Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

Program Outcomes (2023-24)

Bachelor of Arts

PO 1 The students acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.

PO 2. The B.A. graduates will be acquainted with the social, economical, historical, geographical, political, ideological and philosophical tradition and thinking.

PO 3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.

PO 4.The B. A. program enables the students to aquire the knowledge with human values framingthe base to deal with various problems in life with courage and humanity.

PO 5. The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.

PO 6. Programme provides the base to be the responsible citizen.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

Marathi

B.A I SEM-I, II (Marathi)

1. Understanding the interrelation between literature and society.
2. Explaining the nature of language ,literature and writing.
3. Obtaining the skills of literary criticism.
4. Imbuing the letter writing and communication skills.
5. Illustrating the nature of literary forms like one-act-play, travellogue and short story.

(Marathi)

1. Introduction of the medieval Marathi language and literature.
2. Introduction of the contemporary literary works.
3. Acquiring the skill of translation.
4. Explanation of the need and significance of editing.

Poetry:

1. Acquaintance with oriental poetry.
2. Understanding the nature and features of poetry.
3. Creating the skill of critical appreciation of a poem.
4. Developing the poetic devices and their usages.

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ENGLISH

B.A. I , II, III (ENGLISH)

Program Outcomes (Pos)

1. After completion of the papers the students are introduced to competency of the communication skills. They come to knowthe methods of communication to improve their listening, writing, speaking and reading skills
2. To enable them practice those skills in their daily life.

Programme Specific Outcomes (PSO's)

A student, who has taken admission into this program of B.A with English as

specific subject of study, is expected to target on following outcomes.

a. Basic knowledge of English as a Language.

b. Major knowledge of English as Literature.

c. Basic knowledge of English Grammar.

d. Critical study of English Literary studies.

e. Relation between pleasure of literature and real life.

Course Outcomes (**CO's**) B.A.I, B.A.II and B A III (English Course)

1. Spoken communication and written communication.

2. Writing of Resume, letters of application, business letters.

3. Writing News-report, Essay, paragraph, review, etc.

4. Narration of experience, daily routine.

5. Interview Techniques.

6. Understanding and interpretation of poem, prose, essay, short stories, etc.

B.A.I, B.A.II & B.A.III (English Literature)

Program Outcomes (Pos)

1) To comprehend literary texts of ancient and modern literature written by great writers of English.
2) To acquire good knowledge with regard to the analysis of critical frameworks and methodologies for better interpretation of literature.

Programme Specific Outcomes (PSOs)

1) Reading : Students will get awareness about the best literary tradition. They can get confidence and power by living vicariously through well developed characters. Reading help the students to be aware with various perspectives. They will help to expand their range of experience.
2) Awareness about Culture and History: Students come to know about culture and history. They come to know about cultural tradition and can explain in their historical contexts.
3) Critical Insight: Reading help students for gaining a critical insight about the reality.

Course Outcomes (Cos)

Students are introduced to communication skills

1. Enjoyment of literature
2. Pleasure of literacy forms such as novel, poem, play, and essay.
3. Critical understanding of literature.
4. Relation between literature and real life.
5. Emotional development of human mind.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

ECONOMICS

Programme Specific Outcomes of Economics

- Understanding how different degrees of competition in a market affect pricing and output.
- Understanding the efficiency and equity implications of market interference, including government policy.
- Developing research knowledge in economics.
- Developing the skill of data collection & use of sampling techniques in research.
- Developing the knowledge about theories of economic growth & Development and issues of economic planning.
- Creating awareness about changing macro-economic policies and theories.

Course Outcomes of Economics

B.A. I Microeconomics

Nature and scope of microeconomics

Law of Demand and Law of supply and its implications in life

The importance of theory of profit and interest and its practicality

B.A-II Banks and Financial Institutions

- Understanding the meaning, function and role of commercial banking.
- Comprehending the procedure of an account opening, operating andclosing.
- Knowing the structure, function and role of RBI in economic development.
- Judging the progress of financial inclusion.
- Evaluating the importance, characteristics and components of the financial Market.
- Understanding the role and types of development banks and Non banking

financial intermediaries.

- Realizing the banking reforms and Basel norms-I and II.
- Identifying recent trends in Indian Banking such as E- Banking, MICR Clearing, ATMs, Credit cards and Debit Cards, Travelers Cheques, Gift Cheques, Demat Account.

Macro Economics

- Identifying the basic concepts and theories of Macro economics.
- Awareness about changing macro economics policies and theories.
- Understanding various concepts such as; GDP, GNP NNP, PersonalIncome, Disposable Income, Per Capita Income, and National Income.
- Identifying the factors determining gross domestic product, employment,the general level of prices, and interest rates.
- Realizing the law of markets, consumption function and investmentfunction.
- Judging the role of fiscal policy and monetary policy in a Developing economy.
- Knowing features, phases and theories of trade cycles.
- Evaluating types, merits and demerits of taxes.
- Comprehending the role of public finance in developing economy.

B.A III Indian Economy

- Understanding characteristics, features, structural changes in Indian Economy.
- Comprehension ofthe nature and impact of New Economic Reforms onthe Indian Economy.
- Knowing the problems of unemployment, poverty, rising economic andsocial inequality and problems of regional imbalances in India.
- Evaluating the changing role of agriculture, industrial and service sectorand foreign sector in Indian Economy.
- Measuring the problems and prospects of cottage and small scale industries, and industrial sicknesses.

 Measuring the growth, volume, composition and direction of India's foreign trade and capital inflow since 1991.

B.A. POLITICAL SCIENCE

Program Specific Outcomes

1. Knowledge about political system of the nation.
2. Study of national and international political affairs.
3. Study from competitive examination point of view.
4. Understanding the government mechanism, its functions, duties and responsibilities.
5. Creating appropriate and efficient political leaders.
6. Getting knowledge of political law.
7. Getting knowledge of Constitution of India.

Course Outcomes

B.A.-I : Indian Government and Political System

1. Acquiring the knowledge about Indian Constitution.
2. Getting awareness about one's rights and duties.
3. Getting information about political parties and system of justice in India.
4. Knowing about the problems and challenges in Indian politics.

B.A.II: - Government of Maharashtra

1. Getting information about the historical survey the formation of Maharashtra State.
2. Study of the local governing mechanism.
3. Developing leadership at local level.

Indian Political Thinking

1. Study of the Indian Political Thinking and their thoughts.
2. Study of the contribution of political thinkers in independent movements and

their need for modern society.

B.A.III -Public Administration

1. Study of the administrative system of the nation.
2. Getting information about various concepts in Public Administration.
3. Study of the mechanism for the solution of problems in Public Administration

The Constitution of America, China & Sweden

1. Getting information about the system of the Constitution and Government
2. Study of different constitutions comparatively.

International Relationship :-

1. Study of the international political system.
2. Study of the international & regional organizations.
3. Study of the relations of India with neighboring countries.

Western Political Thinkers :-

1. Getting information about western thinkers and their political thoughts.
2. Comparative study of the ancient thoughts and modern thoughts.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.A. SOCIOLOGY

Program Specific Outcomes:

a) Acquaintance with social transactions, social relations, social formations, social control, social values and culture.

b) Knowing the significance of social institution, caste system, religion, nationalism, integrity, equality and justice.

c) Getting the knowledge of the works of social reformers all over the nation.

d) Ability to follow new stream of thoughts and theories of social thinkers.

e) Getting the deep knowledge about various social groups like tribal community, women bulk etc.

f) Ability to deal with research in sociology.

BA I-SEM-I: Introduction to Sociology

1) Fundamentals of sociology enables the student to understands the basics of Sociology.
2) Enhanced basic needs and social complexities speedy life enhances the importance of Social Sciences
3) Correlation between other social sciences
4) Scientific study of Structural functional approach and dialectical approach
5) Definitions characteristics and importance of Basic concepts, Society, community, group.
6) Status and role of social institutions , Social values , Social norms and Social Control .

