

Shahir Annabhau Sathe Mahavidyalaya, Mukhed Tq.
Mukhed Dist Nanded



Course outcomes English

B.A./B.Com./B.Sc. First Year Semester – I
(Paper-wise)

1. Name of the Paper – I. Understanding Prose Fiction.

- Learners will be able to appreciate the texts in English Prose Fiction genre.
- Through responding to different texts of prose Fiction, the learners will acquaint themselves with the wide range of expressions in the English language.
- Learners will carry out the tasks of interpretation of novels and short stories by studying the critical analysis of the prescribed texts.
- Students will be well acquainted with basics of prose Fiction in English through close readings of select literary texts.
- Learners will be familiar with the art of fiction writing in English.
- To develop the skills of analysis, interpretation, and critical security through the study of selected novels and short stories.
- Students will understand the various social issues, problems and day to day life of people through different fictional works.

2. Name of the Paper – II. Understanding Poetry in English

- Learners will be able to appreciate English poetry with an understanding of diverse poetic forms and themes.
- Through responding to different poetic texts the learners will acquaint themselves with the various nuances of poetic expressions in the English language.
- Learners will carry out the tasks of interpretation of poems by studying the critical analyses of the prescribed texts.
- Students will be acquainted with the art of poetry writing in English.
- It will develop the imaginative and creative power of learners.
- Students will learn different types of comparisons and the different types of figures of speech used in poetry.
- Students will understand the importance of feelings and imaginations.

Semester – II

1. Name of the Paper – III. Understanding Non-Fictional Prose

- Learners will be able to appreciate English Non-fictional prose with an understanding of various prose writings as developed through ages.
- Through responding to different prose writings learners will be enriched in the use of prose for diverse thematic expressions.
- Learners will attain a certain degree of proficiency in the interpretation of English prose.
- Learners will understand the basics of Non-fictional prose in English through close reading of selected literary texts.
- Students will be familiar with various social pictures depicted in the fictional works.
- It will help students to learn fiction with reality.

2. Name of the Paper – IV. Understanding Drama in English

- Learners will be able to appreciate English Drama with an understanding of various dramatic texts.
- Through responding to different plays learners will be introduced to various types of dramatic experiences.
- Learners will be able to critically analyze texts from different dramatic genres.

- d. Students will be fully familiar with the art of dramatic presentations.
- e. Students will learn the different characters and their role in plays.
- f. Students will learn the tradition of drama and the development of dramatic art through the study of various plays.
- g. Students will learn the various social themes through dramatic presentation.



B.A./B.Com./B.Sc. Second Year

Semester – III

1. Name of the Paper – V. Indian Writing in English

- a. . Students will be able to appreciate the texts in Indian writing in English.
- b. Learners will carry out the tasks of literary interpretation by studying the critical analysis of the prescribed texts. Through responding to different texts of Indian Writing in English the learners will acquaint themselves with the wide range of expressions in the Indian English Language.
- c. Learners will study Indian Writing in English from colonial age up to the contemporary age, through the study of various literary genres.
- d. . Students will learn the skill of critical thinking and rhetoric through thought- provoking personal response writing essays and research assignments.

2. Name of the Paper – VI. American Literature.

- a. . Students will be enabling to review and recognize the body of literary works from America.
- b. Learners will be able to understand the American spirit as well as to analyze various literary innovations.
- c. . Students will learn and understand American culture through various literary works.
- d. . The learners will identify, explicate and respond to key themes and elements in American literature in various literary genres.
- e. . The learners will gain an overall insight of the American literature and understand the background, historical context, the importance of American literature and its role in the society.
- f. . Students will learn the various landmarks in American literature, in various literary genres.

3. SEC – I (Skills for Employability-I)

- a. The course will develop the skills of students which meets requirements of 21st Century.
- b. Students will learn the skills of communication.
- c. Learners will develop the activities for written communication.
- d. Students will be competent in the strategies for professional skills.
- e. Students will understand the importance of soft skills and personality development in the professional field.

Semester – IV

1. Name of the Paper – VII. Indian Literature in English Translation

- a. The students will acquire an introductory knowledge of Indian literary heritage.
- b. The students will be familiarized with the significant socio- cultural issues in India through close reading of literary texts from diverse regions.
- c. The students will realize the intellectual potential available from the Indian literary texts from various Indian Languages.
- d. Students will understand the magnificent Indian literary tradition through exposition to some representative works available in English translation.
- e. Students will be acquainted with the rich heritage of Indian regional literatures in their significance.



2. Name of the Paper – VIII. Women's Literature

- Students will be able to critically analyze the structure and meaning of various literary works written by women authors.
- Students will acquire knowledge of the major concerns of the women through reading of the representative works from different nations.
- Students will be acquainted with the richness and depth of the female experience as depicted through their literary representations.
- Students will be enabling for identifying and describing distinct literary characteristics of women's literature.
- Students will be equipped with the knowledge and skills to read and comprehend texts written by women.

3. SEC – II (Skills for Employability -II)

- Students will get a sound knowledge and training of Employability Skills.
- Students will become perfect in conversational skills.
- It will develop students' communicative competence.
- Students will learn the professional skills and different strategies which will help in the professional field.
- Students will learn and develop work culture.
- Students will learn different skills which will enable them to get jobs easily.
- The course will enhance the overall qualities of the students.

B.A./B. Com./B. Sc. Third Year

Semester – V

1. Name of the Paper – IX Literary Theory and Criticism

- Students will get knowledge about the contemporary theories and criticism
- To develop students critical ability to carry out practical criticism.
- The learners will develop ability to analyze literary texts according to the rules of prosody
- Critical insight into the contemporary theories would be developed.
- Students will be acquainted with the prominent literary theories to the learners.

