

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B.A I Year Political Science**

Title of Paper : Basic Principles of Political Science

Course Code : AT-A33(A)

Course Out Comes

- CO1- Student will be able to understand Meaning and Significance of Political Theory.
- CO2- Assess the Theories of State (Origin, Nature, and Function): Contract, Idealist Theory.
- CO3- Understanding basic concepts of Liberty, Equality, Rights, Law and Justice.
- CO4- Gives Information about the Types of Government.
- CO5- Types of Political Parties; Principles and Ideologies.

### **B.A I Year Political Science**

Title of Paper : Indian Government & Politics

Course Code : AT-A33 (B)

Course Out Comes

- CO1- Develop the understanding of Indian National Movement.
- CO2- Develop the clear understanding of Fundamental Rights & Fundamental Duties
- CO3- Develop the understanding of the working of Lok Sabha & Rajya Sabha
- CO4- Develop the understanding of the Functions of Government
- CO5- Develop the understanding of Right to Information.

### **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.

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## Course Outcome (Annual)

### **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.

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## Course Outcome (Annual)

- 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.

Course Code : AT-A35 (A)

Course Out Comes

- C01- Economics Definition and Scopes
- C02- Law of Demand and Supply, Elasticity of Demand
- C03- Production, Return to Scale, Iso – Production Curve
- C04- Market, Price Determination Under Perfect Competition and Monopoly
- C05- Factor Pricing: Wages, Interest, Profit, Rent

### **B.A I Year Economics**

Title of Paper : Indian Economy

Course Code : AT-A35 (B)

Course Out Comes

- C01- Indian economy, nature resources and demographic features
- C02- Agriculture: Nature, importance, green revolution, agriculture marketing, agriculture mechanization
- C03- Industrial policy in India 1991, small and cottage industries, Start-up-India, make – in-India
- C04- Infrastructure for Indian economy, FDI, Foreign trade of India
- 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 15<sup>th</sup> 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

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## Course Outcome (Annual)

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 : Basic Concept of Sociology

Course Code : AT-A34 (A)

Course Out Comes

CO1- The Course is intended to introduce the students to a sociological way of thinking. It provides nature of sociology

CO2- Students will be able to acquaint themselves with the basic concepts of sociology like society, community, association, etc.

CO3- Students can understand social structure and culture.

CO4- Course explain social control, Social stratification

CO5- Course explain social change and the factors.

### **B.A I Year Sociology**

Title of Paper : Indian Society

Course Code : AT-A34 (B)

Course Out Comes

CO1- The course is intended to introduce the student about religion Karma and Sanskar.

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## Course Outcome (Annual)

CO2- Caste Kinship family and marriage.

CO3- Students can understand about the structure of Indian society like village, city

CO4- Students can understand about family problem dowry Divorce problem of the Elderly

CO5- Various Social Problems in India like casteism, communalism, cybercrime

### **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- organization

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**

Title of Paper : Basic of Sociological Thought

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## Course Outcome (Annual)

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 and data 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 like mean median mode and make conclusions based on those patterns.

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

### B.A I Year Hindi

Title of Paper : प्राचीन एवं मध्यकालीनकाव्य

Course Code : AT-A31 (A)

Course Out Comes

CO1- प्राचीन युग की कार्यप्रवृत्तियोंसेविद्यार्थियोंकोपरिचितकराना।

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## Course Outcome (Annual)

- CO2- मध्यकालीनकाव्य की पृष्ठभूमिकाविद्यार्थियोंकोबोध कराना।  
CO3- मध्ययुगीनकाव्य की प्रासंगिकता एवंकृतियों के माध्यम सेसाहित्य के शिल्पऔरसौंदर्यसेअवगतकराना।  
CO4 - काव्य काविधाओंकासामान्य परिचय एवंप्रस्तुतिकौशलकापरिचय कराना।  
CO5 - प्राचीन एवं मध्यकालीनकाव्य के माध्यम सेकाव्य के प्रति रुचिजाग्रतकरना।

### B.A I Year Hindi

Title of Paper : भ्पदकप िजीपजलं

Course Code : AT-A31 (B)

Course Out Comes

- CO1- विद्यार्थियोंकोहिन्दीसाहित्य के इतिहास की लेखनपरंपरासेपरिचय, कालविभाजन, नामकरण एवं युगीन पृष्ठभूमिसेपरीचय कराना।  
CO2- हिन्दी के प्रतिनिधि कहानीकारों एवं उनके जीवन मूल्योंसेपरिचय कराना।  
CO3 - हिन्दीसाहित्य काविकासक्रम एवं युगजीवनकासंबंध।  
CO4- आधुनिक युग के साहित्य की प्रवृत्तियोंसेपरिचय।  
CO5- गबनउपन्यास के माध्यम सेछात्रोंकोप्रेमचन्द युगीनपरिस्थितियोंसेपरिचय कराना।