BA I-SEM-II: Introduction to Sociology

1) Individual and society, culture and Socialization
2) Concept of Family and Marriage
3) Introduction to Social movement
4) Social Stratification and Social Change

BA II-SEM-III: Indian Social Problem

1) Nature of Social Problems and types
2) Approach towards Social Problem
3) Family Problem : Dowry, Divorce and Violence against women
4) Impact of Population Explosion
5) Problems of Rural India: Migration, Unemployment, Farmer Suicide
6) Drugs addiction and Cures

BA II-SEM-IV: Indian Social Problem

1) Definition and Nature of Corruption and ill impact.
2) Terrorism : Objects, Historical Background, Law
3) White Collar Crime
4) Indian Schedule Caste and Tribes
5) Challenges of Urbanization
6) Slum, Crime, Juvenile delinquency
7) Social riots, Intolerance and Racism

BA III-SEM-V: Social Anthropology

1) Meaning, Nature and Emergence of Social Anthropology
2) Methods of Social Anthropology
3) Indian Tribal Society: Characteristics, Classification
4) Tribal Religion: Role and Impact of Magic
5) Tribal Economy: Classification and Concept

BA III-SEM-V: Social Anthropology

1) Tribal Marriage System: Tradition and Problems
2) Tribal Family: Nature, function and lineage
3) Tribal totem , Needs of youth
4) Social Problems in Indian Tribes : Illiteracy, Poverty, Debt Settlements and inflation
5) Tribal Development: Policies and Challenges

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.A. History

1. History unables the students about the development of human imaginative power .
2. It arouses feelings of patriot, self patriot and pride
3. History enhances outlook of students
4. Increases the roots of civilization in the mindset of students
5. Helps to build social responsibility, leadership and overall development
6. Develop instill moral values among the students
7. It develops courage, audacity, fearlessness, adventure and patience
8. It helps in competitive examinations
9. It develops an idea of existing and historic political, social, economical and cultural backgrounds

BA I-SEM-I History of India from earliest time 1205 AD

1. Recognition of ancient Indian histories literature and physical means
2. The study of Haddapan civilization helps to inculcate the interest in civic town planning and Vedic immense knowledge pool.
3. Comprehension of Philosophy of Jain and Budha Religion helps to inculcate patience, good behavior , equality, character building and peace lovingness among the students .
4. Human welfare schemes of Samrat Ashoka helped to harness liberal view
5. Spirituality and self belief and respect inculcated in the students .
6. Public interest and welfare schemes of Gupa edge helped to understand the modern daypublic administration.
7. The study of world famous varsity ' Nalanda' inculcated the interest in education and reading.

B.A I SEM-II (History of India from earliest time 1206-1525 AD)

1. Emergence of Sultanshahi from the darkness of Slavery helped to harness self confidence in the students. The study of Mohd. Tughalak harnessed commercial management.

2. Addiction to bad habits leads a powerful person to face weakness , it enhanced precariousness in students

3. The most powerful empires couldn't stand without public support this helped to harnessed democratic behavior

4. The study of Sufi and Bhakti movement helped to create religious harmony

5. The paper helped to create a universal vision and ideal citizen

B.A. II SEM –III (History of India from 1526-1756 AD)

1. The study of water resource management in the Mughal era helped to tackle modern day water crisis.

2. The study of Chatrapati Shivaji Maharaj and Sambhaji helped to inculcate bravery, courage, audacity, self control and the equality among the students. It also helped to understand the necessity of government and governance with social welfare vision.

3. The Maratha Freedom war helped in harnessing the inspiration and freedom fighter ultimately wins is impregnated .

B.A. II SEM-IV (History of India from 1757-1947 AD)

1. The study of Lord Doullhoussi and Lord Welassley harnessed prognostication, diplomacy, ambition.

2. Lord Corniwalis's Land Revenue System encouraged the ambition to be always ready to safeguardour national interest.

3. Modern education system initiated by British empire helped to build a sense of social responsibility and developmental vision.

4. The Gandhian thoughts impacted the vision of students and inculcated the importance of sattyagrah and non violence.

B.A. III SEM-V History of Modern World From 1780-1920 AD

1. The students should have an integrated view of the process of change in the society, Economy and Civilization in the contest of Political Development.

B.A. III SEM-V History of Modern World From 1921-1965 AD

1. The students should have an integrated view of the process of change in the Society, Economy and civilization in the contest of Political Development.

2. Nationalism and formation of INC

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

BA Home Economics

BA I- SEM- I

1. To introduce the students to the field of home economics
2. To create an awareness among the students about resources and their management in the family
3. To make aware about decision making and to enhance the decision making capability of the women
4. To provide knowledge and develop skills regarding principals and methods of interior decoration
5. To develop skill regarding preparing the bouquets and flower arrangements for decorationand enhance the chance of employment

B.A. I-SEM-II

1. To acquire basic knowledge of principals involved in planning of residential house
2. To learn and apply various methods and techniques of work simplifications
3. To develop employability skills and earning while learning
4. To bring awareness about waste management and water conservation for environment protection
5. To train the students for self employment

B.A. II SEM-III

1. To understand the basic concept of nutrition
2. To gain the knowledge of food and its functions and nutritive value
3. To develop abilities to plan diets for various stages
4. To inspire the entrepreneurship

B.A II- SEM- IV

1. To understand the basic concept related to nutrition
2. To develop abilities to plan diets for various diseases
3. To understand the methods of food preparation and food preservation
4. To encourage the students for self employment
5. To aware the work of different agencies in the area of health

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B.A III – SEM V

1. Major concept of human development
2. Maternity and child welfare
3. Premature babies and their care
4. Problems of childhood
5. Importance of immunization

B.A III –SEM VI

1. Importance of environment in development of child
2. Factors affecting physical development
3. Discipline Merits and Demerits
4. Motor development, Speech development and social development
5. Importance of parent child relationship

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

Program Outcomes

Bachelor of Science

PO 1. The B. Sc. Programme develops scientific temperament and attitude among the science graduates.

PO 2. The qualities of a science – observation, precision, analytical mind, logical thinking, clarity of thought and expression, systematic approach, qualitative and quantitative decision making are enlarged.

PO 3. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice .

PO 4. This programme train the learners to extract information, formulate and solve problems in a systematic and logical manner.

PO 5. This programme enables the learners to perform the jobs in diverse fields such as science, engineering, industries, survey, education, banking, development-planning, business, public service, self business etc. efficiently.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.Sc.- (Chemistry)

Program Specific Outcomes

1 Creating interest in environmental issue.

2 Increasing working knowledge of instruments.

3 Obtaining the knowledge of pharmaceutical tables4

Social awareness about the quality of water.

5 Increasing the practical skill of the students6

Awareness about plastic garbage.

Course Outcomes

Physical chemistry

1 Developing problem solving skills.

2 Developing scientific knowledge.

3 Developing working knowledge of instrument.

Inorganic Chemistry

1. Developing ability to apply the knowledge on contents of principles of chemistry.

2. Developing the power of appreciation, the achievement in chemistry and rolein nature and society.

Organic Chemistry :

1. Exposure to elemental chemistry

2 Developing proper aptitude towards the subject.

3. Creating scientific approach towards various chemical reactions.

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B.Sc.- (MICROBIOLOGY)

Program Specific Outcomes

1. Understanding about cultivating the pure bacterial cultures from soil, water, air, milk, etc.

2 Ability to use laboratory instruments like spectrophotometer, colorimeter, LAF, PH meter, Electrophoresis, Compound microscope, Centrifuge.

3 Preparing for a career in a pharmacy and medical related business or industries.

4 Ability to plan the small-to-mid-size laboratories and industries of their own. 5 Effectively utilizing the knowledge of microorganisms to develop sustainable solutions to current and future environmental problems.

6 Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a microorganism based industries.

Course Outcomes

B. Sc. I Fundamentals of Microbiology & Microbial Physiology (Paper I)

1. Awareness about basics of microbiology.
2. Introduction to different techniques.
3. Realization of scope of microbiology.