2. Name of the Paper – X Modern English Structure.

- Learners will learn about the mechanism of the English Language.
- The notion of grammatical correctness in practical usage is highlighted.
- Learners are enable to understand the logics and practices in the field of English grammar and the foundational Structure of English grammar is explained.
- To study word structure and affixes.
- Students will comprehend the varieties of English language and its dialects.

b. SEC – III (Life Skills -I)

- Developing Skills for individual and group activities.
- Self-awareness and social awareness are developed.
- Skills necessary for digital lifestyle are introduced.
- Developing personal and social skills in the learners.
- Students will be well prepared for the smooth entry in to the world of work.



- c. **Name of the Paper – XI Literary Theory and Criticism**
- a. The Knowledge about contemporary theories of criticism is disseminated.
- b. **Developing critical ability of the learners.**
- c. To acquaint the learners with the global critical schools.
 - d. Enabling learners for understanding practical criticism.
- d. **Name of the Paper – XII Modern English Structure.**
- a. The course induces an understanding of the mechanism of the English Language.
 - b. Students will be acquainted with the notion of English word classes.
 - c. Understanding the sentence structure forms and meanings.
 - d. Making students clear about the common errors and ambiguities in English sentences.
 - e. The notion of grammatical correctness in English usage is introduced.
 - f. Students will learn the pronunciation skills.
- e. **SEC – IV (Life Skills-II)**
- a. Preparing students for the era of digitalization.
 - b. Students will learn online services and transactions.
 - c. Students will be prepared for the online learning and teaching process.
 - d. Students will be acquainted about the concept of cybercrimes, cyber security cybercrimes.
 - e. Students will learn about the use of ICT tools.

Head of the Department of English

Principal

Dr.G.Ramana Reddy

Shahir Annabhau Sathe Mahavisyalaya, Mukhed
Tq. Mukhed, Dist. Nanded



Department of Political Science

Course Outcomes Political Science

B.A. First Year

Semester – I

- 1. Name of the Paper – I-Concepts of Political Theory**
 - a. Knew the method of studying Political Science
 - b. Political Science can be understood as a discipline
 - c. A change in student behavior is expected
- 2. Name of the Paper – II-Govt. and Politics of Maharashtra -**
 - a. The Course should have taught learners the nuances of the working of the State
 - b. Students will understand the formation, Government and other Political issues concern with Maharashtra Government
 - c. Student will be to solve the Political problems by studying this course.
 - d. Pupils will acquire to understand various Political issues, Political process and Political activity.

Semester – II

- 1. Name of the Paper – III- Concepts of Political Theory**
 - a. Knew the method of studying Political Science
 - b. Political Science can be understood as a discipline
 - c. A change in student behavior is expected
- 2. Name of the Paper – IV- Govt. and Politics of Maharashtra**
 - a. Student gets various political ideas concern with state Government and other relevant Political issues.
 - b. Issues emerging in the State and the way forward should be clearly Sketched
 - c. It will also help students to prepare themselves for competitive exams like MPSC, UPSC etc.

B.A. Second Year

Semester – III



1. **Name of the Paper – V-Govt. and Politics of India**
 - a. Introduce the Indian Constitution
 - b. The student behavior conforms to constitutional values
 - c. Students are nurtured with constitutional values
2. **Name of the Paper – VI-International Relations**
 - a. students awareness about the Key concepts approaches of IR
 - b. It will also help students to prepare themselves for competitive exams like UPSC, MPSC etc.
 - c. Moreover, it will career like Political analyst Media, Professionals and Ideal Politicians
 - d. To know the basic concepts of International Relations.
3. **SEC – I (Basic Information and Preparation Skills for Competitive Examination)**
 - a. It will help students to eradicate fear of competitive examinations
 - b. Pupils will develop skills to pass the competitive examination.
 - c. Students will know that acquisition of knowledge is a matter of vast study and voracious reading
 - d. Students will understand the difference and co-ordination between legislature and bureaucracy.

Semester – IV

1. **Name of the Paper - VII-Govt. and Politics of India**
 - a. Introduce the Indian Constitution
 - b. The student behavior conforms to constitutional values
 - c. Students are nurtured with constitutional values
2. **Name of the Paper - VIII-International Relations**
 - a. Learners usually came out strongly with their views on international organizations during the study of this course
 - b. The Utility of the course Lies in the course Constitution in raising the student's awareness about the global International Politics
 - c. Students awareness about the Political Institutions like UNO



- a. It will help students to eradicate fear of competitive examinations.
- b. Pupils will develop skills to pass the competitive examination.
- c. Students will know that acquisition of knowledge is a matter of vast study and voracious reading
- d. Students will understand the difference and co-ordination between legislature and bureaucracy.
- e. Students will know that while they prepare for such competitive examinations, they need to explore their general knowledge and awareness by which they can survive in such kinds of examination.

B.A. Third Year

Semester – V

1. Name of the Paper – IX-Western Political Thinker

- a. The development of Political Science is understandable
- b. The basic concepts of kingship are introduced
- c. This paper inculcates moral values in the students.

2. Name of the Paper – X-India's Foreign Policy

- i. Students will be able to appreciate the Meaning, Nature, determinant elements and salient features of India's Foreign Policy
- ii. How, why and to what extent India's Foreign Policy has changed and continuity in the new global and regional contexts
- iii. India's relations with her Major countries as like America, Russia and China
- iv. Students will be able to know India's relations with her neighbor countries
- v. Students will be able to understand the Nuclear Policy of India, India's role in various international and regional organizations as like UN (Security Council), WTO, WB, IMF, SAARC, BRICS, ASIAN etc .
- vi. This Course will encourage the student to undertake an in depth analysis of India's foreign policy.