### B.A II Year Hindi

Title of Paper : अर्वाचीनहिन्दीकाव्य

Course Code : AT-A37 (A)

Course Out Comes

- CO1- साहित्य की परिभाषाओं एवंसाहित्य की विविध विधाओंकातत्वोगत अध्ययन।  
CO2- काव्य हेतुकाव्य प्रयोजनोंकाज्ञानकराना।  
CO3- काव्य के तत्वोंकाव्य के भेद शब्द शक्ति, छंद एवंअलंकारोंकासहोदाहरणपरिचय।  
CO4- रस के स्वरूपअंग एवंभेदोंकाविवेयन एवंआलोचनादृष्टिकाविकास।

### B.A II Year Hindi

Title of Paper : अर्वाचीनहिन्दीकाव्य

Course Code : AT-A37 (B)

Course Out Comes

### B.A I Year English Literature

Title of Paper : Poetry

Course Code : AT-A32 (A)

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## Course Outcome (Annual)

### Course Out Comes

- CO1- Recognize poetry from various literary periods and understand and appreciate poetry as a literary art form.
- CO2- Analyze the various elements of poetry y, such as diction, tone, form, genre, imagery, figures of speech, symbolism, theme, rhythm, rhyme etc.
- CO3- Identify variety of forms of poetry y such as satire, epic, lyric and different schools of poetry as Romantic and Metaphysical and study works of the authors associated with these literary forms.
- CO4- Develop creativity and critical thinking among the students and enhance their writing skills.

### **B.A I Year English Literature**

Title of Paper : Prose  
Course Code : AT-A32 (B)

### Course Out Comes

- CO1- Recognize different forms of prose and identify the essayists of the different ages.
- CO2- Familiarize with the writing styles of the various writers and comprehend their style.
- CO3- Identify the importance of brevity in writing and differentiate the diction of the various ages.
- CO4- Evaluate the growth of prose writing in English and analyze the stylistic use

### **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.

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## Course Outcome (Annual)

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.

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## Course Outcome (Annual)

### **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 and Indian Literature in English through the works of R. N.Tagore, GirishKarnad, Khushwant Singh, 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.

### **BCA I Year**

Title of Paper : Fundamentals of Computers

Course Code : BC- A02

Course Out Comes

CO1- Describe computer with its characteristics, usage, limitations and benefits

CO2- Use computer peripherals and memory efficiently.

CO3- Develop programming concepts.

CO4- Compare between various operating systems and their functions.

CO5- Identify network fundamentals and various communication network

### **BCA I Year**

Title of Paper : English Communication Management

Course Code : BC- A03

Course Out Comes

CO1- Proficiency in English Communication Skills.

CO2- Knowledge of basic English Language Skills regarding comprehension and expression.

CO3- Knowledge of various types of correspondences.

CO4- Learning about leadership, team building decision making and stress management.

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## Course Outcome (Annual)

CO5- Layout and designing of official letters.

### **BCA I Year**

Title of Paper : Office Automation Package and Tools

Course Code : BC- A04

#### Course Out Comes

CO1- The course aims to provide knowledge about basic components of a computer and their significance.

CO2- Office tools course would enable the students in crafting professional word documents, excel Spreadsheets, PowerPoint presentations using the Microsoft suite of office tools.

CO3- To familiarize the students in preparation of documents and presentations with office automation tools.

CO4- By learning the course, the students will be able to perform documentation, to Perform accounting operations & to perform presentation skills.

CO5- Perform database operation using MS-Access.

### **BCA I Year**

Title of Paper : Problem Solving and Programming Through C

Course Code : BC- A05

#### Course Out Comes

CO1- Able to implement the algorithms and draw flowcharts for solving Mathematical problems.

CO2- Demonstrate an understanding of computer programming language concepts.

CO3- Able to define data types and use the minimum simple data processing applications also he/she must be able to use the concept of array of structures.

CO4- Develop confidence for self-education and ability for life-long learning needed for Computer language.

CO5- Implement Pointers and file management in C

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### BCA I Year

Title of Paper : Business Mathematics

Course Code : BC- A06

#### Course Out Comes

CO1- Implement trigonometric solutions for measurements in real world.

CO2- Implement Matrices and simultaneous equations to solve problems.

CO3- Use Statistical tools efficiently.

CO4- Apply differentiation and integration for solving complex Problems.

CO5- Analyze real world scenarios formulate problems about commission, brokerage and discount

### BCA I Year

Title of Paper : Digital Computer Organization

Course Code : BC- A07

#### Course Out Comes

CO1- Given an introduction to digital computer and their fundamental architectures & Data Representation.

CO2- Understand the concepts of Binary Logics, Gates, and Combinational & Sequential Circuits.

