Code: PR-CHE -718

Course Outcomes(COs):

After pursuing this course, the students can:

- perform various chemical kinetics practical's

- determine pKa of an indicator (methyl red), study of stoichiometry and stability constant of complex ion in solution, perform oxidation of alcohol by Ce(IV) etc. spectroscopically

M.Sc. Semester IV Chemistry

Theory

Paper I Application of Spectroscopy-II

Course Code - CHE-720

Course Outcomes (COs)

After pursuing this course, the students understand:

CO1 - various electronic transitions Beer Lambert law, Fieser Woodward rule, students develop the skill to interpret the spectra

CO2 - Infrared Spectroscopy, characteristic frequencies of different organic compounds, effect of hydrogen bonding and solvent effect, students develop the skill to interpret the spectra

CO3 - contact and Pseudo contact shifts in NMR and applications of NMR

CO4 -C-13 NMR spectroscopy, its various concepts and two-dimensional NMR spectroscopy

CO5 - mass spectrometry, introduction, various methods of ion production, mass spectra of common functional groups, McLafferty rearrangement, Nitrogen rule, students develop the skill of structure elucidation with the knowledge of various spectra

Paper II   Solid state Chemistry

Course Code - CHE-721

Course Outcomes (COs)

Course Outcomes(COs)

After completion of this course, the students understand:

CO1 - solid state reactions, their general principles and experimental procedure

CO2 - crystal defects and non-stoichiometry

CO3 - electronic properties and band theory, metal insulators, semiconductors, application of optical and electron microscopy and magnetic properties

CO4 - organic solids, importance of organic metals and new superconductors

CO5 - liquid crystals, different types of liquid crystals and liquid crystal display

Paper III   Biochemistry

Course Code - CHE-722

Course Outcomes (COs)
After completion of this course, the students understand:

CO1 - role of metal ions in biological systems; bulk and trace metals, DNA polymerisation, glucose storage, metal complexes in transmission of energy; transport and storage of dioxygen

CO2 - electron transfer processes, biological and chemical nitrogen fixation

CO3 - enzymes, mechanism of enzyme action and kinetics of enzyme-catalysed reactions CO4 - co-enzyme chemistry, enzyme models, biotechnological applications of enzymes. This

helps students in setting their own units or career as a chemist.

CO5 - biological cell and its constituents, bioenergetics, biopolymer interactions, cell membrane and transport of ions

Paper IV   Analytical ChemistryCourse

Code - CHE-723 (OP 1)

Course Outcomes (COs)
After completion of this course, the students understand:

CO1 - concept of analytical chemistry, cleaning, calibration of glassware, errors, and evaluation, types of errors in experimental data and uses of statistics

CO2 - analysis of adulterants present in food

CO3 - water pollution and methods for the analysis of different types of water pollutants

CO4 - analytical methods employed in the analysis of soil, fuel, body fluids and drugs

CO5 - clinical chemistry and drug analysis

Paper V   Industrial Chemistry- Pesticides &Glass industries

Course Code - CHE-724

Course Outcomes (COs)
After completion of this course, the students understand:

CO1 - preparation and uses of toilet and washing soaps, synthetic detergents

CO2 - manufacture of fertilizers, types, composition, properties, testing and manufacture of glass and also understand ceramics and their types

CO3 - different types of cements, manufacture of cement, ferrous industry and silicones

CO4 - pesticides and food additives

CO5 -chemistry and synthesis of common pesticides

Practical

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Course Outcome (Annual)

A. Inorganic Chemistry

Course Code: PR-CHE-725

Course Outcomes (COs):

After completion of this course, the students can:

- prepare inorganic compounds and do their spectral studies
- do spectrophotometric determinations
- flame photometric determinations of sodium potassium lithium, calcium, strontium etc.

B. Organic Chemistry

Course Code: PR-CHE-726

Course Outcomes (COs):

After completion of this course, the students can:

- prepare organic compounds by multi-step synthesis and purification of products by chromatographic techniques
- identify organic compounds by analyzing spectral data
- isolate some natural products and estimate some compounds spectro phometrically

C. Physical Chemistry
Course Code: PR-CHE- 727

Course Outcomes (COs):
After completion of this course, the students can:

- perform experiments of spectroscopy, chemical kinetics, thermodynamics and polarography

B. Sc Computer Science IYear

Title of Paper : **Computer System Architecture**

Course Code : FSCCSJ23A

Course Out Comes
CO1.Understand the basic structure, operation and characteristics of digital computer.

C02. Be able to design simple combinational digital circuits based on given parameters.

C03. Familiarity with working of arithmetic and logic unit as well as the concept of pipelining.

C04. Know about hierarchical memory system including cache memories and virtual memory.

C05. Understand concept and advantages of parallelism, threading, multiprocessors and multicourse processors

B. Sc Computer Science IYear

Title of Paper : **Computer System Architecture** (Practical)
Course Code : FSCCSJ23A-P

Course Out Comes

C01. Realization of the basic logic and universal gates.

C02.Verify the behavior of logic gates using truth tables.

C03. Implement Binary-to -Gray, Gray-to -Binary code conversions

C04. Design half and full adder circuit using basic gates.

C05. Design and construct flip flops and verify the excitation tables.

B. Sc Computer Science I Year

Title of Paper : **Programming Methodologies & Data Structures**
Course Code : FSCCSJ23B

Course Out Comes

C01. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.
C02. Writing efficient and well-structured computer algorithms/programs.
C03. Learn to formulate iterative solutions and array processing algorithms for problems.
C04. Use recursive techniques, pointers and searching methods in programming.
C05. Will be familiar with fundamental data structures , their implementation; become accustomed to the description of algorithms in both functional and procedural styles

B. Sc Computer Science IYear

Title of Paper : Office Tools & Programming Methodologies
Course Code : FSCCSJ23B-P

Course Out Comes

CO1. Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.

CO2. Writing efficient and well-structured computer algorithms/programs.

CO3. Learn to formulate iterative solutions and array processing algorithms for problems.

CO4. Use recursive techniques, pointers and searching methods in programming.

CO5. Possess ability to choose a data structure to suitably model any data used in computer applications.

B. Sc Computer Science IIYear

Title of Paper : OBJECTORIENTEDPROGRAMMINGCONCEPTSUSINGC++
Course Code : SC- A30(A)
Course Out Comes

CO1- Understand importance of object oriented programming and difference between structured oriented and object oriented programming features. Develop an in-depth understanding of object oriented paradigm with principles of classes, object and functions.