3. SEC – III (INDIAN PARLIAMENTARY PROCEDURE)

- a. This paper will help and encourage students to know the actual working of the houses the sittings, the role of the presiding officers, the Question Hour



4. Name of the Paper – XI-Modern Political Analysis

- a. This paper content will helpful for student to draw new meaning as per recent time they can understand new concept of political science in the reference of modern age.

5. Name of the Paper – XII-Political Ideology

- i. Political Ideology course through ensures conceptual clarity among learners
- ii. Learners make informed use of the terms studied herein which contribute to critical Thinking and raise vital questions for further research
- iii. This paper will acknowledge students with various classical political ideologies and its contemporary relevance

6. SEC – IV (INDIAN DEMOCRACY & GOOD GOVERNANCE)

- a. This Course will helpful and encourage students to Acknowledge Democratic Process in India.

Head, Dept. of Political Science

Principal

Dr. Pullagor B.V



Dept. of Chemistry

Course Outcomes

B.Sc. Chemistry First Year (Semester-I)

Paper-I: Organic + Inorganic Chemistry, (CCC-I)

After completion of this course the students will be able to

1. Learn basic concept of organic chemistry, Nomenclature.
2. Get well acquainted with functional group in organic chemistry.
3. Understand the basic concepts and differences aliphatic hydrocarbons.
4. Know about term cycloalkane, cycloalkene and diene.
5. Learn and practice about organic compounds with their names.

Paper-II: Physical + Inorganic Chemistry (CCC-I)

After completion of this course the students will be able to

1. Learning and understanding rules of logarithm, Rules of drawing graph, Derivatives, Integration, different mathematical concept and SI units, and their use in solving numerical.
2. Learning surface phenomena at heterogeneous surfaces.
3. The basic knowledge of gas phase, Kinetic molecular theory, critical phenomenon, liquefaction and molecular velocities.
4. To impart knowledge about solid phase, crystallography and some crystal structure.
5. General characteristics of s-block elements, oxides, hydroxide, carbonate & its complexes

B.Sc. Chemistry First Year (Semester-II)

Paper-III: Organic + Inorganic Chemistry, (CCC-II)

After completion of this course the students will be able to

1. To learn the concept of aromatic hydrocarbons, Aromaticity and antiaromaticity.
2. Understand the phenols and synthesis of phenols
3. Knows about the haloalkene and haloarenes compounds.
4. To know the concepts of carboxylic acids and their derivatives.
5. To know about the types of alcohols and reaction of epoxide.

Paper-IV: Physical + Inorganic Chemistry (CCC-II)

After completion of this course the students will be able to

1. To impart knowledge of atomic structure, different theories of atomic structure, rules of electronic configuration and quantum numbers.
2. Learning of properties of liquid phase as surface tension, Viscosity and parachor.
3. To learn the basic knowledge of colloidal state, types, preparation, properties and applications of colloidal state.
4. Learning and understanding of catalysis, types of catalysis and characteristics of catalyzed reactions.
5. Understanding the chemical bond and its different types of bonds.

B.Sc. Chemistry Second Year (Semester-III)

Paper-VI: Organic + Inorganic Chemistry, (CCC-III)

After completion of this course the students will be able to

1. Learn the mechanism of name reactions.
2. Know the Synthesis, and Reactions of Aromatic Carboxylic and Sulphonic acids.
3. Know the Synthesis, and Reactions of Organometallic compounds.
4. Learn the synthesis, mechanism, applications of active methylene compounds.
5. Gathering basic knowledge of Oils, Fats, Soaps and Detergents.

Paper-VII: Physical + Inorganic Chemistry, (CCC-III)



After completion of this course the students will be able to

1. Write an expression of Davisson-Germer experiment.
2. Derive Schrodinger wave equation.
3. Understand De-Broglie's hypothesis and uncertainty principle.
4. Solve the numerical problems based on De-Broglie.
5. Understand concept of entropy.

Head of the Dept. of Chemistry

Principal

Dr. Mukhedkar S.S



B.Sc. Chemistry Second Year (Semester-IV)

Paper-VIII: Organic + Inorganic Chemistry, (CCC-IV)

After completion of this course the students will be able to

1. Learn the stereoisomerism of Chiral compounds.
2. Know the Classification, and Reactions of carbohydrates.
3. Know the Synthesis, and Reactions of Nitrogen Compounds.
4. Gathering applications of Reagents in Organic Synthesis.
5. Understand the Characteristics of d-Block Elements.

Paper-IX: Physical+ Inorganic Chemistry, (CCC-IV)

After completion of this course the students will be able to

1. Know the rate constant and factors affecting rate of reactions.
2. Write an expression for rate constant (K) for first order, second order reaction.
3. Know the terms cell constant, specific conductivity, equivalent conductivity and molar conductivity.
4. Know the applications of Kohlrausch's law.
5. Compare between thermal and photochemical reactions.

B. Sc. Third Year: Semester-V

Paper-XII: Organic & Inorganic Chemistry (DSEC-V)

After completion of this course the students will be able to

1. Learn the mechanism of Electrophilic Substitution reaction of Heterocyclic Compounds
2. Know the characteristics, Classification and synthesis of Drugs and Dyes
3. Explaining theories of Color and chemical constitution of Dyes
4. Gathering basic knowledge of Alkaloids, Vitamins and Pesticides
5. Understand the basic principle and application of coordination complexes



Paper-XIII: Physical & Inorganic Chemistry (DSEC-V)

After completion of this course the students will be able to

1. Understand the concepts of molecular Spectroscopy and its applications
2. Analyze Rotational, Vibrational and Raman, Spectra
3. Interpret the theoretical and experimental methods of chemical kinetics
4. Know the theory and application of Distribution law
5. Explain the Nomenclature, classification and application of Organometallic Compounds

B. Sc. Third Year: Semester-VI

Paper-XIV: Organic & Inorganic Chemistry (DSEC-VI)

After completion of this course the students will be able to

1. To learn the basic principle and terms used in UV, IR & NMR Spectroscopy
2. Acquire the fundamental knowledge of classification and Synthesis of Amino Acid and Peptides
3. Describe the types of Rearrangement.
4. Postulates and limitations of VBT and CFT.
5. Calculation of CFSE for Tetrahedral and Octahedral Complexes.