CO3- Memory organization, hierarchy and organization. Able to aware of RAM,ROM, COST, SIZE, CACHE

and virtual memory. Comprehend the need for improving cache perform.

CO4- Understanding the principle of Microprocessor and CPU organization, Data Transform and schemes.

CO5- Explain about Computer buses, input/ Output Peripherals and DMA

### BCA I Year

Title of Paper : Accounting and Financial Management

Course Code : BC- A08

#### Course Out Comes

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## Course Outcome (Annual)

- CO1- Given an introduction to digital computer and their fundamental architectures & Data Representation.
- CO2- Understand the concepts of Binary Logics, Gates, and Combinational & Sequential Circuits.
- CO3- Memory organization, hierarchy and organization. Able to aware of RAM, ROM, COST, SIZE, CACHE and virtual memory. Comprehend the need for improving cache Perform.
- CO4- Understanding the principle of Microprocessor and CPU organization, Data Transfer Modes and schemes.
- CO5- Analyzed the Efficiency and Profitability of Business.

### BCA I Year

Title of Paper : Lab I (Office Automation Packages and Tools)

Course Code : PR-BC - A09

#### Course Out Comes

- CO1- The course aims to provide knowledge about basic components of a computer and them significance.
- CO2- Office tools course would enable the students in crafting professional word documents, excel Spreadsheets, PowerPoint presentations using the Microsoft suite of office tools.

### BCA I Year

Title of Paper : Lab II

Course Code : PR-BC - A10

#### Course Out Comes

- CO1- Develop confidence for self- education and ability for life-long learning needed for Computer language.
- CO2- Implement Pointers and file management in C

### BCA II Year

Title of Paper : PROGRAMMING WITH C++ AND DATA STRUCTURES

Course Code : BC- A12

#### Course Out Comes

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## Course Outcome (Annual)

- 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 datatypes stack,queue, deuce,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.

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## Course Outcome (Annual)

### BCA II Year

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 : SOFTWAREENGINEERING

Course Code : BC- A17

Course Out Comes

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## Course Outcome (Annual)

- 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- To enable student to learn the basics of individual behavior and group behavior.
- 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- To make them understand the concept and importance of Organizational Behavior in present scenario.
- 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.

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## 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.

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## Course Outcome (Annual)

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 : PRINCIPLESANDPRACTICESOFMANAGEMENT

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

managers.

CO5- Discursive the process involved cadetting and staffing.

### 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- Understand various web technology and application development issues and trends.

CO3- Conduct independent research on a subject related to the course material.

CO4,CO5-Understand the practices and procedures being followed in the industries and provide an 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: PRINCIPLES OF MANAGEMENT

Course Code : BB- A11

Course Out Comes

CO1- Student will be able to assess the global context for planning, coordination, 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.

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## Course Outcome (Annual)

- 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.

### **BBA I Year**

Title of Paper: Communication Skills

Course Code : BB- A12

Course Out Comes

- CO1- Imagination, Ethical Theory and Skills to Interact, Students can learn how to do this ethically and effectively.
- CO2- Student 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.

### **BBA I Year**

Title of Paper: MICRO ECONOMICS

Course Code : BB- A13

Course Out Comes

- CO1- Student will understand the importance of basic principles of micro economics.
- CO2- Students will be able to understand the basics of demand- supply rules and analysis and elasticity. They will also learn how to implement it.
- CO3- Utility, apathy analysis and market surplus, students will be able to understand.
- CO4- Students will be able to understand production principles, classify costs and incomes.
- 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

Course Code : BB- A14

Course Out Comes

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- 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 : Financial Accounting

Course Code : BB- A15

Course Out Comes

- CO1- Imagination, Ethical Theory and Skills to Interact, Students can learn how to do this ethically and effectively.
- CO2- Student 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.

### **BBA I Year**

Title of Paper : Business Mathematics

Course Code : BB- A16

Course Out Comes

- CO1- Students will be able to explain the concept and use equations, Formulae and Mathematical expression and relationship in a variety of contexts.
- CO2- Apply the knowledge in Mathematics (Algebra, Matrices, Calculus) in solving business problems.
- CO3- Analyse and demonstrate Mathematical Skills required in Mathematically intensive areas in economics and Business.
- CO4- Integrate concepts in International Business concepts with funning global trade

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## Course Outcome (Annual)

### **BBA IIIYear**

Title of Paper : MARKETING MANAGEMENT

Course Code : BB- A17

Course Out Comes

- CO1- Identify the marketing process and how it fits into business operations and will be able to communicate marketing information persuasively and accurately in oral, written graphic formats.
- CO2- Differentiate between categories of consumer criteria for determining value.
- CO3- Recognize how to identify target markets and environments by analyzing demographics and consumer behavior.
- CO4- List best practices for responsible marketing and how to manage efforts Synthesize ideas into a business plan for entrepreneurial start-up venture.
- CO5- The student will be able to Emphasis on various aspects of service marketing which make it different from goods marketing.