CO2- Able to make use of objects and classes for developing programs.

CO3- Implement various object oriented concepts to solve different problems.

CO4- Concept of Constructors and Destructors, Inheritance with their Implementation.

CO5- Implement pointer and arrays in real life.

B. Sc Computer Science IIYear

Title of Paper : Lab I
Course Code : PR-SC- A30
Course Out Comes

CO1- Concept of Constructors and Destructors, Inheritance with their Implementation.

CO2- Implement pointer and arrays in real life.

B. Sc Computer Science IIYear

Title of Paper : DATASTRUCTURES
Course Code : SC- A30(B)
Course Out Comes

CO1- Gain the basic knowledge on Object Oriented concepts.
CO2- Use different data types in a computer program.
CO3- To demonstrate the differences between traditional imperative design and object-oriented Design.
CO4- To explain class structures as fundamental, modular building blocks.

CO5- To understand the role of inheritance, polymorphism, dynamic binding and generic structures in building reusable code.

B. Sc Computer Science IIYear

Title of Paper   : Lab II
Course Code : PR-SC- A30
Course Out Comes

CO1- Gain the basic knowledge on Object Oriented concepts.
CO2- Use different data types in a computer program.

B. Sc Computer Science IIIYear

Title of Paper   : DATABASEMANAGEMENTSYSTEM
Course Code : SC- A41(A)
Course Out Comes

CO1- Concepts of SQL, DDL, DML, DCL, TCL

CO2- Illustration of data models, functional dependency, integrity and schema of database.

CO3- Concept of Various Functional Keys, Joins and Relation Algebra.

CO4- Normalization of the database.

CO5- Basic Concept of B- tree, Hashing, Indexing.

B. Sc Computer Science IIIYear

Title of Paper   : Computer Science & Application
Course Code :PR- SC- A41
Course Out Comes

CO1- Normalization of the database.

CO2- Basic Concept of B- tree, Hashing, Indexing.

B. Sc Computer Science IIIYear

Title of Paper   : OPERATINGSYSTEMCONCEPTS
Course Code : SC- A41(B)
Course Out Comes

CO1- Concepts of basic working process of an operating system.

CO2- Illustration of process States and Process scheduling.

CO3- Understand the issues in synchronization and memory management.

CO4- Implementation of Deadlock Detection, prevention and recovery.

CO5- Linux Operating System, Commands and files System.

M. Sc Computer Science I Sem

Title of Paper   : Discrete Mathematics Structures
Course Code : COMP- 801
Course Out Comes

CO1- Solve real world problems logically using appropriate set, function and relation models and interpret

    The associated operations and terminologies in context.

CO2- Analyze and synthesize the real world problems using Discrete mathematics.

CO3- Use Mathematical Logic and predicate calculus for solving problem.

CO4- Apply the concepts of Lattices and Boolean Algebra.

CO5- Perform graph traversals using BFS and Algebra.

M. Sc Computer Science I Sem

Title of Paper   : PROGRAMMINGINC++
Course Code : COMP- 802
Course Out Comes

CO1-   After completing the course the student must demonstrate the knowledge and ability   to:

CO2- Develop a greater understanding of the issues involved in programming language design and implementation.

CO3- Develop an in-depth understanding of object oriented paradigm with principles of classes, objects and functions.

CO4- Apply Inheritance and Exception Handling concepts in program code.

CO5- Manage console I/O operations with manipulators.

M. Sc Computer Science I Sem

Title of Paper   : **Computer Organization &Architecture**
Course Code : COMP- 803
Course Out Comes

CO1- Identify, understand and apply different number systems and codes.

CO2- Understand the digital representation of data in a computer system & memory organization.

CO3- Represent data using Number system.

CO4- Draw sequential and combinational digital logic circuits.

CO5- Explain Memory organization of Computer.

M. Sc Computer Science I Sem

Title of Paper : Windows &PC-Software
Course Code : COMP- 804
Course Out Comes

CO1- Use the features an available in Windows.

CO2- Work with System Tools and use Accessibility Features of Windows.

CO3- Create documents using MS Word.

CO4- Create Spreadsheets using MS Excel.

CO5- Create effective presentations using MS Power Point.

M. Sc Computer Science I Sem

Title of Paper : Lab I (C++ Programming)

Course Code : PR-COMP- 802
Course Out Comes

CO1- Apply Inheritance and Exception Handling concepts in program code.

CO2- Manage console I/O operations with manipulators.

M. Sc Computer Science I Sem

Title of Paper : LabII(OfficeTools)

Course Code : PR-COMP- 804
Course Out Comes

CO1-   Create documents using MS Word.

CO2-   Create Spreadsheets using MS Excel.

M. Sc Computer Science II Sem

Title of Paper   : Data Structures and Algorithms

Course Code   : COMP- 805

Course Out Comes

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Course Outcome (Annual)

CO1-   Introduce the concept of arrays and matrices.

CO2-   Illustrate stacks, quire and Trees.

CO3-   Importance of Searching in Trees.

CO4-   Understand Graph Search methods in data structures

CO5-   Explain Dynamic programming in DS.

M. Sc Computer Science II Sem

Title of Paper   : OPERATING SYSTEM

Course Code   : COMP- 806

Course Out Comes

CO1-   Understand the basic working process of an operating system.

CO2-   Concept of File Management and Allocation Methods.

CO3-   Understand the importance of process states and scheduling.

CO4-   Understand the issues in synchronization and memory management.

CO5-   Understand the Techniques for device management.

M. Sc Computer Science II Sem

Title of Paper   : COMPUTER NETWORKS WITH WINDOWS NT
Course Code   : COMP- 807

Course Out Comes

CO1-   Introduce basic concepts of computer networks.

CO2-   Understand IEEE standards and OSI model.

CO3-   Use of various internet working devices.

CO4-   Understand Various Internet Protocols and cryptography.

CO5-   Illustrate windows MT. Features, Server and workstations.

M. Sc Computer Science II Sem

Title of Paper   : PROGRAMMING IN JAVA

Course Code   : COMP- 808
Course Out Comes

CO1-   Use an integrated development environment to write, object-oriented Java programs.