Paper-XV: Physical & Inorganic Chemistry (DSEC-VI)

After completion of this course the students will be able to

1. Basic concepts of electrochemistry and its applications
2. Understanding the Nernst heat theorem and the Thermodynamics open system
3. Know the Vant-Hoff's Reaction Osochore and numerical on it
4. Explain the types of magnetic substances and effect of temperature on it
5. Biological role of alkali and alkaline earth metal ions



Head of the Dept. of Chemistry

Principal

Dr. Mukhedkar S.S

Shahir Annabhau Sathe Mahavidyalaya, Mukhed
Department of Mathematics Course Outcomes



B.A. / B.Sc.F.Y. Semester-I (CBCS PATTERN)

CCM-1, Section-A

Paper I: Calculus-I (Differential Calculus)

Outcomes: After successful completion of the course student will be able to

1. Understanding concept of Limit, Continuity.
2. Expand functions in terms of infinite series.
3. Find Equation of Tangent, Normal and Length of Tangent, Normal, Sub-tangent, Sub-normal. Understanding of Mean Value Theorem concepts.
4. Understand the concept of Partial differentiation.
5. Use the results to solve problems.

B.A/B.Sc.F.Y. Semester-I (CBCS PATTERN)

CCM-1,(Section B)

Paper II: Algebra and Trigonometry

Outcomes: After successful completion of the course student will be able to

1. Recognize the different types of Matrices.
2. Find the Inverse of invertible Matrices, and the Rank of a Matrix.
3. Transform matrix to Row Echelon form
4. Solve the System of Linear Equations.
5. Find the Characteristic Roots and Characteristic Vectors of a Square Matrix.

B.Sc.F.Y. Semester-II (CBCS PATTERN)

CCM-2, Section-A

Paper III: Calculus-II (Integral Calculus)

Outcomes: After successful completion of the course student will be able to

1. Apply method of integration to find the integral of function.
2. Solve examples of definite integrals using Properties definite integrals.
3. Find the area and volume of given shape.
4. Understanding concept of Gamma and Beta Functions.
5. Solve problems on Multiple Integrals.



B.Sc.F.Y. Semester-II (CBCS PATTERN)
CCM-2, Section-B Paper IV: (Geometry)



Outcomes: After successful completion of the course student will be able to

1. Understanding concepts on Three Dimensional Geometry.
2. Find equations of Right lines, Planes, Spheres, Cones and Cylinders, and Direction cosines of any line under the different given conditions.
3. Understand the intersection of any two or three, three dimensional geometrical figures.
4. Transform equation of line from the unsymmetrical to the symmetrical form.
5. Find the length of perpendicular from a point to a plane, and the angle of intersection of two spheres.

B.Sc.F.Y. Semester-II (CBCS PATTERN)
CCMP-1, Based on CCM-1 and 2, Section-A (Annual pattern)
Paper V: (PRACTICAL PAPER)

Outcomes: After successful completion of the course student will be able to

1. Verify associativity of matrix addition, left distributive law and right distributive law of matrices.
2. Find determinant, Eigen values, Eigen vectors, and inverse of a square matrix.
3. Find powers and characteristics polynomial of a square matrix.
4. To draw the graph of different functions with the help of MATLAB software
5. To draw the graph of different functions with the help of Freeware software's.

B.Sc.S.Y. (Semester-III) (CBCS PATTERN)
CCM-3, Section-A Paper VI: Real Analysis-I



- Outcomes:** After successful completion of the course student will be able to
1. Understanding basic concept of sets and its properties, neighbourhood of a point, interior points of a set, open set, limit points of a set, closed set, closure of a set, and dense set.
 2. Understanding basic concept of sequences, subsequences, bounds of sequences, limit point of sequences, general principle of convergence, different types of sequences.
 3. Understanding concept of infinite series, different types of series, general principle of convergence
 4. Use the results to solve some problems.
 5. Understanding difference between different types of sequences, series and comparison tests.

B.A/B.Sc.S.Y. (Semester-III) (CBCS PATTERN)
CCM-3, (Section B) Paper VII: Group Theory

- Outcomes:** After successful completion of the course student will be able to
1. Understand the concepts on an equivalence relation.
 2. Check whether the given set, is a group with respect to given operation or not.
 3. Understand the concepts on cyclic group.
 4. Use Lagrange's theorem to solve the problems in number theory.
 5. Find the kernel of a group homomorphism.

B.Sc.S.Y. (Semester-III) (CBCS PATTERN)
CCM-3, Section-C

Paper VIII: Ordinary Differential Equations

- Outcomes:** After successful completion of the course student will be able to
1. Understanding concept of solution of differential equations, order and degree.
 2. Transform the equations into variable separable form and Transform first order non-homogeneous equation in x and y to homogeneous equation in x and y and solve it.
 3. Find the solutions when the auxiliary equations are equal, different, repeated and imaginary roots.
 4. Find the solution of exact differential equation, rules of finding integrating factor and solution of linear equation with variable coefficients.
 5. Transform the homogeneous linear equation with constant coefficient by changing the independent variable x to z .