B.Sc I Microbiology, Biochemistry, Biostatistics and computer:

1. Mechanism to handle microscope.
2. Making a contamination free laboratory.
3. Getting the idea about control of Microorganisms.
4. Carbohydrate, Protein, Lipid, Nucleic Acid Sythesis
4. Brief ideas about staining techniques
5. Introduction to Biostatistics and Computer technology

B.Sc I Introduction of Medical Microbiology, Microbial Techniques and

Bioinstrumentation:

1. Studying basic knowledge of pathogens, diseases and their control.

2. Knowledge about different techniques used for microorganisms isolation is inculcated among students.

3. Instrumental knowledge and their use along with awareness to equipments is studied.

B.Sc II Molecular Biology and Genetic Engineering (Paper III)

1. Ability to apply the knowledge in Genetics ,Genetic engineering & Biochemistry

2. Acceptance of the challenges in genetic.

3. Knowledge of microbial techniques.

4. Knowledge of bacterial genome replication.

5. Knowledge of creating and recombinant bacteria.

6. Idea to Design the genetically modified organisms

7. Demonstrating and educating different streams in microbiology.

8. Understanding methods and tools to design, implement knowledge in today's world issues.

9. Knowledge of basics in microbial biochemistry.

10. Knowledge about application of enzymes, proteins in industries and pharmaceuticals.

11. Understanding the depth of molecular microbiology.

12.Developing awareness for understanding of ongoing issues.

B. Sc I Medical Microbiology (Paper IV):

1. Knowledge of the underlying principal of immunology and its application in solving problems in biology systems.

2. Dealing with clinical and emerging areas in immunology such as immune mechanisms that protect against pathogens and the implication for vaccine development and global health.

B. Sc III Environmental Microbiology & Bioinstrumentation: (Paper V)

1. Knowledge of environmental factors and pollution issues.
2. Recognize the polluted water and treatment using proper methods.
3. Awareness for hygienic practices.
4. Biointrumentation: Knowledge of various instruments for applicability

B. Sc III Industrial Microbiology:

1. Getting knowledge related to foodstuffs and contamination of food products.
2. Understanding industrial use of microorganisms.
3. Learning different topics of food poisoning, toxication and develop probiotics.
4. Educating concepts and techniques currently used in the area of Industrial Microbiology.
5. Getting known with industrial methodology
6. Understanding classification of industrial products and their use.
7. Brief idea about statistical analysis of data.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.Sc.- (Computer Science)

Program Specific Outcomes

A Effectively communicating computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation.

B. Ability to use approximately system design notations and apply system design engineering process in order to design, plan and implement software systems.

C. preparing for a career in an information technology oriented business or industry or for graduate study in computer science or other scientific or technical fields.

D. Ability to complete successfully to program small –to-mid-size programs on their own.

E. Effectively utilizing the knowledge of computing principles and mathematics theory to develop sustainable solutions to current and future computing problems.

F. Developing and implementing solution based system and/or process that address issues and/or improve existing systems within a computing based industry.

Course Outcomes

Introduction to Computer & Modern Operating Environments (B. Sc I):

1. Understanding the fundamental hardware and software components that make up a computer.

2. Understanding the difference between an operating system and application program, and what each is used for in a computer.

3. Performing common basic functions like editing, formatting, printing, scanning etc using tools.

4. Ability to sort data, manipulate data using formulas and functions and add and modify charts in a worksheet.

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Introduction to Programming in C (B. Sc I)::

1. Ability to develop applications.

2. Creation algorithms and flowcharts to solve simple programming problems.

3. Understanding to design, implement, test, debug a program that uses calculations, loops, array, function, pointers, structure etc.

4. Memory management using C.

Introduction of Database and HTML (B. Sc I)::

1. Knowledge of Database concepts, data model, Relational Algebra.

2. Knowledge of basic SQL queries.

3. Knowledge of Internet Basics.

4. Understanding methods and tools to design, implement, test web pages and develop Web Application.

Fundamental of Software Engineering (B. Sc II):

1. Understanding how to work as an individual and as part of a multidisciplinary team to develop and deliver quality software.

2. Demonstrating an understanding of and apply current theories, models, and techniques that provide a basis for the software lifecycle.

3. Understanding methods and tools to design, implement, test, document, and maintain a software system.

4. Communicating effectively and professionally both in writing and by meansof presentations to both specialist and a general audience.

Object Oriented Programming Using C++ (B. Sc II):

1. Using the characteristics of an object-oriented programming language in a program.

2. Using the basic object-oriented design principles in computer problem solving.

3. Programming with advanced features of the C++ programming language.

4. Using C++ classes for code reuse.

Relational Database Management System (B. Sc II):

1. Understanding the purpose and differences between Database models.
2. Knowing the design and implement relational database.
3. Designing and implementing SQL queries for both data manipulation and data definition tasks.
4. Knowing about protecting data from physical harm and unauthorized access with user access privileges.
5. Designing and executing programs using PL/SQL.
6. Getting known of new software application i.e. MYSQL for designing database.

Computer Network (B. Sc III):

1. Understanding the concepts, vocabulary and techniques currently used in the area of computer networks.
2. Getting known with wireless networking concepts.
3. Understanding classification of network, transmission impairments, Data transmission methods etc.
4. Understanding installation of Windows Server 2008 and managing active directory.

Visual programming using C# (B. Sc III):

1. Design, document, code and test C# console and GUI applications
2. Building and using classes, events, methods, properties.
3. Design and implement Web Applications using ASP.NET.
4. Understand and use of different validation controls.
5. ADO.NET database application.

Linux Operating System (B. Sc III):

1. Understanding the Linux Architecture, use of basic command and to explain

administrator privileges, super user basic command to add, modify and delete users and to understand basics of File systems.

2. Understanding the Directory commands, File related commands and changing file permission and directory permission. To understand VI editor basics. Pattern searching and search and replace commands.

3. Understanding shell basics, connecting commands and Basics and Extended regular expressions, the grep and egrep and shell programming.

4. Understanding shell programming, logical Operators, File Links and to understand process creation and decision making looped control structures.

PHP and MySQL(BSc III):

1. Getting the PHP Programming skills needed to successfully build interactive, data driven sites.

2. Understanding working of XAMPP server and working of different array functions to insert, retrieve, display and sort array elements.

3. Understanding how to develop web applications in PHP using MySQL.

Network Technology and Windows Server 2008(BSc III):

1. Understanding reference models in networking like ISO/OSI reference model and TCP/IP reference model.

2. Introducing switching, multiplexing and demultiplexing techniques.

3. Getting knowledge of file sharing and security in windows server 2008.

4. Understanding group, group policy and inheritance of group policy etc.

Java Programming (B. Sc III):

1. Knowledge of creating java programs that solve simple business problems.

2. Knowledge of compile and execute java programs using class, object, constructors, destructors, inheritance, etc.

3. Knowledge of creating and using of packages, multithreading, exception handling.

4. Design and implement Applets programming and AWT.

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E-Commerce (B. Sc III):

1. Knowledge of technologies supporting E-commerce, including web services and electronic payment system.

2. Recognition of fundamental principles of E-business and Knowledge about Electronic Data Interchange.

3. Analysis of real business cases regarding their E-Business strategies and transformation processes and choices.

4. Knowledge about security threats and security solutions in e-commerce.

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.Sc. Mathematics

Program Specific Outcomes

1 Ability to calculate and reason to design complex and critical financial models for Bank and Insurance Companies.

2 Ability to understand both concrete and abstract problems.3 Ability to make critical observations.

4 Ability to accurately organize, analyze and interpret data.

5 Develop the mathematical logic which is very useful for solving mathematical reasoning problems.

Course Outcomes

B.Sc-I SEM-I Paper I (Algebra & Trignometry), Paper II (Calculus), PaperIII (Geometry) Paper IV (Differential Equations)

1. Developing the interest towards mathematics.
2. Creating the relationship of mathematics with other subjects.
3. Developing the understanding and fluency in mathematics thorough inquiry and connecting mathematical concepts.
5. Developing knowledge about limit continuity and differentian.

B.SC-I SEM –II Paper-III (Differential Equations) Paper IV- (Vector Analysis & Solid Geometry)

1. Developing the knowledge of applications of derivative and integration, etc.
2. Developing several perspectives of differential equations.
3. Developing interest about directional derivatives and line integral.
4. Developing the knowledge about polynomial equations
5. Developing the knowledge of how to draw graphs, paths, walks and curvatures.

B.Sc-II SEM-III Paper V (Advanced Calculus) Paper VI (Elementary number theory)

1. Developing the knowledge about double & Triple integral
2. Developing skill of finding the root of various polynomials.
3. Developing knowledge about limit continuity and differentian.