CO2-   Use object oriented concepts in Java Programming.

CO3-   Concept of Inheritance and end exception Handling.

CO4-   Execute programs using Inheritance and Multi-Threaded programming.

CO5-   Design and develop basic Applets.

M. Sc Computer Science II Sem

Title of Paper   : Data Structure using C++

Course Code   : PR-COMP- 805
Course Out Comes

CO1-   Introduce the concept of arrays and matrices.

CO2-   Illustrate stacks, quire and Trees.

M. Sc Computer Science II Sem

Title of Paper   : JAVA PROGRAMMING

Course Code   : PR-COMP- 808
Course Out Comes

CO1-   Use an integrated development environment to write, object-oriented Java programs.

CO2-   Use object oriented concepts in Java Programming.

M. Sc Computer Science III Sem

Title of Paper   : RDBMs Concepts and Oracle

Course Code   : COMP- 810
Course Out Comes

CO1-   Understand, effectively &explain the underlying concepts of database Technologies.

CO2- Design and implement a database scheme a forgiven problem-domain.

CO3- Normalize a database and query a database using SQL DML/DDL/DCL/TCL/DQL

   commands. Declare and enforce integrity constraints on a database.

CO4- Formulate Solution of Data Management Problems using SQL.

CO5- Apply Joint on Tables and used TCL and DCL Commands.

M. Sc Computer Science III Sem

Title of Paper   : Multimedia Tools and Applications

Course Code   : COMP- 811

Course Out Comes

CO1-   Concepts of Plain and formatted text.

CO2-   Understand to Sound Depth, channels, sound on PC.

C03-   Concept of Analog and Digital Video How to use Video on PC.

CO4-   Type of Multimedia authoring tools.

C05-   Understand to Graphics support in HTML, Image Map, video on the web.

M. Sc Computer Science III Sem

Title of Paper   : **Software Engineering**

Course Code   : COMP- 812

Course Out Comes

CO1- Describe theories, models, and techniques that provide a basis for the software lifecycle.

CO2- Use software metrics to estimate various software project parameters.

CO3- Design,test,deploy and maintain Software.

C04-   Illustrate Software project management,Time management,Cost and Quality management.

CO5- Describe Project Human resource management,Configuration management and use CASE tools.

M. Sc Computer Science III Sem

Title of Paper : Advanced JAVA Programming.

Course Code : COMP- 813

Course Out Comes

CO1- Understand object oriented programming concepts.

CO2- Concept of inheritance, polymorphism, overloading and reusability of objects.

CO3- Identify classes, objects, members, and functions in JAVA.

CO4- Concept of Java Virtual Machine Programs.

CO5- Understand HTML Tags & Applets Programs.

M. Sc Computer Science III Sem

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Course Outcome (Annual)

Title of Paper   : Advanced JAVA Programming.

Course Code   : PR-COMP- 814

Course Out Comes

CO1-   Identify classes, objects, members, and functions in JAVA.

CO2- Concept of Java Virtual Machine Programs.

M. Sc Computer Science III Sem

Title of Paper   : Advanced JAVA Programming.

Course Code   : PR-COMP- 815

Course Out Comes

CO1- Understand, effectively &explain the underlying concepts of database Technologies.

CO2- Design and implement a database scheme a forgiven problem-domain.

M. Sc Computer Science IV Sem

Title of Paper   : UNIX Internals, SHELL programming & LINUX

Course Code   : COMP- 815

Course Out Comes
CO1-   Explain to structure of OS and process management.

CO2- Understand System Calls and Concept of Pipes.
CO3- Describe memory and disk management techniques in OS.
CO4- Implement basic scripts in shell.

CO5- Execute Linux commands.

M. Sc Computer Science IV Sem

Title of Paper   : Compiler Design

Course Code   : COMP- 816

Course Out Comes
CO1- Understand deterministic and non-deterministic finite automata.

CO2- Learn compiler programming and regular grammar.

CO3- Parsing technique in regular grammar and its algorithms.

CO4- Concept of Static & Dynamic Memory Allocation

CO5- Handling lexical syntax errors and learn optimization.

M. Sc Computer Science IV Sem

Title of Paper : ASP.NET And C#

Course Code : COMP- 817

Course Out Comes

CO1- Exposed to objects, interfaces and applications of C#.

CO2- Connection between web page and SQL server Database file

CO3- Data Binding concept with web, data grid and web server controls.

CO4- Using XML, SOAP, web service description language.

CO5- Understand of Programming Languages and Structure

M. Sc Computer Science IV Sem

Title of Paper : Elective Paper I

Course Code : COMP- 818

Course Out Comes

CO1- Concept of Artificial Intelligence and various search algorithms.

CO2- Understanding knowledge system in Artificial Intelligence.

CO3- Concept of Prolog programming and its implementation

CO4- Explanation of Natural Language Processing.

CO5- Understanding of expert system life cycle.

M. Sc Computer Science IV Sem

Title of Paper : Elective Paper II
Course Code :
Course Out Comes
CO1- Introduction to the concepts of Data warehousing and Data mining.
CO2- Data Modeling Strategy and designing tools.
CO3- Concept of data transformation functions.
CO4- Illustration of data storage, backup and recovery.
CO5- Understanding of data mining techniques and its algorithms.

M. Sc Computer Science IV Sem
Title of Paper : Elective Paper III
Course Code :
Course Out Comes

CO1- Bioinformatics- its objectives and scope.
CO2- Understanding Molecular Biological, its techniques and DNA sequencing.
CO3- Using Graphical data representation and biostatics.
CO4- Different types of Biological Databases.
CO5- Illustration of Sequence Analysis and dynamic programming.

M. Sc Computer Science IV Sem

Title of Paper   : Elective Paper IV
Course Code   :
Course Out Comes

CO1- Form designing and logic building using visual basic.
CO2- Database handling controls are well understood.
CO3- Creation of views, sequences and data reports.

CO4- Granting and revoking permissions to the user.
CO5- Commands, creating user accounts, Granting Permissions, Revoking Permission.

M. Sc Computer Science IV Sem

Title of Paper: ASP. NET

Course Code : PR-COMP- 819

Course Out Comes

CO1- Data Binding concept with web, data grid and web server controls.

CO2- Using XML, SOAP, web service description language.