B.A./B.Sc./S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4 (Section-A) Paper IX: Real Analysis-II

Outcomes: After successful completion of the course student will be able to

1. Understanding basic concept of interval, subinterval, partitions, refinement, upper integral and lower integral and Riemann integral.
2. Acquire the idea about Riemann Integrability and Riemann Integration, understand various theorems associated with Riemann Integration
3. Develop knowledge about Riemann Integration and applies into problems
4. Understand the meaning of improper integral and Develop skill in checking the convergence of improper integral.
5. Use comparison test with a corresponding improper integral with other improper integral to decide whether improper integral converge or diverge and use the results to solve some problems.

B.Sc./S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4, Section-B Paper X: Ring Theory

Outcomes: After successful completion of the course student will be able to

1. Understand given algebraic structure is a Ring or not and Construct the examples of ring with known examples of ring.
2. Differentiate between zero-divisors and non zero-divisors in a given ring and Check whether given two rings are isomorphic or not.
3. Check whether given ideal of a ring is a principal ideal or not.
4. Understand the concepts on principal ideal ring
5. Understand concepts on Euclidean rings.

B.Sc./S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4, Section-C

Paper XI: Partial Differential Equations

Outcomes: After successful completion of the course student will be able to

1. Classification of PDE.
2. Solve linear as well as nonlinear PDE of first and second order also Solve problem using boundary conditions.
3. Apply PDE techniques to predict the behavior of certain phenomena.
4. Solve real problems by identifying them approximately from the perspective of PDE.
5. Mathematical formation of real problem precisely and presentation in English.



B.Sc. T.Y. Semester-V DSEM-5, Section-A Paper XII: Metric Space

Outcomes: After successful completion of the course student will be able to

1. Understand the concepts on Metric Space, Examples of Metric Space, and Diameter of nonempty set.
2. Understand the difference between open sets and closed sets.
3. Verify the convergence of sequences, completeness compactness and connectedness of given metric spaces.
4. Understand the concepts on
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-V DSEM-5, Section-B

Paper XIII: Linear Algebra.

Outcomes: After successful completion of the course student will be able to

1. Find dimensions of various vector spaces and by using determinant concept students can solve the linear equations in two, three unknowns.
2. Understand the concepts on Inner Product Space.
3. Find the characteristic roots of linear transformation.
4. Use the results to solve some problems.
5. Write a matrix associated with a given linear transformation on a finite dimensional vector space.

B.Sc. T.Y. Semester-V DSEM-5, Section-C

Paper XIV (C): Complex Analysis

Outcomes: After successful completion of the course student will be able to

1. Check the continuity of functions of complex variable.
2. Check the Analyticity of functions of complex variable.
3. Find the logarithm of negative numbers.
4. Find the complex power of complex number.
5. Use the results to solve some problems.



B.Sc. T.Y. Semester-VI DSEM-6, Section A
Paper XV: Numerical Analysis

Outcomes: After successful completion of the course student will be able to

1. Find the missing term in the given data.
2. Obtain the derivative of a function at a point using the values of the given function.
3. Obtain Numerical solutions of differential equations by using numerical techniques.
4. Obtain Numerical solutions of integral by using numerical techniques.
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-VI DSEM-6, Section-B
Paper XVI: Integral Transforms

Outcomes: After successful completion of the course student will be able to

1. Find the Integrals of given function.
2. Solve Simultaneous Differential Equations by Laplace Transforms.
3. Solve differential equations using Laplace Transformations.
4. Understand the concepts on Fourier Transforms.
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-VI DSEM-6, Section-C
Paper XVII (C): Elementary Number Theory

Outcomes: After successful completion of the course student will be able to

1. Understand the evolution of number theory.
2. To prove the mathematical statements using mathematical induction.
3. Solve Diophantine equations.
4. Check whether the given number is prime or not.
5. Solve problems using the Chinese Remainder Theorem.

Head of the Department

Principal

Shri. Doibale S.S

Shahir Annabhau Sathe Mahavidyalaya, Mukhed

Department of Mathematics Course Outcomes

B.A. / B.Sc.F.Y. Semester-I (CBCS PATTERN)

CCM-1, Section-A

Paper I: Calculus-I (Differential Calculus)

Outcomes: After successful completion of the course student will be able to

1. Understanding concept of Limit, Continuity.
2. Expand functions in terms of infinite series.
3. Find Equation of Tangent, Normal and Length of Tangent, Normal, Sub-tangent, Sub-normal. Understanding of Mean Value Theorem concepts.
4. Understand the concept of Partial differentiation.
5. Use the results to solve problems.

B.A/B.Sc.F.Y. Semester-I (CBCS PATTERN)

CCM-1,(Section B)

Paper II: Algebra and Trigonometry

Outcomes: After successful completion of the course student will be able to

1. Recognize the different types of Matrices.
2. Find the Inverse of invertible Matrices, and the Rank of a Matrix.
3. Transform matrix to Row Echelon form
4. Solve the System of Linear Equations.
5. Find the Characteristic Roots and Characteristic Vectors of a Square Matrix.

B.Sc.F.Y. Semester-II (CBCS PATTERN)

CCM-2, Section-A

Paper III: Calculus-II (Integral Calculus)

Outcomes: After successful completion of the course student will be able to

1. Apply method of integration to find the integral of function.
2. Solve examples of definite integrals using Properties definite integrals.
3. Find the area and volume of given shape.
4. Understanding concept of Gamma and Beta Functions.
5. Solve problems on Multiple Integrals.