### **BBA IIIYear**

Title of Paper : MARKETING RESEARCH

Course Code : BB- A18

Course Out Comes

- CO1- Discuss the scope and managerial importance of market research and its role in the development of marketing strategy.
- CO2- Provide a detailed overview of the stages in the market research process.
- CO3- Develop research questions and objectives that can be addressed in a research design.
- CO4- Develop an appropriate market research design for the clients.
- CO5- Mange the data collection process Use contemporary statistical package to calculate and report descriptive statistics from quantitative data Interpret data analysis in the context of the identified business problem.
- CO6- Communicate research results in written report and oral presentation formats.

### **BBA IIIYear**

Title of Paper : FINANCIAL MANAGEMENT

Course Code : BB- A19

Course Out Comes

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- 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

- 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.

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## Course Outcome (Annual)

- 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 : BB- A22

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 management framework, 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 creating and sustain a positive culture, and assessing the impact of culture on organizational behavior.

### **BBA IIIIYear**

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- 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 IIIIYear**

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 IIII 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B.Com IYear**

Title of Paper : Financial Accounting

Course Code : CM- A27(A)

#### Course Out Comes

- CO1- Knowledge of accounting concept, conventions and basic accounting. Study about journal and its sub division and primary accounting system.
- CO2- Detail study about accounting standard, clear concept of Department, Branch and Depreciation Account.
- CO3- Student will get knowledge about overall accounting including Nonprofit organizations.
- CO4- practical question related to join venture account and investment account.
- CO5- detailed study about partnership accounting and its amalgamation.

### **B.Com I Year**

Title of Paper : Financial Accounting

Course Code : CM- A27(B)

#### Course Out Comes

- CO1- Students will be able to understand the basic concepts of mathematics and knowledge about ratio, percentage and commission
- CO2- study about equation, types of calculation.
- CO3- students get knowledge about matrices.
- CO4- practical question related to logarithms and anti-logarithms, and simple & compound interest.
- CO5- student study about simple average and statistical averages.

### **B.Com IYear**

Title of Paper : Business Mathematics

Course Code : CM- A28(A)

#### Course Out Comes

- CO1- Demonstrate an understanding of the legal environment of business.
- CO2- basic legal knowledge to business Contract and agreement.
- CO3- Communicate effectively using standard business and legal terminology.
- CO4- Study about consumer protection law to aware consumer and knowledge about their rights.
- CO5- Knowledge of FEMA act and MRTP act.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B.Com I Year**

Title of Paper : Business Organization and Communication

Course Code : CM- A28(B)

Course Out Comes

- CO1- Understanding of the main working aspects of org. not only from an economic point of view but also considering org. as part of society.
- CO2- Detailed study about company organization its terminology. Knowledge about MNC's corporation.
- CO3- Students will be able to communicate effectively orally and in writing.
- CO4- Students will get knowledge about different methods of communication.—
- CO5- Students will be able to understand and apply Knowledge of modern means of communication and, language processes as they occur across various contexts.

### **B.Com I Year**

Title of Paper : Micro Economic

Course Code : CM- A29(A)

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 I Year**

Title of Paper : Macro Economic

Course Code : CM- A29(B)

Course Out Comes

- CO1- Define the term "economic indication" identify the major economic indicators used to assess the state of the macro economy difference between micro and macro economics.
- CO2- Explain the expenditure and national income approaches to calculating GDP. Describe the relationships among GDP net domestic product.
- CO3- study about theories of employment, interest and interest.
- CO4- get knowledge about monetary theory and modern money theory.
- CO5- student will able to know industry policy and industrial growth.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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 foelctricaity 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)

#### Course Out Comes

- CO1- Student will be able to Interpret the meaning of calculated Stabioreal 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B.Com IYear**

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 IYear**

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 IYear**

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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 complications 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B.Com III Year**

Title of Paper : International Marketing

Course Code : CM- A39(B)

Course Out Comes

CO1- Have developed 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 : **Fundamentals of Computer and PC Software**

Course Code : CM- A30(A)

Course Out Comes

CO1- Introduction to the basics of computer, input, output devices, types of hardware and software.

CO2- Practical implementation and usage of PC packages.

CO3- Effective learning of E-Commerce, MIS, decision making and planning.

CO4- Understand the dynamics of an office environment.

CO5- Demonstrate the ability to apply application software in an office environment

### **B.Com (C.A ) I Year**

Title of Paper : Desktop Publishing and Multimedia

Course Code : CM- A30(B)

Course Out Comes

CO1- Using adobe PageMaker to create various publication.

CO2- Introduced with multimedia elements like text, audio, video, animation, graphics.