M. Sc Computer Science IV Sem

Title of Paper: Shell Programming in UNIX

Course Code : PR-COMP- 820

Course Out Comes

CO1- Explain to structure of OS and process management.

CO2- Understand System Calls and Concept of Pipes.

B. Sc Biotechnology I Year

Title of Paper: Cell Biology and Biochemistry

Course Code : FSCBTJ4A

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Out Comes
CO1: The main objective of the course will be to build the basic foundation for studying Biotechnology.

CO2: Interdisciplinary trained manpower to foster the Biotechnology Revolution.

CO3: The restructured syllabus combines basic principles of Chemical and Biological Sciences in light of advancements in technology.

CO4: The curriculum aims to impart basic knowledge with emphasis on its applications to make the students ready for industries and research work in concerned filed.

B. Sc Biotechnology I Year

Title of Paper: Microbiology and Immunology

Course Code : FSCBTJ4B

Course Out Comes
CO1: The students will be able to understand microbial diversity and Nutrition.
CO2: The students will be able to understand immune system.
Immune responses and Vaccination.
CO3: The students will be able to describe role of immune system in both maintaining heath and contributing to disease.
CO4: The students will be able to understand immunological techniques.

B. Sc Biotechnology I Year

Title of Paper: BOT-102 Microbiology

Course Code : PR-SC-A18(B)

Course Out Comes

CO1- To study and learn the structure of plant cell, human and animal chromosome.

CO2- To learn the staining procedure for identification of different microorganisms,

CO3- It helps to learn the technique of isolation and identification of green algae and fungi.

CO4- Student learn the pH measurement procedure.

CO5- To learn the instrument Haematocyto meter.

B. Sc Biotechnology II Year

Title of Paper: Biophysics and Biochemistry

Course Code : SC-A29(A)

Course Out Comes

CO1- Student will be able to know the basics of the thermodynamics and their application.

CO2- They will be able to know the basic principles and application of autoradiography, radioactive, sedimentation and osmosis.

CO3- Student will have the knowledge of the chemical bonds, basic structure of atoms and elements, properties of water.

CO4- Student will be able to know the basic structure properties and application of biomolecules.

CO5- Student will be able to know the general concept of enzymes and he will be able to get the knowledge

B. Sc Biotechnology II Year

Title of Paper: Bioinstrumentation, Biostatistics and Bioinformatics

Course Code : SC-A29(B)

Course Out Comes

CO1- To learn about scope, application, collection, and classification of statistical data , central tendency , probability and chi –square test.

CO2- To study and practice of set theory properties of subsets, geometric functions, probability calculations, method of sampling.

CO3- To learn about various types of microscopy, chromatography, centrifugation, autoradiography.

CO4- To learn about principles and application of spectroscopy.

CO5- To learn about principles and application of chromatography, electrophoresis and blotting techniques.

B. Sc Biotechnology II Year

Title of Paper: Practical

Course Code : PR-SC-A29

Course Out Comes

CO1- To learn the basic knowledge of instruments like colorimeter, pH meter, centrifuge, spectrophotometer

CO2- To learn different methods for the qualitative and quantitative estimation of carbohydrate protein and lipids.

CO3- Students will be able to evaluate the activity of enzyme at different parameters.

CO4- They are able to learn the RBC and WBC counting.

B. Sc Biotechnology III Year

Title of Paper: Molecular Biology and Genetic Engineering

Course Code : SC-A40(A)

Course Out Comes

CO1- Students will be able to learn the structure and properties of nucleic acids.

CO2- They will be able to understand the mechanism of replication, transcription and translation

CO3- Students will be able to describe the gene and its expression and its regulation and control.

CO4- Student will be able to understand the DNA modifying enzymes and its usages in various molecular techniques used in rDNA technology.

CO5- They will be able to understand the selection of suitable hosts for the individual vectors f or different purposes

CO6- Students will be able to know how to apply the uses of restriction and other enzymes in molecular cloning, PCR and genetic manipulations.

B. Sc Biotechnology III Year

Title of Paper: Applied Biotechnology

Course Code : SC-A40(B)

Course Out Comes

CO1- Student will be able to gain the knowledge on

CO2- Students will be able be to learn the techniques of aseptic transfer and culturing tissues, single cells, protoplast and another culture, hairy root culture and Somatic embryogenesis.

CO3- Students will be able to understand the basic concepts of immunity and types of immunity. Students will be aware of the structure and diversity of the antibodies and theyare able to understand the morphology and functions of the various immune cells such as neutrophils,

macrophages and their association with the MHC molecule will be studied.

The various immunological techniques and concept of vaccine can be studied.

CO4- Students will be able to describe the design and operations of various fermenters.

Students will be able to apply the concepts of basic chemical engineering principles in a bioprocess to produce bio-products on an industrial scale using fermenters.

CO5- Students will be able to describe functions.

B. Sc Biotechnology III Year

Title of Paper: Practical

Course Code :PR-SC-A40

Course Out Comes

CO1- Student will be able to isolate the DNA from plant, animals and microorganisms.

CO2- The are able to analyse DNA through different methods like electrophoresis and spectroscopy.

CO3- They are able to isolate RNA

CO4- They are able to do the estimation of DNA and RNA through different methods.

CO5- They will know different designs of fermenter and prepare wine through fermentation.

CO6- The use of PCR for different molecular experiments can be done by students.

CO7- They are able to understand the composition and preparation of animal cell culture media.

CO8- They get familiar with the basic concept of plant tissue culture and its applications.

B. Sc MicrobiologyI Year

Title of Paper: **General Microbiology and cell structure**

Course Code : FSCMBJ7A

Course Out Comes
CO1- Indian traditional knowledge and historical background of Microbiology.
CO2- Structure and transmission of Baruses.
CO3- Cell structures and cell organization of bacteria.
CO4- Diffferent kinds of unicellular prokaryotic and eukaryotic Indian traditional knowledge and historical background of Microbiology.
CO5- Structure and transmission of Viruses.
CO6- Cell structures and cell organization of bacteria.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B. Sc MicrobiologyI Year

Title of Paper: **Microbial Techniques**

Course Code :FSCMBJ7B

Course Out Comes

   CO1- Recall the basic lab glassware to be used in the laboratory.
   CO2- Summarize different methods of sterilization and isolation of pure cultures.
   CO3- Understand the working of different kinds of instruments and microscopes.
   CO4- Apply serial dilution technique to isolate the bacteria
   CO5- Practice different methods to culture bacteria in the laboratory.
   CO6- Illustrate a method to differentiate between Gram positive and Gram negative bacteria.