B.Sc.F.Y. Semester-II (CBCS PATTERN)

CCM-2, Section-B Paper IV: (Geometry)

Outcomes: After successful completion of the course student will be able to

1. Understanding concepts on Three Dimensional Geometry.
2. Find equations of Right lines, Planes, Spheres, Cones and Cylinders, and Direction cosines of any line under the different given conditions.
3. Understand the intersection of any two or three, three dimensional geometrical figures.
4. Transform equation of line from the unsymmetrical to the symmetrical form.
5. Find the length of perpendicular from a point to a plane, and the angle of intersection of two spheres.

B.Sc.F.Y. Semester-II (CBCS PATTERN)

CCMP-1, Based on CCM-1 and 2, Section-A (Annual pattern)

Paper V: (PRACTICAL PAPER)

Outcomes: After successful completion of the course student will be able to

1. Verify associativity of matrix addition, left distributive law and right distributive law of matrices.
2. Find determinant, Eigen values, Eigen vectors, and inverse of a square matrix.
3. Find powers and characteristics polynomial of a square matrix.
4. To draw the graph of different functions with the help of MATLAB software
5. To draw the graph of different functions with the help of Freeware software's.



B.Sc.S.Y. (Semester-III) (CBCS PATTERN)

CCM-3, Section-A Paper VI: Real Analysis-I

Outcomes: After successful completion of the course student will be able to

1. Understanding basic concept of sets and its properties, neighbourhood of a point, interior points of a set, open set, limit points of a set, closed set, closure of a set, and dense set.
2. Understanding basic concept of sequences, subsequences, bounds of sequences, limit point of sequences, general principle of convergence, different types of sequences.
3. Understanding concept of infinite series, different types of series, general principle of convergence
4. Use the results to solve some problems.
5. Understanding difference between different types of sequences, series and comparison tests.

B.A/B.Sc.S.Y. (Semester-III) (CBCS PATTERN)

CCM-3, (Section B) Paper VII: Group Theory

Outcomes: After successful completion of the course student will be able to

1. Understand the concepts on an equivalence relation.
2. Check whether the given set, is a group with respect to given operation or not.
3. Understand the concepts on cyclic group.
4. Use Lagrange's theorem to solve the problems in number theory.
5. Find the kernel of a group homomorphism.

B.Sc.S.Y. (Semester-III) (CBCS PATTERN)

CCM-3, Section-C

Paper VIII: Ordinary Differential Equations

Outcomes: After successful completion of the course student will be able to

1. Understanding concept of solution of differential equations, order and degree.
2. Transform the equations into variable separable form and Transform first order non-homogeneous equation in x and y to homogeneous equation in x and y and solve it.
3. Find the solutions when the auxiliary equations are equal, different, repeated and imaginary roots.
4. Find the solution of exact differential equation, rules of finding integrating factor and solution of linear equation with variable coefficients.
5. Transform the homogeneous linear equation with constant coefficient by changing the independent variable x to z .



B.A./B.Sc.S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4 (Section-A) Paper IX: Real Analysis-II

Outcomes: After successful completion of the course student will be able to

1. Understanding basic concept of interval, subinterval, partitions, refinement, upper integral and lower integral and Riemann integral.
2. Acquire the idea about Riemann Integrability and Riemann Integration, understand various theorems associated with Riemann Integration
3. Develop knowledge about Riemann Integration and applies into problems
4. Understand the meaning of improper integral and Develop skill in checking the convergence of improper integral.
5. Use comparison test with a corresponding improper integral with other improper integral to decide whether improper integral converge or diverge and use the results to solve some problems.

B.Sc.S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4, Section-B Paper X: Ring Theory

Outcomes: After successful completion of the course student will be able to

1. Understand given algebraic structure is a Ring or not and Construct the examples of ring with known examples of ring.
2. Differentiate between zero-divisors and non zero-divisors in a given ring and Check whether given two rings are isomorphic or not.
3. Check whether given ideal of a ring is a principal ideal or not.
4. Understand the concepts on principal ideal ring
5. Understand concepts on Euclidean rings.

B.Sc.S.Y. (Semester-IV) (CBCS PATTERN)

CCM-4, Section-C

Paper XI: Partial Differential Equations

Outcomes: After successful completion of the course student will be able to

1. Classification of PDE.
2. Solve linear as well as nonlinear PDE of first and second order also Solve problem using boundary conditions.
3. Apply PDE techniques to predict the behavior of certain phenomena.
4. Solve real problems by identifying them approximately from the perspective of PDE.
5. Mathematical formation of real problem precisely and presentation in English.



B.Sc. T.Y. Semester-V DSEM-5, Section-A Paper XII: Metric Spaces

Outcomes: After successful completion of the course student will be able to

1. Understand the concepts on Metric Space, Examples of Metric Space, and Diameter of a nonempty set.
2. Understand the difference between open sets and closed sets.
3. Verify the convergence of sequences, completeness compactness and connectedness of given metric spaces.
4. Understand the concepts on
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-V DSEM-5, Section-B
Paper XIII: Linear Algebra.

Outcomes: After successful completion of the course student will be able to

1. Find dimensions of various vector spaces and by using determinant concept students can solve the linear equations in two, three unknowns.
2. Understand the concepts on Inner Product Space.
3. Find the characteristic roots of linear transformation.
4. Use the results to solve some problems.
5. Write a matrix associated with a given linear transformation on a finite dimensional vector space.

B.Sc. T.Y. Semester-V DSEM-5, Section-C
Paper XIV (C): Complex Analysis

Outcomes: After successful completion of the course student will be able to

1. Check the continuity of functions of complex variable.
2. Check the Analyticity of functions of complex variable.
3. Find the logarithm of negative numbers.
4. Find the complex power of complex number.
5. Use the results to solve some problems.