CO3- Create a book and export it into PDF Multipage Layout Design.

CO4- Identify the basic components of a multimedia project.

CO5- Identify the basic hardware and software requirements for multimedia development and playback.

### **B.Com (C.A ) I Year**

Title of Paper : Practical

Course Code : PR-CM- A30

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### Course Out Comes

- CO1- Using adobe PageMaker to create various publication.
- CO2- Introduced with multimedia elements like text, audio, video, animation, graphics.

### **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/DDDL/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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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- Create 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.

CO5- 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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 – Physical Chemistry**

**Course Code: SC-A21 (A)**

#### **Course Outcomes**

After completion of this course, the students understand:

CO1 - mathematical concepts in Chemistry wherever needed and various phenomena occurring in the gaseous state, the students can solve and understand mathematical equations wherever needed

CO2 - liquid and solid states that will help in their related topics at higher level

CO3 - rates of reactions and related topics, thus acquiring practical utility of a chemical reaction

CO4 - radioactivity and nuclear chemistry

CO5 - Chemical Equilibrium, which they can apply to check the feasibility of a reaction by applying law of mass action, equilibrium constant and Le Chatelier's principle. Colloidal Solutions and acquire knowledge about various properties of colloids and their applications.

#### **Paper II – Inorganic Chemistry**

**Course Code :SC-A21 (B)**

#### **Course Outcomes**

After completion of this course, the students understand:

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

CO1 - Dual nature of matter, Schrodinger equation, the important Aufbau, Pauli and Hund's rule and writing of electronic configuration of elements. They also understand periodic table and various periodic properties

CO2 - Various types of bonds, hybridization and shapes of simple inorganic molecules and ions

CO3 - Other bonding interactions and chemistry of noble gases

CO4 - s-block and p-block elements

CO5 - Chemistry of p-block elements

### **Paper III – Organic Chemistry**

**Course Code:**SC-A21 (C)

### **Course Outcomes**

After completion of this course, the students understand:

CO1 - Structure and bonding in organic compounds, various types of reaction intermediates and reaction mechanisms

CO2 - IUPAC nomenclature, methods of formation and various chemical reactions of alkanes, cycloalkanes

CO3 - Other bonding interactions and chemistry of noble gases. Preparation and reactions of alkenes, cycloalkenes, dienes

CO4 - Preparation and reactions alkynes and alkyl halides concept of isomerism

CO5 - Concept of isomerism, various aspects of optical and geometrical isomerism

### **Practical**

**Course Code:**PR-SC-A21

### **Course Outcomes (COs)**

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

CO1- determination of melting point, boiling point of compounds, weighing and preparation of solution

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- CO2- determination of surface tension and viscosity, percentage composition of liquid mixtures.
- CO3- Analysis of inorganic mixture for two cations and two anions and separate cations by paper chromatography.
- CO4- process of crystallization, sublimation and detection of elements and functional groups in organic compounds.

### **B.Sc. II Year Chemistry**

#### **Paper I – Physical Chemistry**

**Course Code:SC-A32 (A)**

#### **Course Outcomes (COs)**

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 of entropy
- 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:

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## Course Outcome (Annual)

CO1 – chemistry of elements of first 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)**

#### 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### 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 redox titrations 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

### 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

**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

**Course Code:SC-A26(A)**

### Course Outcomes (COs)

After completion of this course, the students understand:

CO1 - about petroleum and fractional distillation of crude oil

CO2 - different types of coal, test methods and characterization

CO3 - catalysis and surface chemistry

CO4 - inorganic materials of industrial importance

CO5 - process of drying, distillation and evaporation

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### Paper II

**Course Code:SC –A26(B)**

**Course Outcomes (COs)**

After pursuing this course, the students understand:

- CO1 - metallurgical operations and physicochemical principles of extraction of different metals
- CO2 - industrially important enzyme catalyzed reactions, dimensions and units, basic chemical calculations and mole composition of liquid and gaseous mixtures.
- CO3 - Material balance without chemical reactions for chemical engineering operations
- CO4 - different types of fuels, boilers and heat exchangers.
- CO5 - industrial use of water, steam and air; working of fans, blowers and different type of pumps

### Practical

**Course Code:PR-SC-A26**

**Course Outcomes (COs)**

After completion of this course, the students can:

- determine melting point, boiling point
- find various parameters of water and soil samples
- prepare standard solutions
- do calibration of thermometers
- perform different techniques of chromatography.
- find different physical constants

## B.Sc. II Year Industrial Chemistry

### Paper I

**Course Code:SC-A37(A)**

**Course Outcomes (COs)**

After pursuing this course the students understand:

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## Course Outcome (Annual)

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

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## Course Outcome (Annual)

- 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

CO5 - recovery of compounds from oil industries, dyestuff industries, fertilizers industries, textile industries, Soap and plant, setting of Small Scale Units such 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)