B. Sc MicrobiologyI Year

Title of Paper: **Microbial Techniques** Practical

Course Code : FSCMBJ7B

Course Out Comes

CO1-   Demonstration and briefing about principles and working of basic instruments.

CO2-   Basic media preparation.

CO3-   Isolation of bacteria and fungi from different techniques.

B. Sc MicrobiologyII Year

Title of Paper: Biochemistry and microbial physiology

Course Code :SC-A34(A)

Course Out Comes

CO1- To study about General properties, classification and function of Carbohydrates, lipids, protein, and amino acid and enzymes.

CO2- To study about bacterial growth and factors affect their growth.

CO3- To learn about energy production in anaerobic and aerobic process and principle of bioenergetics.

CO4- To learn about microbial synthesis.

CO5- To learn about electron transport chain and cyclic and non-cyclic phosphorylation.

B. Sc MicrobiologyII Year

Title of Paper: Microbial genetics and molecular biology

Course Code :SC-A34(B)

Course Out Comes

CO1- To learn about nucleic acid as genetic material, DNA, RNA
CO2- To learn about types of DNA and their replication and models of replication.
CO3- To study about genetic code, protein synthesis and lac operon model.
CO4- To study about genetic recombination.
CO5- To study about DNA mutation and repair.

B. Sc MicrobiologyII Year

Title of Paper: Practical

Course Code :PR-SC-A34

Course Out Comes

CO1- To learn about determination of pH, carbohydrate, protein, lipid.

CO2- Preparation of buffer and demonstrate about DNA and enzyme activity.

B. Sc MicrobiologyIII Year

Title of Paper: Applied and Environmental Microbiology

Course Code :SC-A45(A)

Course Out Comes

CO1- To learn about Design and types of fermenter, industrial production of amino acid, vitamin, and antibiotics etc

CO2- To learn about physical and microbial spoilage of food and food products, food borne diseases, food preservation method.

CO3- To study about physical and chemical characteristics of soil, microbial diseases of Crop plant, nitrogen fixation and biofertilizer.

CO4- To study about concept of environment in relation to microbes.

CO5- To study about Bioremediation, bio magnification, bioleaching, bio pesticides, microbial production, impact of generally modified organism and sewage treatment.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B. Sc MicrobiologyIII Year

Title of Paper: Immunology and Medical Microbiology

Course Code :SC-A45(B)

Course Out Comes

CO1- To learn about structure, composition and type of cells and organs involved in immune system, humoral and cell mediated immune response.
CO2- To learn about antigens structure, antigen antibody interaction.
CO3- To study about tumor immunology, cancer origin.
CO4- To study about immunization, modern method of vaccine production, and blood groups.
CO5- To study about host microbe interaction, mechanism of pathogenicity, laboratory strategies in diagnosis of ineffective syndrome.

B. Sc MicrobiologyIII Year

Title of Paper **:**Practical

Course Code :PR-SC-A45

Course Out Comes

CO1- To learn about Isolation of microorganisms from water, soil, spoiled food, and root nodules.

CO2-   To learn about enumeration of microbes.

CO3- To learn about specific test for milk such as MBRT.

B. Sc BotanyI Year

Title of Paper **:**Diversity of Lower Plants

Course Code :SC-A17(A)

Course Out Comes

CO1- Student will understand the concept and economic importance of Cyanobacteria.

CO2- Students will acquire knowledge of bacteria classification, occurrence, genetic recombination of Bacteria and Mycoplasma.

CO3-Student will understand the structure, Life Cycle of different members of Algae.

CO4- Student will understand structure, reproduction and Life cycle of different members of Fungi

CO5- They will acquire knowledge of structure, reproduction and Life cycle of different Bryophyte and Pteridophyte members.

B. Sc BotanyI Year

Title of Paper **:**Basic Botany

Course Code :FSCBOTJ1B

Course Out Comes

CO1- This Course will help the student to understand the diversity of plants and evolutionary process in plant kingdoms.

CO2- It gives and accounts of plant adaptations from aquativ condition to colonize terrestrial habitat.

CO3- The changes in morphological, anatomical and reproductive strcures that propel plant evolution can be investigated.

CO4- The economic importance and significance of plants in nature will be understood.

CO5- They will be acquainted with locally prevalent microbial diseases of plants and humans.

B. Sc BotanyII Year

Title of Paper **:**STRUCTURE, DEVELOPMENT &REPRODUCTION IN FLOWERINGPLANTS

Course Code :SC-A28(A)

Course Out Comes
CO1- To understand knowledge of Meristem tissue.

CO2- Knowledge of Differentiation of primary and secondary root tissues.

CO3- Morphological modifications of root.

CO4- Study of anatomy of monocot and Dicot stem and leaf.

CO5-Study of mechanism, types of Pollination, Fertilization and Embryology

B. Sc BotanyII Year

Title of Paper **:**Plant Ecology Biodiversity and Phytogeography

Course Code :SC-A28(B)

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

Course Out Comes
CO1- Study of Ecosystems, and ecological pyramids.

CO2- Study of Biogeochemical cycles.

CO3- Study of ecological adaptations.

CO4- Study of Ecology, Biodiversity and its significance and conservation.

CO5- Study of Endangered Species, Threatened Species and Red Data Book, Development of Soil Profile, Global Warming and Ozone Hole.
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B. Sc BotanyIII Year

Title of Paper :Plant Physiology and Biochemistry

Course Code :SC-A39(A)

Course Out Comes

CO1- Students will be able to understand plant water relations,Osmosis,Ascent of sap and mechanism of Transpiration.

CO2- Student will be able to acquire knowledge of Mineral Nutrition , Translocation of organic solutes inplants and depth knowledge of structure and function of Biomolecules.

CO3- Understand photosynthesis and photorespiration.

CO4- Acquire knowledge of respiration and its different biochemical pathways.

CO5- Acquire understanding of general concept of enzymes mechanism of enzyme action and plant hormones.

B. Sc BotanyIII Year

Title of Paper :Cell Biology, Genetics and Biotechnology

Course Code :SC-A39(B)

Course Out Comes
CO1- Student will be able to understand structure of cell envelops & cell-organelles.