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B. Sc-II SEM-IV Paper VII (Modern Algebra), Paper VIII (Classical methods)

1. Developing the knowledge of real number and real valued functions .
2. Studying the properties of real numbers (Ries2 space and positive operators).
3. Developing acknowledgement about ring and group theory
4. Computation the trajectory of a spacecraft requires the accurate numerical solution of a system of ordinary differential equations.

B. Sc-III SEM-V Paper IX (Mathematical analysis), Paper X (Mathematical Methods)

1. Inculcating about analytic functions
2. Increasing the knowledge about limit continuity of complex functions
3. Introducing laplace transformation and its property

B. Sc-III SEM-VI Paper XI (Linear Algebra), Paper XII (Optional: Special theory of Relativity/Graph Theory)

1. Exposure to linear transformation and its properties
2. Increasing the knowledge about vector space and dual spaces
3. Introducing homomorphism, isomorphism of a linear transformation
4. Review of newtonian mechanics and relativelistic kinematics
5. Geometrical representation of space and time
6. Developing the ideas about different types of matrices
7. Knowledge about graphical representation , various circuits .

Smt. Sindhutai Jadhao Arts & Science Mahavidyalaya, Mehkar, Dist Buldana

B.Sc.- (Physics)

Program Specific Outcomes

1 Identifying and describing physical systems with their professional knowledge.

2 Developing their scientific intuition, ability and techniques to tackle problems either theoretical or experimental in nature.

3 Knowledge of general physics like sound, wave, friction, forces and laws of motion and use of mathematics.

4. Information of electrical current, circuits, construction and their use.

5. Learning about concepts of nuclear physics and nuclear energies and importance of their use for mankind.

6. Knowing about the light and its importance in life, its characteristics, properties and use in various instruments

Course Outcomes

B.Sc. I SEM- I Physics

By the end of this Course students should be able to know about:

1. Different types of motions in nature

2. Difference between translational motion and rotational motion

3. Various elastic constants and property of Elasticity.

4. Surface tension and its applications.

5. Experimental skill development

B.Sc. I SEM- II Physics

By the end of this Course students should be able to know about:

1. Oscillations and waves and their properties.

2. Use of waves in general life.

3. Optics and properties of light.

4. What are the optical instruments and their developments.

5. Kinetic theory of gases

6. General information of various types of gases and theories related to it.

7. How gas can be liquefied? What are the conditions for liquefactions of gases?

8. Thermal properties of gases and various laws related in thermodynamics.

9. Transport phenomena in gases.

B.Sc. II SEM-III Physics

By the end of this Course students should be able to know about:

1. Vectors and scalar and mathematical applications.

2. Processional motion and properties of the body.

3. Elasticity of flat spiral spring.

4. Viscosity of liquids and mathematical theory related with it.

5. Solid state electronic device and mathematical background

6. Special theory of relativity

B.Sc. II SEM-IV Physics

By the end of this Course students should be able to know about:

1. Geometrical optics and interference explaining Lens system

2. Diffraction and its types

3. Concept of polarization

4. LASERS and its applications

5. Fiber optics and classification energy sources and its uses.

B.Sc. III SEM- V Physics

By the end of this Course students should be able to know about:

1. Applications of quantum mechanics

2. Applications of molecular spectroscopy

3. Nuclear physics and its types

4. Negative and Positive feedback and its advantages

B.Sc. III SEM- VI Physics

By the end of this Course students should be able to know about:

1. Statistical mechanics and its types
2. Types of solid, crystallography and characterization of solids
3. Applications of electrical properties and band structure
4. Magnetic properties of material and classification
5. Applications of Superconductivity and nano technology

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B.Sc. BOTANY

Program Specific Outcomes

1. Identifying different resources helpful for human life.

2. Identifying different groups of plants

3. Acquiring knowledge about inheritance, biochemical and metabolic activities.

4. Development of horticultural skill.

5. Acquiring knowledge about importance of environment.

Course Outcomes B.Sc –I Sem- I Diversity and applications of microbes and cryptogams. (Algae, Fungi, Bryophytes and Pteridophytes.)

1 Developing interest in plant diversity.

2 Developing skill of identification of Algae, Fungi and Bryophytes.3

Creating interest in biological industry.

B.Sc –I SEM-II- Gymnosperm, Angiosperm and utilization of plants

1. Economic and biological importance of Gymnosperm.

2. Inculcating identification skills for morphological and anatomical characteristics

3. Developing the interest of flowering plants

4. Diversity in vascular plant.

5. Characters of vascular plants and classification of plants.

6. External & internal characters of plants.

1. Acquiring basic knowledge about biochemical, physiological mechanism in plants.

2. Imparting knowledge of Horticulture.

B.Sc –II SEM- III -Diversity in vascular plants. B.Sc –II Paper IV - Pteridophytes, Gymnosperms, Angiosperms and Anatomy.

The student can understand the knowledge about Pteridophytes, Gymnosperms, Angiosperms and Anatomy

B.Sc –I Paper IV- Cytology, Genetics and utilization of plants.

The student can understand the knowledge about Cytology, Genetics and utilization of plants

B.Sc –II PaperVIII- Cytogenetic and utilization of plants.

Students should be able to know

1. Structure of cell.
2. Types of organisms and characteristics.
3. History, distribution, structure and functions of different cell organelles,
4. Transmission of character
5. Mendelism.
6. Resource of plants to fulfill the basic needs.

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B. Sc. ZOOLOGY

Program Specific Outcomes

1. Improving the knowledge about criteria for animal classification.
2. Study of salient features of chordates and non-chordates.
3. Improving the knowledge of animals about their special adaptations and evolutionary relationship.
4. Scientific study of their nature of habitant with environment.
5. Improving information about external morphology and anatomy of animals including human being.

Course Outcomes

B.Sc.I. (Sem.I) Animal Diversity and Non Chordata- Paper I

1. Understanding the arrangement of organism or groups of organism in distinct categories in accordance with particular & well established plan.
2. Explanation of unity in diversity of organism.
3. Studying specific & scientific names to organism.
4. Collecting information about useful and harmful animals, helps in understanding the nature of habitant.

B.Sc.I. (SEM-II) CELL BIOLOGY AND DEVELOPMENTAL BIOLOGY.

1. Understanding the structure and function of cell & cell organelles , to study animal tissue to improve knowledge about genetic information, it study how organism evolve from a single cell division, get knowledge about unicellular & multi-cellular organisms
2. Understanding normal function of cell, organ or tissue.
3. Study of structure function, molecular organization, growth, reproduction and genetics of cell.

B.Sc. II (SEM-III) Evolution & Genetics And Life and Diversity of Chordata

1. Study of chemistry within living organisms.

2. Study of chordata in detail

3. Study of evolutionary processess

B.Sc. II (SEM IV)- Ecology And Genetics

1. Improving environmental component such as biotic and biotic factors.

2. Study of how each organism interlock with one another.

3. Perceiving prey predator relationship, study interrelationship of different organisms, to know about distribution of organism with reference to the geographical conditions, to improve knowledge related to undesirable change in physical, chemical or biological characteristics.

4. Study of tropic level of food chain.

5. Understanding evolutionary history of certain animals, study their sericulture which is one of the longest agro industries & silk is used in the manufacture of woven materials.

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B.Sc. III SEM-V- Animal Physiology and Economic Zoology

1. Improving proper knowledge about histology of animal tissue, organ, understanding physiology of animals including external features & internal features used in pathology lab for detecting malfunction which leads to disorders, physiology useful for study of normal function of body plan for their molecular level.

2. Enhancing the knowledge about respiration, circulation, Muscle and Nerve physiology.

3. Commercial exploitation of zoology providing the business opportunity to students e.g.Apiculture, Sericulture, Aquaculture.

B.Sc.III SEM-VI- Molecular Biology and Biotechnology

1. To improve the understanding about the structure, function and makeup of the molecular building blocks of life.

2. Study the molecular basis of biological activity between biomolecules in the systems of cell.

3. Biotechnology is most important for its implications in health and medicine.

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Physical Education:

1. Students get acquainted with outdoor games, indoor games, Yoga, exercise gymnasiumwhich leads to healthy life.

2. Physical education enhances the concern towards health and physical capabilities of the students.

3. It encourages the students to participate in various competitions on university , state and national level

4. It gives an idea about the importance of extracurricular activities along with the studies and help to build a multidimensional personality of the student.