After pursuing this course, the students understand:

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

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## Course Outcome (Annual)

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 thermodynamic 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

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## Course Outcome (Annual)

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### 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.Semester II Chemistry

#### Theory

**Paper II Inorganic Chemistry - II**

**Course Code: CHE-707**

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### 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  $\pi$ -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 nucleophilic 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

**SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH**  
**Course Outcome (Annual)**

**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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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 IV Polymers**

**Course Code - CHE-715**

**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-716**

**Course Outcomes (COs)**

After pursuing this course, the students understand:

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- determine pK<sub>a</sub> 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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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 Chemistry**

**Course Code - CHE-723**

#### **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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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**

### **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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### 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 photometrically

### 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 : Fundamental of Computers

Course Code : SC- A19(A)

Course Out Comes

CO1- Concepts of fundamentals of Computer, their Uses, storage, I/o devices.

CO2- Text processing, formatting, editing for both official and non-official purposes.

CO3- Clear understanding of digital logic circuits and computer organization.

CO4- Students shall be able to demonstrate the applications of Boolean algebraic expressions in digital design.

CO5- Computer architecture and data transfer techniques.

### B. Sc Computer Science IYear

Title of Paper : MS-Word & Excel

Course Code : PR-SC- A19

Course Out Comes

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

CO1- Students shall be able to demonstrate the applications of Boolean algebraic expressions in digital design.

CO2- Computer architecture and data transfer techniques.

### **B. Sc Computer Science IYear**

Title of Paper : Programming in C

Course Code : SC- A19(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 IYear**

Title of Paper : Programming in C

Course Code : PR-SC- A19

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 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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.

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## Course Outcome (Annual)

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **M. Sc Computer Science I Sem**

Title of Paper : PROGRAMMING IN C++

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 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **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

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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 for given 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.

CO3- Concept of Analog and Digital Video How to use Video on PC.

CO4- Type of Multimedia authoring tools.

CO5- 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.

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## Course Outcome (Annual)

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.

### **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**

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

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## Course Outcome (Annual)

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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.

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## Course Outcome (Annual)

- 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 Structure and Biology

Course Code : SC-A18(A)

Course Out Comes

- CO1- To study and learn cell theory, structure of prokaryotic and eukaryotic cells, cell cycles and their ultra-structure of cell.
- CO2- To study and learn about transportation across cell membrane, their receptors and extra cellular signaling.
- CO3- To learn and practice about basic sterilization techniques, taxonomy of microbes and cell lines.
- CO4- To learn about ultrastructure of microbes, nutritional requirement and archaebacterial.
- CO5- To study about microbial metabolism

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B. Sc Biotechnology I Year**

Title of Paper: BOT-102 Microbiology

Course Code : SC-A18(B)

Course Out Comes

- CO1- To study and learn about molecular interaction and mechanism of photosynthesis.
- CO2- To learn about protein calculation and protein structure.
- CO3- To study and learn about water properties, pH, Buffer, their concept, enzymes: their nomenclature , Machalis – Menten equation, their kinetics.
- CO4- To study and learn about lipid, carbohydrates, vitamin and hormones.
- CO5- To explain and practical exploration about nucleic acid structure, types, replication and central dogma.

### **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.

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## Course Outcome (Annual)

- 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

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## Course Outcome (Annual)

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 for 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 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 they are 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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

### **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- They 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 Microbiology I Year**

Title of Paper: General Microbiology and cell Biology

Course Code :SC-A23(A)

Course Out Comes

CO1- To learn about scope of microbiology and its application.

CO2- To learn about structure of bacteria, cyanobacteria, actinomycetes and rickettsia, Chlamydia.

CO3- To learn about general characteristics of fungi and virus and their importance.

CO4- To understand the cell cycle.

CO5- Isolation and maintenance of microorganism and their techniques.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### **B. Sc MicrobiologyI Year**

Title of Paper: TOOLS AND TECHNIQUES IN MICROBIOLOGY

Course Code :SC-A23(B)

Course Out Comes

- CO1- To learn about Principle and working of various microscopy.
- CO2- To understand instrumentation techniques such as autoclave, oven, BOD, incubator, laminar air flow, colorimeter, spectrophotometer, centrifugation.
- CO3- To learn micrometry and various staining techniques.
- CO4- To learn about preparation of media and sterilization techniques.
- CO5- To learn about Principle of biostatics and bioinformatics.

### **B. Sc MicrobiologyI Year**

Title of Paper: Practical

Course Code :PR-SC-A23

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.

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## Course Outcome (Annual)

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.

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## 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.

**SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH**  
**Course Outcome (Annual)**

- 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 :Diversity of Higher Plants

Course Code :SC-A17(B)

Course Out Comes

- CO1- Student will be able to understand characters and classification, anatomy and life cycles of Gymnosperms. Fossil Gymnosperms
- CO2- knowledge of Herbarium Techniques, Botanical gardens and concept of Botanical nomenclature.
- CO3- knowledge of Angiosperms and classification.
- CO4- Student will be able to understand the diagnostic characters of families  
I Group – Ranunculaceae to Apiaceae  
II Group from – Asteraceae to Poaceae

**B. Sc BotanyII Year**

Title of Paper :STRUCTURE, DEVELOPMENT &REPRODUCTION IN FLOWERING PLANTS

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

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## Course Outcome (Annual)

Course Code :SC-A28(B)

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.

### **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 in plants 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 envelopes & cell-organelles.

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## Course Outcome (Annual)

- CO2- Student will be able to acquire knowledge of Chromosomal organization, cell division and variation 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: Mathematical Physics, Mechanics and Properties of Matter

Course Code :SC-A24(A)

Course Out Comes

- CO1- Communicate mathematical and physical ideas to the students and apply them to formulate scientific reasoning.
- CO2- Elasticity helps the students to identify the materials suitable for the construction of buildings, houses etc and properties of fluids especially knowledge of viscosity and surface tension help the students in their daily life.
- CO3- Develop basic skills to perform experiments to understand the concept of existing theories of basic physics.
- CO4- Students shall be familiar with the fundamental principles of the general theory of relativity and they shall know the meaning of basic concepts like inertial frames, Lorentz Contraction and time dilation.
- CO5- Understanding of Doppler Effect, Four dimensional momentum vectors.

### B. Sc Physics I Year

Title of Paper :Thermo dynamics and Statistical Physics

Course Code :SC-A24(B)

Course Out Comes

- CO1- The objective of this course is to learn how to apply thermodynamic principles in order to interpret thermodynamic systems and predict their behaviors.
- CO2- The principles used in this course are based on "laws of thermodynamics" developed historically, the concept of entropy in different thermodynamics process. And also understand the different type thermodynamics scale.

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## Course Outcome (Annual)

- CO3- An additional objective is to become familiar with the use of simple statistical mechanical models to predict thermodynamic properties.
- CO4- Basic idea of number of microstates, most probable distribution of particles in discrete energy states under different constraints.
- CO5- 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 :**Practical**

Course Code :PR-SC-A24

Course Out Comes

### **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.

**SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH**  
**Course Outcome (Annual)**

- 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 :Basics of Semiconductors & Devices

Course Code :SC-A20(A)

Course Out Comes

- CO1- Analyze the electric circuit using network theorems.
- CO2- To study basics of semiconductor & devices and their applications in different areas.
- CO3 - Reproduce the I-V characteristics of diode/BJT devices.
- CO4- To recall various BJT parameters, connections and configurations.
- CO5- Hybrid Equivalent and Hybrid Models.

**B. Sc ElectronicsI Year**

Title of Paper :Electronic Circuits and Fundamentals of Digital Electronics

Course Code :SC-A20(B)

Course Out Comes

- CO1- To Explain and Demonstrate Amplifiers
- CO2- To explain construction and characteristics of JFETs
- CO3- Understand and represent numbers in powers of base and converting one from the other, carry out arithmetic operations.
- CO4- Apply the knowledge gained of Multivibrators.
- CO5- Understanding of Oscillators.

**B. Sc ElectronicsI Year**

Title of Paper :**Practical**

Course Code :PR-SC-A20

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

Course Out Comes

### **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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- 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: Invertebrate

Course Code :SC-A25(A)

Course Out Comes

- CO1-To understand taxonomy and classification of invertebrates.  
CO2- To study about coelenterates as main food web of massive ecosystem.  
CO3- To study the helminthes considered as disease causing organism.  
CO4- To understand adaptable body plan of Arthropods.  
CO5- To study the molluscan with respect to economic importance.

### **B. Sc ZoologyI Year**

Title of Paper: Cell Biology & Developmental Biology  
Course Code :SC-A25(B)

Course Out Comes

- CO1- To understand the structure and function cell organelles.  
CO2- To know about cell division.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

CO3- To gain knowledge about nuclear organization of cells.

CO4- To understand – Gametogenesis, Fertilization, Parthenogenesis and Cleavage.

CO5- To know about concept of competence, determination, and differentiation.

CO6- To study extra embryonic membrane and development of frog and chick.

### **B. Sc Zoology I Year**

Title of Paper: Practical

Course Code :SC-A25

Course Out Comes

CO1- Study of General Characters of museum specimens of different phylums.

CO2- To understand Morphology and anatomy of earthworm, prawn and pila.

CO3- Study of development of frog and chick.

CO4- Study of cell division and special types of chromosomes.