CO2- Student will be able to acquire knowledge of Chromosomal organization, cell division and varation in Chromosome number and DNA Structure and replication.

CO3-Will be able to understand genetic inheritance in terms of Mendel's laws and Mutations.

CO4- Will acquire knowledge of gene structure, genetic code, protein synthesis and regulation of gene expression.

CO5- Will acquire in depth knowledge of Biotechnology, genetic engineering & its applications.

B. Sc Physics I Year
Title of Paper: **Thermodynamics and Statistical Physics(Major I)**

Course Code : FSCPHJ20A

Course Out Comes

CO1- The course would enable the students to understand the basic Physics of heat and temperature in relation to energy, work, radiation and matter.
CO2- The students are expected to learn that "how laws of thermodynamics are used in a heat engine to transform heat into work".
CO3- This course will also develop an understanding of the various concepts of statistics and the methods to apply them in thermodynamics.
CO4- Students will understand the importance of studying statistical mechanics with the behavior of particles under classical and quantum conditions.

B. Sc Physics I Year
Title of Paper: **Thermodynamics and Statistical Physics (Practical)**
Course Code : FSCPHJ20A-P

Course Out Comes
CO1- The students would gain practical knowledge about heat and radiation by performing various experiments.
CO2- The students will acquire knowledge about the different forms of distribution of subatomic particles in the system using statistical methods.
CO3- The students will be able to use various thermodynamical instruments in daily life.

B. Sc Physics I Year
Title of Paper: **Mechanics and General Properties of Matter** (Minor/elective)

Course Code : FSCPHJ20B

Course Out Comes
CO1- The course would empower the student to develop the idea about the behavior of physical bodies.
CO2- It will provide the basic concepts related to the motion of all the objects around us in daily life.

CO3- The students would be able to build foundation to various applied field in science and technology especially in the field of mechanical engineering.

CO4- The students will acquire the knowledge of basic mathematical methods to solve the various problems in physics.

CO5- The students will be able the understand the relativistic effect and the relation between energy and mass

B. Sc Physics I Year

Title of Paper: **Mechanics and General properties of Matter (Practical)**
Course Code : FSCPHJ20B-P
Course Outcome
CO1- The students would acquire basic practical knowledge related to mechanics through the experiments.

CO2- Students will be familiar with various measurement devices by which they can measure various physical quantities with accuracy.

CO3- The students will develop the concept related to the mechanics and properties of matter.

B. Sc Physics II Year

Title of Paper **:**Optics

Course Code :SC-A35(A)

Course Out Comes

CO1- Understanding of the use of geometrical optics in daily life.

CO2- Theoretical and experimental knowledge of wave optics phenomenon like interference and diffraction.

CO3- Use of principle of polarization in different experiments by using double refracting crystals.

CO4- Applying concept of Laser.

CO5- Understanding of Photo Sensors.

B. Sc PhysicsII Year

Title of Paper **:**Electrostatics, Magneto statics and Electrodynamics

Course Code :SC-A35(B)

Course Out Comes

CO1- Develop skills in the basic concept of electric forces and electric fields due to various charge distributions.

CO2- Students will be able to explain concepts of classical electromagnetism and to show a

working knowledge of a broad array of physical phenomena that are based upon fundamental concepts of charges, fields, and their interactions with matter.

CO3- Students will have strong physical reasoning and problem solving skills and apply these skills to the solution of theoretical and applied problems.

CO4- Understanding of the Maxwell's equations

CO5-   Understanding of Fresnel's Law.

B. Sc PhysicsII Year

Title of Paper **:**Electrostatics, Magneto statics and Electrodynamics

Course Code :PR-SC-A35

Course Out Comes

B. Sc ElectronicsI Year

Title of Paper **: Semiconductor Devices (paper 1)**

Course Code : FSCELJ29A

Course Out Comes

CO1: Describe the behavior of semiconductor materials

CO2: Reproduce the I-V characteristics of diode/BJT/MOSFET devices.

CO3: Apply standard device models to explain/calculate critical internal parameters of semiconductor devices.

CO4: Explain the behavior and characteristics of power devices such as SCR/UJT etc.

B. Sc ElectronicsI Year

Title of Paper **: Basic Circuit Theory and Network Analysis (paper 2)**

Course Code : FSCELJ29B

Course Out Comes

CO1: Study circuits in a systematic manner suitable for analysis and design.

CO2: Understands how to formulate circuit analysis problems in mathematically tractable way with an emphasis on solving linear systems of equations.

CO3: Analyze the electric circuit using network theorems.

CO4: Determine Sinusoidal steady state response.

CO5: Understand the two-port network parameters with an ability to find out two-port network parameters &

overall response for interconnection of two-port networks.

B. Sc ElectronicsI Year

Title of Paper **: Basic Circuit Theory and Network Analysis (Practical)**

Course Code : FSCELJ29B-P

Course Out Comes
CO1: Verify the network theorems and operation of typical electrical and electronic circuits.
CO2: Choose the appropriate equipment for measuring electrical quantities and verify the same for different circuits.

CO3: Prepare the technical report on the experiments carried.

B. Sc ElectronicsII Year

Title of Paper **:**Digital Electronics & Microprocessor
Course Code :SC-A31(A)

Course Out Comes
CO1- Understand the basic working of different logic gates and laws of Boolean algebra, De Morgan's theorem, NOR & NAND logic for simplification of circuits.
CO2- Understand the concepts of Registers, Counters.
CO3- Understand the concepts of D/Aand A/D converters.

CO4- Describe different modes of operation of 8085 microprocessors.
CO5- Understand different instruction set of microprocessor.

B. Sc ElectronicsII Year

Title of Paper: Operational Amplifier and Instrumentation
Course Code :SC-A31(B)

Course Out Comes
CO1- Elucidate and design the applications of an op-amp.
CO2- Understand difference amplifier.
CO3- Analyze the different parameters of OP-AMP.
CO4- Understand the Active Filters and Signal Generators.
CO5- Understand working and block diagram of biomedical instruments

B. Sc ElectronicsII Year

Title of Paper: Digital Electronics & Microprocessor
Course Code :PR-SC-A31

Course Out Comes

B. Sc Electronics III Year

Title of Paper :Thermistors, IC Technology, Microprocessor and Electrical Motors

Course Code :SC-A42(A)

Course Out Comes
CO1- Explain the behavior and characteristics of power devices such as SCR/UJT etc.
CO2-   Applications of Power Devices.
CO3- To understand 8086 microprocessors.
CO4- Understand different instruction set of microprocessor.
CO5- To understand Electrical motors.