B.Sc. T.Y. Semester-VI DSEM-6, Section A
Paper XV: Numerical Analysis

Outcomes: After successful completion of the course student will be able to

1. Find the missing term in the given data.
2. Obtain the derivative of a function at a point using the values of the given function.
3. Obtain Numerical solutions of differential equations by using numerical techniques.
4. Obtain Numerical solutions of integral by using numerical techniques.
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-VI DSEM-6, Section-B
Paper XVI: Integral Transforms

Outcomes: After successful completion of the course student will be able to

1. Find the Integrals of given function.
2. Solve Simultaneous Differential Equations by Laplace Transforms.
3. Solve differential equations using Laplace Transformations.
4. Understand the concepts on Fourier Transforms.
5. Use the results to solve some problems.

B.Sc. T.Y. Semester-VI DSEM-6, Section-C
Paper XVII (C): Elementary Number Theory

Outcomes: After successful completion of the course student will be able to

1. Understand the evolution of number theory.
2. To prove the mathematical statements using mathematical induction.
3. Solve Diophantine equations.
4. Check whether the given number is prime or not.
5. Solve problems using the Chinese Remainder Theorem.

Head of the Department of Physics

Principal

Shri. Mundhe A.M



Shahir Annabhau Sathe Mahavidyalaya, Mukhed

Department of Zoology

B.Sc.F.Y.

Course Outcomes:-

After successfully completing the course the students will be able to:

Paper No.I- (Biodiversity of Non-Chordata)

- 1) The student will be able to identify given invertebrate animals
- 2) Ability to understand the contribution of invertebrates in the biodiversity index of any given habitat.
- 3) Ability to understand and appreciate the ecological economic importance of invertebrates and vertebrates.
- 4) To identify and describe external morphological of invertebrates
- 5) To identify anatomical features of representative species.

Paper-II (Biodiversity of Chordates)

- 1) The student will identify and understand the Biodiversity of Chordates.
- 2) Ability to understand anatomical relation between different vertebrate classes.
- 3) The learner will be able to understand the economic importance of Chordates.
- 4) To study the different types of enzymes
- 5) To study and understand classification of carbohydrates, proteins and lipids.

Paper-III(Comparative Anatomy of Vertebrates)

- 1) The Student will be able to identify and understand comparative anatomical structure of vertebrate organ systems.
- 2) The learner will be able to understand the evolution of various organs and systems in the vertebrate body according to its environment.
- 3) Understand the plasticity of organ systems to adapt to the environment and require different novel forms.
- 4) To understand the different comparative anatomy of different organs
- 5) To identify the structure of different bones.

Paper-IV(Developmental Biology of Vertebrates)

- 1) The student will be able to explain the basics processes of vertebrate embryonic development.
- 2) Ability to describe the various steps in vertebrate development.
- 3) Identify and explain about the different embryonic structures.
- 4) Describe the functions of different extra embryonic structures.
- 5) Understanding of the Assisted Reproductive Technologies.



Shahir Annabhau Sathe Mahavidyalaya, Mukhed

Department of Zoology

B.Sc.S.Y.

Course Outcomes:-

After successfully completing the course the students will be able to:

Paper No.VI- (Physiology)

- 1) To understand type and functions of circulatory system.
- 2) Learn structure and functions of endocrine glands.
- 3) Understand the structure, development and function of reproductive organs
- 4) Monitor blood pressure and identify blood group in human.
- 5) Acquire knowledge of the nature and function of hormones.

Paper No. VII – Biochemistry

- 1) Understand the chemical structure of biomolecules.
- 2) Understand the functions of biomolecules
- 3) Learn the signaling of biomolecules in cell membrane
- 4) Understand the nature and classification of enzymes.
- 5) Understand the correlation between metabolism of different types of biomolecules

Paper VIII SEM – IV - Cell biology and Genetics

- 1) Understand the structure of the cell.
- 2) Understand the function of functions of the cell.
- 3) Understand different cell organelles.
- 4) Acquire knowledge of Genetics
- 5) Study of different genetical disorders.





Paper IX – Evolutionary biology and Genetic engineering

- 1) Understand the recombinant and Genetic Engineering
- 2) Understand the organization and functions of genetic material
- 3) Understand the pattern of evolutionary changes.
- 4) Learn the process of evolution
- 5) Understand the different evolutionary theories.

Shahir Annabhau Sathe Mahavidyalaya, Mukhed Department of Zoology
B.Sc. T.Y. Course Outcomes:-

After successfully completing the course the students will be able to:

Paper No.XII- (Ecology and Zoogeography)

- 1) To understand and appreciate the interaction of organisms with their environments.
- 2) To be aware of the current environmental issue with an understanding of the basic ecological concepts involved.
- 3) To study the local and geographic distribution of animals
- 4) To study the structural adaptation of organisms
- 5) To study the conservation and management of natural resources

Paper XIII – (B) (Applied Parasitology-I) (Parasitic Protozoa & Platyhelminthes)

- 1) Demonstrate the understanding of basic applied parasitology, host Parasite relationship and life cycle of parasites.
- 2) An understanding epidemiology , disease transmission and control the treatment of parasitic disease caused by protozoans Platyhelminthes
- 3) An ability to identify and describe common protozoans and helminthes parasite
- 4) To provide knowledge of locally occurring human parasites and national parasitic disease.
- 5) An Understanding of Economic cost of animal and Human parasitic disease

Paper XIV – (Ethology, Biometry and Bioinformatics)

- 1) To study the behavior of different organisms
- 2) To understand the concept of biometry
- 3) To give students an introduction to the basic practical techniques of bioinformatics
- 4) To knowledge about the use of internet application
- 5) To emphasize the application of bioinformatics.