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Program Outcomes

(B.Voc.)

PO1. The B.Voc. students acquire knowledge in judicious mix of skills relating to a profession and appropriate content of General Education. To provide vertical mobility to students coming out of 10+2 with vocational subjects

PO2. To ensure that the B.Voc. students get adequate knowledge and skills, so that they are work ready at each exit point of the programme.

PO3. To provide flexibility to the students by means of pre-defined entry and multiple exit points

PO4. To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements.

Program Specific Outcomes

The College run the programs in Sector Skill Council Sector – **Agriculture, Automobile, Accounting and financial Services, Medical Laboratory Technology and Tourism and Hospitality.** The Program Specific Outcomes are defining as under.

PSO1. To equip students with appropriate knowledge, practice and attitude, so as to become work ready in the field of industry sector.

PSO2**.** To let the Students acquire National Occupational Standards (NOSs) of specific job roles within the industry sector.

PSO3. To provide the Students comprehensive specialization in one or two domains in the field of industry sector.

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Program Outcomes (2023-24)

Name of the Programme: M.Sc. Subject: Zoology

POs: The post graduate course of Zoology will provide theoretical as well as experimental knowledge as per the Courses included under the syllabi by which build up creativity in students will lead towards thorough learning and development of ideas of research work and will become ready to face recent challenges. Students can attain the employability skills through the experiences based on their practical knowledge. After completion of MSc in Zoology successfully, the students would be able to……

1. Demonstrate the significance of the topics of syllabi and evaluate its relevance. Think creatively for its gravity and develop ideas.

2. Interpret scientific ideas and can do its analysis. Create experiments independently and draw inferences by sharing it with others.

3. Derive information from various digital sources. Develop skills for scientific writing and present the data and analyse it scientifically.

4. Articulate scientific ideas lay down a hypothesis; design the pathway to develop research ideas.

5. Acquaint skills in handling the instruments and different techniques through practicals and developing the scientific temperaments for research.

6. Develop competence through healthy atmosphere and quality intercommunication with different groups.

7. Understand environmental and sustainability issues and its sensitivity in relation to regional relevance.

8. Get the facility of different training and internship programs through job-oriented curriculum 9. Utilize the sources confidently and independently and develop self-sustenance.

PSOs: Upon completion of the Programme successfully, students would be able to …….

1. Learn to prepare the checklist and inventories through the identification of the fauna in local areas being Melghat Tiger Reserve and Pohra Forest are very nearer to survey.

2. Gain comprehensive knowledge about different animals and develop confidence to handle them during research work.

3. Interpret metabolic pathways, their correlation in concern with prokaryote and eukaryotes.

4. Compare genetic aspects, genetic traits, diseases and their specific causes.

5. Survey and analyse data of the various kinds of diseases in the locality.

6. Understand various strategies and phenomena related to animal reproduction and their development.

7. Get acquainted with conservation strategies and environmental threats to reduce and save energy through Wildlife Week Celebration.

8. Compare the different developmental events during embryogenesis of different animals.

Course Outcomes

After Completion of this course Field Biologist or Ecologist in different govt. establishments like NTCA, Division Office, Wildlife Wings Wildlife Consultant EIA Report Designing Firm,

- Wildlife Conservation Educator in NGOs like WWF, WCT, WTI,
- Conservation Geneticist in research organisations,
- GIS Specialist in Govt Establishments,
- Environmental Impact Assessment (EIA) Specialist: Assessing the potential impact of development Projects
- on wildlife and proposing mitigation measures. Wildlife Forensics Specialist in research labs
- Research Associate or Assistant: Assisting senior researchers in wildlife conservation projects and Data analysis.
- Wildlife Photographer or Filmmaker: Using visual media to raise awareness about wildlife Conservation and natural habitats.
- Wildlife Tour Guide or Naturalist: Conducting guided tours in wildlife sanctuaries, national parks, or Eco-tourism sites.
- Wildlife Project Manager: Overseeing and coordinating conservation projects aimed at protecting Specific wildlife species or habitats.
- Environmental Educator: Developing and delivering educational programs related to wildlife Conservation and environmental protection.
- Environmental Scientists, Ecologist, Environmental manager, scientific technical writer, zoo manager, Lab technician

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Name of the Programme: M. Sc. Physics (NEPv23)

POs: The MSc Physics programme equips students with advanced knowledge, general competence, and analytical skills that are required in industry, consulting, education, and research. On completion of program, it will-

1. Instill an inquisitive mindset in the students so that they are capable of independent and critical thinking.

2. Train-up the students in such a way that they can objectively carry out investigations, scientific and/or otherwise, without being biased or without having any preconceived notions.

3. Apply the knowledge and skill in the design and development of Electronics circuits to fulfil the needs of Electronic Industry.

4. Become professionally trained in the area of electronics, optical communication, nonlinear circuits, materials characterization and lasers.

5. Develop research problems related to Physics and Materials characterization and applications.

6. As technology exploits the rules of Physics, students properly trained in Physics2 can be good researchers in the field of technology too.

7. Demonstrate highest standards of Actuarial ethical conduct and Professional Actuarial behavior, critical, interpersonal and communication skills as well as a commitment to life-long learning.

PSOs: The specific outcomes will-

1. Understanding the basic concepts of physics particularly concepts in classical mechanics, quantum mechanics, statistical mechanics, electrodynamics and electronics to appreciate how diverse phenomena observed in nature follow from a small set of fundamental laws.

2. Learn how to perform experiments in basic as well as advanced areas of Physics such as Nanomaterials, Condensed Matter Physics, Electronics and Photonics.

3. Analytical and integrative problem-solving methodologies are developed through research-based learning.

4. Prepare the students to pursue research careers, careers in academics, in industries in physical science and in allied fields.

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Course Outcomes

MSc Physics programme developed the skills, particularly the ability to analyze and apply information, gives one a good head start, in any field, one wishes to get in. The skills are useful even in the management disciplines. This programme gives physics enthusiasts a chance to develop their mathematical, problem solving, communication skills and critical thinking, that helps to interpret rich scientific data and that is always a boon to scientific researchers.

Sure, makes one increase his/her employability in this field. M.Sc Physics can easily avail of 3 technical jobs, both in the private and public sector. Some of the common job positions or profiles for a physics enthusiast are Online tutor, College lecturer, Assistant Professor, Observation Scientist, Laboratory Technician, School Science Technician or Research Analyst, Assistant Scientist, Physics Training Manager, Software Engineer, Network Administrator, IT Consultant, Security Expert, Java Developer, Systems Support Administrator, Interface Engineer etc. They can apply for jobs in Aerospace and Defence, Automobile, IT and Software, Railways, Nuclear and Renewable energy, Oil and Gas, Electronics and Telecommunications and the Manufacturing sector.

MSc Physics can pursue an MTech/MS degree in a variety of engineering or technology disciplines such as aeronautical, automobile, instrumentation, electronics and communication, or computer sciences. But, make sure to crack the GATE (Graduate Aptitude Test in Engineering) exam first, before going down this road.

For a long career in the field of research, students are advisable to pursue MPhil or PhD in Physics, after completing MSc Physics and join any science/technology research center. Students can also apply in Government or private colleges and universities; polytechnic institutes, degree colleges, engineering colleges, IITs, IISc etc for teaching job. The minimum requirement is MSc Physics and UGC-CSIR NET exam for lectureship and JRF. Moving on, an MSc Physics followed by a BEd can also land you a job in higher secondary schools and then, there is the option of physics tutor, at the convenience of one's homes. Some of the prominent national organizations, that student can try aim for, include Defence Research and Development Organisation (DRDO), Indian Space Research Organization (ISRO), BARC, SSPL, Space Application Centres, Indira Gandhi Centre for Atomic Research Centre, Variable Energy Cyclotron Centre, National Thermal Power Corporation (NTPC), Oil and Natural Gas Corporation (ONGC), Bharat Heavy Electricals Limited 4 (BHEL) and National Atmospheric Research Laboratory of Department of Space.