B. Sc ElectronicsIII Year

Title of Paper: Communication Electronics
Course Code :SC-A42(B)

Course Out Comes
CO1- Design basic digital communication systems to solve a given communications problem and they become conversant with the requirements and the protocols employed in the fundamental components in a communication network.
CO2- Describe the concept of "noise" in analog and digital communication systems.
CO3- Understand Analog and Digital Modulation.
CO4- Understand Fibre optics communication.

B. Sc ElectronicsIII Year

Title of Paper: Practical
Course Code :PR-SC-A42

Course Out Comes

B. Sc ZoologyI Year

Title of Paper: Animal Diversity: Non-Chordata (Major I)
 Course Code : FSCZJ10A

Course Out Comes

CO1- Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla.

CO2- Understand the various morphological, anatomical structure and functions of animals of different phyla.

CO3- Get the knowledge about economic, ecological and medical significance of various animals in human welfare.

CO4- Understand the important parasites and their control measures.

B. Sc ZoologyI Year

Title of Paper: Invertebrata (Practical)
Course Code : FSCZJ10A-P

Course Out Comes
CO1- Identify invertebrate animals of different phyla and their histology through study of museum specimens and slides.

CO2- Learn their different system through dissections

CO3- Enhance collaborative learning and communication skills through practical

sessions, team work, group discussions, assignments and projects.

B. Sc ZoologyI Year

Title of Paper: Cell biology, Reproductive biology and Developmental Biology
Course Code : FSCZJ10B

Course Out Comes
CO1- Development deeper understanding of what life is and how it functions at cellular level.

CO2- Understand the nature and basic concept of Cell biology, Reproductive and Development biology.

CO3- Understand structure and functions of cell membrane and cellular organelles.

CO4- Understand the importance of latest reproductive trends reproductive techniques to be applied for human welfare.

CO5- Understand the general patterns and sequential developmental stages during embryogenesis; and understand how the developmental processes lead to establishment of body plan of multi-cellular organisms.

B. Sc Zoology I Year

Title of Paper: Cytology, Reproductive biology and Embryology (Practical)
Course Code :FSCZJ10B-P

Course Out Comes
CO1- The different stages of mitotic and meiotic cell division and special types of chromosomes
CO2- Different stages of embryology
CO3- Through squash preparations understand the stages of cell division and structure of polytene chromosome.
CO4- Enhance collaborative learning and communication skills through practical sessions, team work group discussion, assignments and project.

B. Sc ZoologyII Year

Title of Paper: Vertebrate and Evolution
Course Code :SC-A36(A)

Course Out Comes
CO1- To know about the taxonomy, classification and diversity of animals.

CO2- To study the comparative anatomy of different systems of vertebrates.

CO3- To gain knowledge of comparative account of aortic arch, heart brain and placentation in mammals.

CO4- To understand origin of life, variations, Mutation, Isolation and Speciation Evolution.

CO5- To understand the fossils, determination of age of fossils, study of extinct forms.

B. Sc ZoologyII Year

Title of Paper: Animal Physiology and Biochemistry
Course Code :SC-A36(B)

Course Out Comes

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Course Outcome (Annual)

CO1-To Study the nutrition and metabolism.

CO2- To understand the Respiration, Excretion and Immune system.

CO3- To gain knowledge about regulatory mechanisms of enzymes and role of vitamins.

CO4- To understand – Neuromuscular Co-Ordination.

CO5- To study the endocrine systems.

B. Sc ZoologyII Year

Title of Paper **:** Practical
Course Code :PR-SC-A36

Course Out Comes

CO1- Study the anatomy of commercially available fishes / computer simulation techniques.

CO2- Study of museum specimen, living fossils, extinct animal etc.

CO3- Study of endoskeleton of vertebrates.

CO4- To understand Bio-chemical analysis of protein, carbohydrate and lipid, human salivary enzyme activity.

CO5- Study of haematological experiments.

CO6- Histological study of endocrine glands, digestive and visceral organs.

B. Sc ZoologyIII Year

Title of Paper **:**Genetics
Course Code :SC-A47(A)

Course Out Comes

CO1- To gain knowledge about the heredity and Genetic material.

CO2- To understand the Gene expression.

CO3- To know about linkage and chromosomal aberrations.

CO4- To understand human Genetics.

CO5- To gain knowledge about Genetic Engineering.

B. Sc ZoologyIII Year

Title of Paper: Ecology and Applied Zoology
Course Code :SC-A47(B)

Course Out Comes

CO1- To study the concept of ecology.

CO2- To know about habitat ecology.

CO3- To gain knowledge about wild life, environment and its conservation.

CO4- To study aquaculture with relation to economic importance.

CO5- To study the commercially important insects and biological control of pests.

B. Sc ZoologyIII Year

Title of Paper: Practical
Course Code :SC-A47

Course Out Comes

CO1- Study of aquatic and terrestrial fauna.

CO2- Study of major carps, common stored grain pests and vegetable pests.

CO3- Study of Physiochemical analysis of water.

CO4- Study of ecosystems and maintenance of aquarium.

CO5- Study of instruments related to genetics.

CO6- Study of endangered species.

CO7- Study of life cycle of honeybee, silkworm and lac insect.

B. Sc Clinical Nutrition I Year

Title of Paper: Nutrition and Dietics
Course Code :V1-CLN-NUTT

Course Out Comes
CO1- Understand the relationship between food nutrition & Health.
CO2- Understand various function of food & food groups.

Co3- Understand digestion, absorption & functions of various nutrients & their sources.

CO4-Understand Importance of balanced diet to reduce risk of deficiency diseases.

B. Sc/ BA Mathematics I Year

Title of Paper **:** Algebra, Vector Analysis and Geometry

Course Code : FSCMTJ16A

Course Out Comes

CO1-   Recognize consistent and inconsistent systems of linear equation by the row echelon form of the augmented matrix, using the rank of matrix.
CO2- To find the Eigen values and corresponding Eigen vectors for a square matrix.
CO3- Using the knowledge of vector calculus iin geometry.