### **B. Sc Zoology II 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 Zoology II Year**

Title of Paper: Animal Physiology and Biochemistry

Course Code :SC-A36(B)

Course Out Comes

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

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

### **B. Sc Zoology III 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 Mathematics I Year**

Title of Paper :Algebra and Trigonometry

Course Code :SC-A22(A)

Course Out Comes

CO1- Study definitions of matrix and find rank, inverse, Eigen values and Eigenvectors.

CO2- Application of matrix to solve linear system & system of lines equation for solving the problems up to three unknowns.

CO3- Student will understand relation between roots and coefficient, transformation and reciprocal Descartes' rule.

CO4- To understand logical concepts and show logical equation by using truth tables and ruler in logics.

CO5- Study different type of functions and Gregory's series and summations of trigonometrical series.

### **B. Sc Mathematics I Year**

Title of Paper: Calculus and Differential Equations

Course Code :SC-A22(B)

Course Out Comes

CO1- Learn How to find  $n^{\text{th}}$  derivation of function and apply Maclaurin's and Taylor's series,  $n^{\text{th}}$  derivation of product of two function by Leibnitz's theorem.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

CO2- Study tracing of curve in Cartesian and polar co-ordinates & test of concave, convex and point of inflexion

CO3- Study multiple integration, quadrature and rectification.

CO4- Student will be able to solve first order differential equation utilizing the standard technique for separable, exact, linear, Homogenous, Bernoulli's equation.

CO5- Student will be able to find the complete solution of Homogenous second order equation by finding complementary function and particular integral and also method of variation of parameters.

### B. Sc Mathematics I Year

Title of Paper : Vector Analysis and Geometry

Course Code : SC-A22(C)

Course Out Comes

CO1- Student will learn to differentiate vector, product of three vector in symbolic form and Gradient, Divergence and curl.

CO2- Student learn meaning of vector Integration and problems on it.

CO3- Student will understand the meaning of conic and How to trace in Cartesian and polar equation.

CO4- Student study equation of cone, right circular cone, cylinder and its properties.

CO5- Student study conicoids, paraboloids and generating lines.

### 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 quotient group also Lagrange's and Fermat's theory.

CO3- Understand meaning of Homomorphism and Isomorphism of group and permutation group.

CO4- Student study group Automorphism finite abelian and non-abelian group. Centralizer and normalizer.

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)

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

### Course Out Comes

- CO1- Gain skills sequences and series and list converging and divergence by applying different types of test.
- CO2- Understand the meaning of continuity sequential continuity and its properties, and chain rule of 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 solve series method of differential equation also learn generating function and orthogonality 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 differential equation.
- 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 basis dual ,Bidual Space Diagonalization, Bilinear, Quadratic and Hermitian form.

# SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH

## Course Outcome (Annual)

- CO3- Understand the Meaning of Inner product space and apply in gram-Schmidt orthogonalization process.
- CO4- Apply 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

- 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 : हिन्दीभाषाऔरनैतिकमूल्य

Course Code :AT-A01(A)

Course Out Comes

- CO1- राष्ट्रीय भावनाजाग्रतकरना ।
- CO2- भारतीय जनसामान्य की समस्याओंकोअवगतकरना ।
- CO3- कहानियों के माध्यम सेसामाजिकसमस्याओंसेअवगतकरना ।

**SADHU VASWANI AUTONOMOUS COLLEGE, BAIRAGARH**  
**Course Outcome (Annual)**

CO4- लोककलाऔरलोक जीवन सेअवगतकराना।

CO5- हिन्दीव्याकरणकासमान्य परिचय।

**F.C II Year**

Title of Paper : हिन्दीभाषाऔरनैतिकमूल्य

Course Code :AT-36(A)

Course Out Comes

CO1- छात्रोंमेंनैतिकताकाविकास।

CO2- राष्ट्रीय भावनाजाग्रतकरना।

CO3- कहानियों के माध्यम सेसामाजिकसमस्याओंसेअवगतकराना।

CO4- लोककलाऔरलोक जीवन सेअवगतकराना।

CO5- हिन्दीव्याकरणकासमान्य परिचय।

**F.C III Year**

Title of Paper : हिन्दीभाषाऔरनैतिकमूल्य

Course Code :AT-A21(A)

Course Out Comes

CO1- विद्यार्थियोंको मध्यप्रदेश की लोककलाओंलोकसाहित्य तथाप्राकृतिकसुंदरतासेपरिचितकराना।

CO2- छात्रोंमेंनैतिकताकाविकासराष्ट्रीय भावनाजाग्रतकरना।

CO3- कहानियों के माध्यम सेसामाजिकसमस्याओंसेअवगतकराना।

CO4 -लोककलाऔरलोक जीवन सेअवगतकराना।

CO5- जनसंचारतथा पत्रकारिता के माध्यमों के अध्यापनसेसंचारकौशलकाविकासकरना।