The research institutes in India such as Physical Research Laboratory, Ahmedabad, Saha Institute of Nuclear Physics, Kolkata and Nuclear Science Centre, New Delhi, TIFR (Education); IISER also recruit MSc Physics graduates, for technical jobs. At the same time, student can also look out for the national laboratories and institutes like National Geographical Research Institute, Regional Research Laboratories, National Institute of Science Communication and Information Sources, NEERI (CSIR labs) etc. These are some

of the leading names to be associated with the field of science. Moving further, student can try for public sector banking to the post of Probationary Officers.

MSc Physics graduates have ample of opportunities, be it, in healthcare, manufacturing and electronics companies in most foreign countries. Those with exceptional academic excellence can go a step further and apply in the best space research organizations such as National Aeronautics and Space Administration (NASA).

After completion of this programme, the students are placed as Scientists, Radiologist, Meteorologist, Analyzers in forensic labs, IAS, SDO, Dy Superintendent of Police in wireless stream, Assistant Professors, Lecturers, Teachers, Radiologist, Telecom officers.

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Name of the Programme: M. Sc.Chemistry (NEPv23)

PO1: Creative Thinking: Students will be able to think creatively (divergently and convergent) to propose novel ideas in explaining facts and figures or providing new solution to the problems in chemistry. The skills of observations and drawing logical inferences from the scientific experiments will also be developed.

PO2: Interdisciplinary Approach: Students will realize how developments in any science subject helps in the development of other science subjects and vice-versa and how interdisciplinary approach helps in providing better solutions and new ideas for the sustainable developments. Also the knowledge of subjects in other faculties such as humanities, performing arts, social sciences etc. can have greatly and effectively influence which inspires in evolving new scientific theories and inventions.

PO3: Personality Development: Students will imbibe ethical, moral and social values in personal and social life leading to highly cultured and civilized personality. They will also realize that pursuit of knowledge is a lifelong activity and in combination with untiring efforts and positive attitude and other necessary qualities leads towards a successful life.

PO4 Skills in research and industrial field: Students will build a scientific temper and will be able to learn the necessary skills to succeed in research or industrial field. In addition they will acquire the skills in handling scientific instruments, planning and performing in laboratory experiments.

PO5 Communication Skills: Students will develop various communication skills such as reading, listening, speaking, etc., which will help in expressing ideas and views clearly and effectively.

PO6 Environmental monitoring: Students will be able to design a solution to the environmental issues like Global warming, Climate change, Acid rain, Ozone depletion and will create awareness in society.

Program Specific Outcomes:

On completion of M.Sc. Chemistry programme, graduates will be able to:

PSO-1: observe, analyze and interpret chemical phenomena and process

PSO-2: design and develop new molecules/processes with industrial and societal applications

PSO-3: formulate new ideas/concepts in chemical sciences and test them

PSO-4: communicate effectively the principles and practice of chemical sciences

PSO-5: address issues of environment, health and development from a chemical perspective

PSO-6: follow professional ethics in all spheres of activity

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PSO-7: function effectively as a member/leader in diverse teams/groups

PSO-8: engage in independent learning in the broadest context of scientific advancement

Course Outcomes

The scope of M.Sc Chemistry is very diverse when taking into consideration the various avenues that are available for students after graduation.The program MSc (Chemistry) offers the necessary knowledge, skills and attitude to nurture creativity. Some important skills and abilities honed by chemistry learners include:

• Cutting-edge scientific and numerical skills • Curiosity to understand and solve

• Attention to collect and analyse details

• Patience and determination

• Research and development skills

• Analytical skills

• Use of ICT enabled techniques

• Written and oral communications skills

Apart from the technical and specific skills, a chemistry graduate also acquires fundamental professional skills throughout the degree program to pursue careers not directly related to the field. These skills include:

• Effective listening and communication skills

• Presentation and interaction skills

• Data collection, analysis and reporting skills

• Modern ICT enabled skills

• Aptitude to work proficiently independently or in a team

Equipped with a bunch of requisite knowledge, skills and attitude, a degree in chemistry is recognized as a symbol of quality and commitment by employers within and outside the realm of chemical industries. The thriving and widely recognized branches of chemistry like Organic, Inorganic, Physical, Analytical, etc. not only expand critical thinking and the ability to understand other scientific and engineering concepts more easily, but also open new horizons to pursue career in different fields.

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• Organic chemistry offers research and development of organic materials, modify and study carbon-based materials to develop a product having a specific purpose for wider use. They also accomplish various scientific studies to identify or find applications for compounds for society. Many industries like pharmaceuticals, agriculture, paints, dyes, and many more prefer to employ organic chemists.

• Inorganic chemistry has a greater potential in the fields of metallurgy, synthesis of new materials from different elements, bioinorganic, etc. It focusses on solving the fundamental problems associated with structure of atoms, molecules and their properties. Analytical chemists find their role for toxicology examinations, quality control and assessment, analysis of pharmaceuticals, investigations for forensic analysis, development of equipment, etc.

• Analytical chemists work for a particular private or government laboratory or organization, and also develop particular specialties like food technology, forensics or toxicology, to name a few.

• Physical chemistry enhances critical ability and inculcates problem solving skills among the learners. All industries rely heavily on physical parameters for manufacturing and quality assurance of products

Apart from the core branches of Chemistry, auxiliary branches like medicinal, industrial, petrochemical, geochemistry etc also offers a vast array of employability opportunities.Chemistry graduates apply their skills within the areas of environmental sciences, medical fields, scientific equipment sales, science communication, teaching or academic research, a few to mention. Thus, a degree in chemistry widens numerous prospects and opportunities for a wide variety of careers in many different fields like science, research, business and health care, etc.

Some of the areas of work available to students after the M.Sc Chemistry course are public relations, blog writing, research centres, synthetic labs, chemical firms, academic institutions etc.

The scope of M.Sc Chemistry is available in both the public and the private sector, with both displaying demands for M.Sc Chemistry graduates. MSc Chemistry promises huge career scope to candidates. After completing the course, candidates can work as professionals in Pharmaceutical Companies, Laboratories, 3 Research Centers, Medical Colleges, private clinics, etc. and also opt for the teaching profession as a professor or a teacher

Mentioned below are some of the sectors which offers potential employability to M.Sc Chemistry graduates

• Academic Institutions • Pharmaceutical Industry

• Chemical Firms

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• Research Centers

• Public Relations Some of the employability potentials for M.Sc. Chemistry graduates are listed below: after completing MSc Chemistry,

• Students can take teaching jobs at Universities or Sr. colleges by clearing SET or NET-LS examinations.

• Students can take teaching jobs at Jr. Colleges, Kendriya Vidyalaya, Navodaya Vidyalaya, High Schools after completing B.Ed. or respective eligibility criteria.

• Students can do Ph.D. at IIT, NIT, IISER, IISc, BARC, TIFR, Universities, Colleges by clearing NETJRF, GATE or PET examinations.

• Students can do Ph.D. from foreign Universities, students may get scholarships.

• Students can get jobs as Jr. Scientists, Sr. Scientists, Technicians at BARC, Mumbai

• Research Scientists in various Public Sector Units like ONGC, IOCL, NTPC and Private sector industries.

• Students can become Content Developer for IT industries.

• Students can become Quality Control Chemists/ Food Inspector at Food Co-operation of India, Food Safety and Standards etc

• Student can become Drug Inspector

• Officer at Geological Survey of India

• Laboratory technicians to look after sophisticated instruments like NMR, Mass Spectrometer, UVVisible Spectrophotometer, Single crystal machines, XRD, SEM, AAS, TEM etc

• Technician for repairing sophisticated instruments

• Lab Technologist/ Lab Chemist

• Synthetic Lab Scientist: Many industries and startups have come up in the recent times to cater the need of R & D and production. These industries hire skilled chemists with a lucrative package.

• Solid State Chemistry Expert : Students skilled in crystallography are hired by the organo- electronics and semiconductor producing industries

• Chemistry/Biochemistry Research Officer : in R& D units of industries

• Analytical Chemistry Application Specialist in industry

• Chemists at Medical colleges, pathologies

• Research Scientist/ Operations Manager/ Chemists / Quality Manager / Research Manager at various industries like Pharmaceuticals, Cement, Plastic, Drugs, Paint, Dyes, Agricultural sector etc • Student can become Small or medium scale entrepreneur (own industry)

• Students can become Government officers by clearing UPSC, MPSC, Bank Probationary officers, other competitive examinations

• Employee at Security Printing and Minting co-operation of India

• Employee at Office of Controller general of Patent design and trade work

• Free-lancer as educational you tube videos maker

• Educational-aid maker

• Free-lancer for creating awareness about superstition eradication

• Free-lancer to create awareness among farmers about soil testing, pesticides uses etc

• Students can work as come up with NGOs for superstition eradication.