 CO4- Enhance the knowledge of three dimensional geometrical figures

B. Sc/ BA Mathematics I Year

Title of Paper: Calculus and Differential Equations
Course Code : FSCMTJ16B

Course Out Comes

CO1- Sketch Curves in a plane using its Mathematical properties in the different coordinate systems of references.
CO2- Using the derivatives in Optimization, Social science, physics and Life sciences etc.
CO3- Formulate the Differential equation for various Mathematical models
CO4- Using techniques to sold and analyze various Mathematical models.

B. Sc/ BA Mathematics I Year

Title of Paper **:** Mathematical Logic and Sets
Course Code : FSCMHE19

Course Out Comes

CO1-   Using the principles of logic to distinguish between sound and unsound reasoning in discourse of everybody
CO2- Construct truth tables for logical expressions; test statements for logical equivalence and represent mathematical statement in the language of predicate language.
CO3- Using the appropriate set theoretic concepts, thinking process, tools and techniques in the solution to various conceptual or real-world problems.

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

B. Sc Mathematics II Year

Title of Paper **:**Abstract Algebra
Course Code :SC-A33(A)
Course Out Comes

CO1- Student learn meaning of group, subgroup cyclic groups and its properties.

CO2-   Student study normal subgroup and quotation group also Lagrange's and Fermat's theory.

CO3-Understand meaning of Homomorphism and Isomorphism of group and permutation group.
CO4- Student study group Auto orphism finite abele and non-abel group. Centralizer and
          normalize.

CO5- Different types of Rings. polynomial ring integral domain and field.

B. Sc Mathematics II Year

Title of Paper: Advanced calculus
Course Code :SC-A33(B)

Course Out Comes

CO1- Gain skills sequences and series and list converging and divergence by applier different
          types of test.

CO2-   Understand the meaning of continuity sequential continuity and its properties, and chain
          ruleof differentiability.

CO3-   Student understand the concept of continuity and differentially for two variable, partial
          differential and Jacotran

CO4-   Student will be able to analyze Enveloper, Evolutes, maxima, minima for function of
          two variables and Beta gamma   function.

CO5- Study Double and triple integration, Volume and surface and change order of double and
          triple integration.
B. Sc Mathematics II Year

Title of Paper: Differential Equations
Course Code :SC-A33(C)
Course Out Comes

CO1- Applies the theory to shove series method of deferential equation also learn generating
          function and ortuogonality   function.

CO2- Understand the meaning of Laplace transform and its properties, differential and

integration of L.T

CO3- Student study inverse Laplace transform and its Application to solve problems of linear differcutial elution.

CO4- Apply Lagrange and carpets method to solve partial differential equation.

CO5- Student learn partial differential equation of second order and Homogenous and non homogenous equation.

B. Sc Mathematics III Year

Title of Paper :Linear Algebra and Numerical Analysis
Course Code :SC-A44(A)
Course Out Comes

CO1-   Student will be able to understand vector space, subspace, quotient space , basis and dimension.

CO2-   Student study change of basic dual ,Bidual Space Diagonalization, Bilinear, Quadratic and Hermitian form.

CO3- Understand the Meaning of Inner product space and apply in gram-Schmidt orthogonalization process.

CO4- Applay Numerical methods is Final our solution of algebraic equation using different method. And apply various interpolation method and finite difference method.

CO5-   Student Study to solve by linear equations direct methods by using different types of decomposition and ordinary difficult equation.

B. Sc Mathematics III Year

Title of Paper: Real and Complex Analysis
Course Code : SC-A44(B)
Course Out Comes

CO1- Describe Properties of Riemann Integral and theorem on it and different and practical difference of seal valued function.
CO2- Understand to test improper integral by applying different test.
CO3- Student Study Defecation of matrix space and subspace and theorem on it.
CO4- Study Continuous function uniform and coparceners and some theorem.
CO5- Understand Continuity different in complex function, Harmonic function and Mobius transformation.

B. Sc Mathematics III Year

Title of Paper: Discrete Mathematics
Course Code : SC-A44(C)
Course Out Comes

SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH
Course Outcome (Annual)

CO1- Student study Mean mode median mean and standard deviation and present

CO2- Student Understand is alone different types of probability problems in event / sample and continuous probability distribution.

CO3- Student learn Binomial, Poisson Rectangular and Exponential distribution its properties.

CO4- Student Study different types of curve fitting and types correlation

CO5- Student Study Test of Significant based on Chi,t,f and Z statistics also study sampling.

F.C I Year

Title of Paper   : fgUnhHkk"kkvkSjuSfrdewY;

Course Code   :AT-A01(A)

Course Out Comes

CO1- jk"Vh; Hkkouktkxzrdjuk A

CO2- Hkkjrh; tulkekU; dh leL;kvksadksvoxrdjuk A

CO3- dgkfu;k ds ek/;e lslkekftdleL;kvksalsvoxrdjuk A

CO4- yksddykvkSjyksd thou lsvoxrdjuk A

CO5- fgUnhO;kdj.kdklekU; ifjp;A

F.C II Year

Title of Paper   : fgUnhHkk"kkvkSjuSfrdewY;

Course Code   :AT-36(A)

Course Out Comes

CO1- Nk=kseuSfrdrkdkfodkl A

CO2- jk"Vh; Hkkouktkxzrdjuk A

CO3- dgkfu;k ds ek/;e lslkekftdleL;kvksalsvoxrdjuk A

CO4- yksddykvkSjyksd thou lsvoxrdjuk A

CO5- fgUnhO;kdj.kdklekU; ifjp;A

F.C III Year

Title of Paper   : fgUnhHkk"kkvkSjuSfrdewY;

Course Code   :AT-A21(A)

Course Out Comes

CO1- fo|kfFk;ksadks e/;izns'k dh yksddykvkSyksdlkfgR; rFkkizkdfrdlqanjrklsifjfprdjkuk A

CO2- Nk=kseuSfrdrkdkfodkl Ljk"Vh; Hkkouktkxzrdjuk A

CO3- dgkfu;k ds ek/;e lslkekftdleL;kvksalsvoxrdjuk A

CO4 -yÍddykvÍÍjyÍd thou lsvoxrdjkukA

CO5- tulapkjrFkk i=dkfjrk d ek/;eks d v/;kiulsapkjdkÍ’kydkfodkldjukA