Government jobs: There are a variety of career prospects waiting to be tapped at the government level. Because there is also a wide scope of research. Some of the government positions that can be considered are-

• Senior Research Associate

• Laboratory Technologist

• Research Analyst

• Research Officer

• Warehouse Supervisor

• Chemists

• Assistant Professor

• Development Supervisor

• Quality Management Analyst

Future Outlook and Scope:

1. If the candidates do not wish to pursue job opportunities after M.Sc Chemistry, they can opt for higher education to polish their skills and gain a higher level of experience. They can went on to pursue PhD at premier institutes in India and abroad. They can appear for

various competitive exams like NET/ GATE (in India) and JRE/ TOEFEL (Abroad) and avail fellowship for PhD. A significant amount of fellowship is available for pursuing PhD.

2. Candidates can acquire education in management and then can join industry or can start their own business or industry.

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Name of the Programme: M. Sc.Botany (NEPv23)

1. To equip students with strong fundamentals in subject domain knowledge.

2. To train students in all the areas of plant science with unique combination of core, elective papers.

3. Students can explore the cutting-edge technologies and skills currently used in plant sciences.

4. They are made aware of social, environmental issues and plant significance in natural interest.

5. To create interest in nature conservation and save the natural resources.

6. Focus is equally given on labour work as well as field work.

7. To worth together as a team along with other branches of life sciences without any complex.

8. To develop scientific temperament and research attitude and much for society.

PSOs 1

1. To equip the students with the fundamental concepts of plant sciences

2. To understand the basics of structure and functions of cells

3. To learn the process of growth and development of plants

4. To study the evolutionary process from lower to higher plants

PSOs 2

1. To study the concepts of genetics, plant breeding and their applicability

2. To understand and correlate the various biochemical and physiological processes in plants

3. To study the evolutionary process in Bryophytes and Pteriodophytes

4. To study the bioactive principles in plants and their defense mechanisms

Course Outcomes

Joseph Paxton Famous Botanist said that ‘Botany the science of vegetable kingdom is one of the most attractive, useful and extensive department of human knowledge, the science of beauty. Any human activity without plant involvement is baseless. Botany is the scientific study of plants. Sant Gadge Baba Amravati University offers M.Sc. Botany a master’s

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Program which deals with study of plants, their characteristics, classification and various related aspects in detail. The main aims and objectives of M.Sc. program are:

•To prepare students for a carrier as scientists, who can deal with current research lines in botany using modern techniques.

• To help them represent the discipline both in basic and applied research area. To encourage multidisciplinary collaboration.

• To equip and helpful students in all aspects of plant sciences with a view that they can take up teaching at different levels, researches in institute/university, doctoral work, EIA, Biodiversity studies entrepreneurship, Scientific writing in relevant topics have been included in curriculum.

The duration of this program is two years .There are 30 seats and admission on merit basis. Candidates who wish to opt M.Sc Botany should have Botany as one subject at graduate level and deep interest in plants and their life cycle.

The Syllabi of Botany is designed as per CBSC pattern and is very rich so that along with Botany students can opt for their choices and interest in allied field. The major focus is upon ability and skills other than core course subjects. The whole post-graduate program is of 4 semesters, where students are imparted deep knowledge about plant kingdom, Physiology, Genetics, Molecular Biology, Biotechnology, Genetics Engineering, Pharmacognosy, Ecology, Microbiology, Biosystematics, Tissue Culture, Bioprospecting etc. Botany also deals with various aspects related to Agriculture, Environment, Pharmacy, Forestry, Horticulture and Floriculture. Nursery, farms, Environmental consultancies Pharmaceuticals companies Forest sciences with job profile as Ecologist, Plant Taxonomist, Plant Biochemist, Researcher, Environmental Consultant, forest ranger, Botanists. Nursery or green house manager, Farming consultant, geneticist, Biotechnologists, Microbiologist etc. It would also provide highly skilled human resource for incubation centres and start-ups in the field of plant related industrial units as well as Research and Development sectors.

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Name of the Programme: M. Sc. Microbilogy (NEPv23)

1. Programme Outcomes (POs):

On completion of M.Sc. (Microbiology), students will be able to:

PO1 (Domain knowledge): demonstrate knowledge of basic concepts, principles and applications of the specific science discipline.

PO2(Resource Utilization): cultivate the skills to acquire and use appropriate learning resources including library, e-learning resources, ICT tools to enhance knowledge-base and stay abreast of recent developments.

PO3 (Analytical and Technical Skills): achieve the ability to handle/use appropriate tools/techniques/equipment with an understanding of the standard operating procedures, safety aspects/limitations.

PO4 (Critical thinking and Problem solving): identify and critically analyze pertinent problems in the relevant discipline using appropriate tools and techniques as well as approaches to arrive at viable conclusions/solutions.

PO5 (Project Management): demonstrate the knowledge and scientific understanding to identify research problems, design experiments, use appropriate methodologies, analyze and interpret data and provide solutions, exhibit organizational skills and the ability to manage time and resources.

PO6 (Individual and team work): exhibit the potential to effectively accomplish tasks independently and as a member or leader in diverse teams, and in multidisciplinary settings.

PO7 (Effective Communication): communicate effectively in spoken and written form as well as through electronic media with the scientific community as well as with society at large. Demonstrate the ability to write dissertations, reports, make effective presentations and documentation.

PO8 (Environment and Sustainability): analyze the impact of scientific and technological advances on the environment and society and the need for sustainable development.

PO9 (Ethics): exert a commitment to professional ethics and responsibilities.

PO10 (Self-directed and Life-long Learning): develop an ability to engage in life-long learning in the context of the rapid developments in the discipline by their own.

2. Programme Specific Outcomes (PSOs):

At the end of the programme, the students will be able to:

PSO1: acquire basic microbiology laboratory skills and expertise in the use of instruments applicable to research, clinical methods and analysis of the observations.

PSO2: comprehend prokaryotic and eukaryotic genetic systems & physiology of microorganisms.

PSO3: gain familiarity with applications of microbes for synthesis of valuable products through fermentation.

PSO4: explore the application of genetic engineering to create GMO, transgenic plants, animals, Gene therapy, etc.,

PSO5: establish the role of microorganisms in human health, immune response to infection and antibiotic resistance.

Overall, the Programme is oriented to reasoning, critical thinking and applications, equipping the students eligible for higher studies/research, jobs in various sectors and entrepreneurship abilities.

3. Course Outcomes

This programme of Microbiology is vast and its applications are in diverse fields like medicine, dairy, agriculture, clinical research, water industry, biochemical technology, biotechnology, etc. After completing the program, candidates can expect numerous jobs in several fields. It has always been in demand as it promises vast career opportunities to candidates in various employment sectors as it involves the study of microscopic living organisms. Studying these microbes helps develop medicines, vaccines, antibiotics, etc., which are immensely significant in the present world.

Microbiology is a branch of science that deals with study of microorganisms. The microbiological study has wide range of scope ranging from basic sciences to applied sciences. Microbiological study is mainly on causative agents of various diseases, microorganisms of agricultural, environmental and industrial use. The production of antimicrobial drugs to cure various diseases is covered in this discipline. Here is an overview of job opportunities where our students have explored and would be helpful for upcoming students as well.

Medical microbiology refers to the use of microbiology in the healthcare industry. Microbiology firms are at the heart of the healthcare industry, whether they were developing diagnostic kits, vaccines, biologics, pharmaceuticals, or medical gear.

Microbiology fields such as molecular biology, cell biology, recombinant technology, and immune therapeutics benefited from the medical sector evolution. For those interested in a career in Medical Microbiology, there are numerous career prospects in Research and Development, Pharmaceutical Companies, Hospitals, Diagnostic Centres, Manufacturing Sector of Microbiology, and Academic Sector. Many of our students have joined as Microbiologist at renowned companies. Our students have also joined COVID-19

diagnostic laboratories across various districts, thus helping the society. Beside this our students have also joined vaccine industry.

Previously, this field only focused with the discovery and development of small molecules (drugs), but the industry has evolved throughout time. This industry horizon has widened. Biopharmaceutics has added a new dimension to the industry. The use of microbiology in drug research and discovery has always been a component of the process, but the addition of biologics as therapeutic elements has resulted in a rise of biotech businesses in the pharmaceutical sector.

To begin, consider cell-based treatments, monoclonal antibodies, vaccinations, and other medicines. In this regard our students have got jobs at respective industry. Low crop yield, crop quality deterioration, weeds, loss of soil fertility, abiotic stress, and biotic stress are just a few of the issues that have plagued agriculture. Microorganisms are also helpful in enhancing the crop productivity. Our students are entrepreneur in this field. The biofertilizers are produced in bulk and are commercialized by few of our students. Incidentally biofertilizers are ecofriendly.

Food microbiology overcomes challenges in food production, processing, and preservation. The production of value-added food products are the greatest examples. Almost all food industries need pure water. The bacterial quality of water is tested by microbiologist. Food industry provides large scope for microbiologist. Our students have occupied jobs at food industries.

Microbiology always helps in introducing technology which aims to enhance the production, processing, packaging and preservation of food also. Environment microbiology aims to restore the balance between nature, ecology and human interest. Bioremediation and biological intervention are only possible by the way of utilization of techniques of microbiology. All these issues are now being addressed by using biotech processes. Microbes like bacteria, fungi algae and plants are being used in the process of bioremediation.

Beside job opportunities in the sector of agriculture, pharmaceutical and food industries our students are as research fellow at various National Institutes. Many students are working as Assistant Professor in colleges, Laboratory Technicians at Govt and private pathological laboratories.

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Name of the Programme: M. Sc. Mathematics (NEPv23)

POs

At the end of the programme, students would be able to

• apply knowledge of Mathematics, in all the fields of learning including higher research and its extensions.

• innovate, invent and solve complex mathematical problems using critical understanding, analysis and synthesis.

• adjust themselves completely to the demands of the growing field of Mathematics by lifelong learning.

• affectively communicate about their field of expertise on their activities, with their peer and society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations

• crack lectureship and fellowship exams approved by UGC like CSIR – NET and SET.

• Use the Mathematical Software LaTex and Scilab applicable for research.

PSOs

Upon completion of the programme successfully, students would be able to

• develop problem-solving skills and apply them independently to problems in pure and applied mathematics.

• understand advanced mathematical knowledge and skills that prepare them to pursue further studies and research.

• understand advanced and pure mathematical concepts and research.

• create knowledge, capability in formulating and analyzing mathematical models of real life applications.

• analyze the latest advances in applied mathematics such as numerical computations and mathematical modeling in physical sciences.

Course Outcomes

After completing M.Sc. in Mathematics, career will be more stable and successful. The private and government sectors both have thousands of job options available. The government sector also wants a good mathematician, who can manage the data and business mode. Every business requires financial activity and data management for better improvement and success. Various companies have a position like numerical operator and as a accountant. So career after M.Sc. Mathematics is very fruitful.

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The job profile option after completing the M.Sc. Mathematics as follows:

1. Assistant Professor in Mathematics. Many of the colleges and Universities/Institutes can offer job as a Assistant professor after clearing SLET/ CSIR- NET examination or Ph.D. degree.

2. Junior Research Fellow. 2 2 Junior research fellow exam is now conducted by NTA. Normally only top candidates acquire the JRF post after clearing the NET/GATE exam.

3. Scientific Officer. Students can apply for a scientific office job in the industry such as ISRO (the Indian Space research Organization), DRDO (Defense Research and Development Organization), TIFR (Tata Institute of Fundamental Research) and NAL (National Aeronautics Limited).

4. Operational Research. Students can also become operational researcher if they are good at mathematics. Under this profession basically, they have to solve the business profitability, improve efficiency, and complex organization problems. Also have to understand the assigned assignment in deep. And they have to use mathematical programming, analyst techniques, optimization, and so on for enhancing the project planning and skills.

5. Statistical Research. A career in statistical research is very interesting. It presents the company's statistical businesses at a modest and technical level. Under this profession, students will get the chance of analyzing, researching, using mathematical tools, algorithms, and theories, and become a professor.

6. ICT Information and communication technology is playing a big role in this platform. ICT always offer a new role for Mathematics Post Graduate students. Such as the development of ICT, Regular Maintenance, Manufacturing and design part, general part, and so on.

7. Data Science Modelers. The demand for data science specialists is huge because every company wants to convert its data into the required information. Making good information sheet help company decision-maker to take the best decision for the company.

8. Banking – Investment Banking. Many famous investment banks provide financial advice to the customer. These professions help to increase the equity and debt market. A career in investment banking is a very high-profile post along with good stability. In this profession, students have to deal with the clients and the market. Some basic skills required for an investment banker. Integrity, knowledge of finance and the markets, interpersonal skills, communication, etc. Job opportunity comes from varies area such as finance, wells Fargo, American Express, Deutsche bank, CICNA, Barclay's bank, AIG, JP Morgan, Goldman Sachs, etc.

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Name of the Programme: M. Sc. Computer Science (NEPv23)

PROGRAMME OUTCOMES (POs)

Upon completion of the programme successfully, students would be able to:

PO1: Problem Analysis Identify, formulate, review research literature and analyze complex engineering problems in Computer Science and Engineering reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.

PO2: Design / Development of Solutions Design solutions for complex engineering problems and design system components or processes of Computer Science and Engineering that meet the specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

PO3: Conduct Investigations of Complex Problems Use research-based knowledge and research methods including design of experiments in Computer Science and Engineering, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO4: Modern tool usage Create, select and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex activities related to Computer Science with an understanding of the limitations.

PO5: The services to the society Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in Computer Science and Engineering.

PO6: Project Management Demonstrate knowledge and understanding of the computer science and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. P

ROGRAMME SPECIFIC OUTCOMES (PSOs)

Upon completion of the programme successfully, students would be able to

PSO 1: deliver efficient solutions for emerging challenges in the computation domain through continuous learning

PSO2 design, develop, implement computer programs and use knowledge in various domains to identify research gaps and hence to provide solution to new ideas and innovations.

Employability Potential in M.Sc. Computer Science

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If you've studied computer science, you will have gained many technical and non-technical skills which are highly valued by employers, from leadership to programming. The increasing scope of computer science means you have plenty of choice in a wide variety of highly specialized areas.

Computer technologies are integral to modern life, so you're likely to find your computer science skills in high demand across many different industries. These include financial organizations, management consultancy firms, software houses, communications companies, data warehouses, multinational companies, governmental agencies, universities and hospitals.

As always, it's extremely beneficial to have completed relevant work experience. You should also consider compiling a portfolio of your own independent projects outside of your degree, which could be in the form of programming, moderating online or even building an app. This will demonstrate to employers your interest in the subject and your problem-solving skills, creativity and initiative.

- Application analyst.
- Applications developer.
- Cyber security analyst.
- Data analyst.
- Forensic computer analyst.
- Game designer.
- Games developer.
- Machine learning engineer
- Cyber security analyst
- Data analyst
- Forensic computer analyst
- Game designer
- Games developer
- Machine learning engineer
- Penetration tester
- Software engineer
- Systems analyst
- UX designer
- Web designer & Developer
- Business analyst
- IT sales professional
- IT trainer
- Nanotechnologist
- Network Engineer
- Telecommunications researcher
- Database Manager/ Administrator

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Common employers are IT consultancies and IT service providers. However, as most businesses rely on computers to function effectively, there are also opportunities within the IT departments of major organisations in sectors such as:

- Aerospace and Defense
- Agricultural
- Financial Services
- Healthcare
- Manufacturing
- Public And Third Sectors
- Telecommunications
- Banking
- E-Commerce
- Medical
- Defence
- Education
- Communication
- Automobile Industry
- Printing Industry
- Film Industry
- Entertainment Industry
- E- Governance
- Satellite Launching
- Simulators
- Research & Development
- And Lot More...

You can also find opportunities with a range of small to medium-sized enterprises (SMEs). Another option is to set up your own business, providing IT services such as web design and consultancy.

PRINCIPAL
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