Paper XV (B) Applied Parasitology –II (Parasitic Nematodes and Arthropods)





1. An Understanding of Parasitology of Nematodes and Arthropods
2. Knowledge of Morphology, Biology, Taxonomy and Pathogenicity Nematodes in Plants and animals
3. Knowledge and skills to implement control measures against nematode parasites.
4. Understanding the knowledge of arthropods of public health importance
5. Knowledge of vector-host –pathogen relationship in arthropod transmitted disease.
6. An understanding of the different surveillance techniques and diagnosis's method used in control of and management of vector born disease

Head of the Det. of zoology

Principal

Shri. Wadekar D.M



Shahir Annabhau Sathe Mahavidyalaya, Mukhed

Course outcome 2016-17

Department of Economics

B.A. First year – paper I

Course outcome

1. Meaning, nature and scope will be studied in this course.
2. Student's ability will be utilized to tackle the current economic problems.
3. Students will adept more knowledge in the field of modern economics by studying this course.
4. This course will increase the utility and application to acquire more satisfaction in life.
5. Student will get the knowledge about production, cost and revenue.
6. Students will be acquainted with the various markets from the point of view of competition.
7. This course will be helpful to realize the actual market through competitive point of view.
8. The acquisition of knowledge about providing share of different factors of production.

B.A. First year – paper II

Economy of Maharashtra (Optional)

Course outcome

1. Awareness about development I economy of Maharashtra will be created.
2. Students will understand the various challenges of Economy in Maharashtra.
3. Students will study the problems of economy of Maharashtra.
4. Students will enhance the different concepts of economy in Maharashtra.
5. This study will suggest remedies for different issues of economy in Maharashtra.
6. Awareness about development in economy of Maharashtra will be created.
7. Students will understand the various challenges of Economy in Maharashtra.
8. Students will be study the problems of economy in Maharashtra.
9. Students will be enriched with the different concept of economy in Maharashtra.
10. This study suggests remedies for different Problems in economy of Maharashtra.



B.A. First year – paper II
Agricultural Economics (Optional)-II

Course outcome

1. This paper gives an in depth insight to the nature, scope, Traditional as well as Moderation focus on these concept in deep.
2. It deal introduce rural Economy of India and particular characteristics of rural Economy.
3. Who the Agricultural production and productivity impact on economy. It focus on also agricultural inputs like imagination power, seed, role of subsidies etc.
4. It really focus on land reforms in India Agricultural prices rural, Labor market means that hole study of agricultural all aspects which impact the economy.

Head of the Dept. of Economics

Principal

Shri. Shripati A. Pawar



Semester-I (paper wise)

1. Name Of The Paper-I Viruses, bacteria, Algae, Fungi, Lichens And Mycorrhiza

- a. To study and impart knowledge about the occurrence, distribution, structure and life history
- b. To instill in students and appreciation for the diversity of plant forms and structural organization that exists within the plant body that allow plants to develop and live as integrated organisms in diverse environments
- c. Understand the morphology, structure and importance of the various organism
- d. Differentiate between various group of algae, fungi, bacteria, viruses, lichens and mycorrhiza
- e. Learn the life cycles of individual belonging to algae, fungi, bacteria, viruses, lichens and mycorrhiza

2. Name of the paper -II Plant Ecology, Phytogeography and Environmental Biology:

- a. Acquainted with basic concepts of Ecology, Ecosystem Ecological factors, community ecology and phytogeography
- b. To provide students with skills necessary for Ecological studies
- c. Able to understand the ecological principles, interactions taking place in the Ecosystems and the flow of energy.
- d. Learn about the concept of phytogeography and its relations with other disciplines

Semester-II

1. Name of the Paper- III Bryophytes, Pteridophytes, Gymnosperms & Paleobotany

- a. To study the occurrence, distribution, structure and life history of bryophytes
- b. To provide students with skills in paleobotany studies
- c. Learn the life cycles of individuals belonging to Bryophytes, Pteridophytes and Gymnosperms
- d. Learn about process of fossil formation and fossils plants

2. Name of the Paper – IV Taxonomy of

Angiosperms:

- a. To study the types of classifications artificial. Natural and phylogenetic
- b. To study the principles and rules of ICN and taxonomical terminology
- c. To study the various plant families and their economic importance
- d. Proficiency with the basic terminology of plant morphology
- e. Able to identify the major families of plants and their economic importance
- f. Understand the methods of collecting and preserving Plants

3. Name of the Paper-V PRACTICAL PAPER-V: BASED ON THEORY PAPERS-I, II, III & IV(Annual)

- a. Study of morphology of Bacteria by Gram staining method
- b. Study of citrus canker disease
- c. Study of symptoms of yellow vein mosaic of Bhendi
- d. Study of Algae: Systematic position and external features of nostoc, Oedogonium, Ectocarpus
- e. Study of Fungi: systematic position, external and internal features of Penicillium, Alternaria, Agaricus



- f. Study of different forms of Lichens
- g. Study of ectomycorrhiza and endomycorrhiza
- h. Study of Marchantia- morphology of thallus, w.m.rhizoids and scales, v.s. thallus through gemma cup, w.m. gemmae (all temporary slides), v.s. Of antheridiophore, archegoniophore, L.S. of sporophyte (all permanent slides)
- i. Study of Funaria- Morphology, W.M. leaf, rhizoids operculum, peristome, annulus, spores (temporary slides); permanent slides showing antheridial and archegonial heads, L.S. of capsule and protonema.
- j. Lycopodium- morphological and anatomical study

B.Sc. Second Year Semester – III

1. Name of the Paper - VI Plant Anatomy. a. To know about the internal structure of the most evolved group of plants, the Angiosperms. b. To study cells, tissues, meristem, epidermal and vascular tissue system in plants.

c. To acquire knowledge of tissue systems, histology and growth patterns in plants. d. The students will be able to understand the meristem (RAM & SAM) different simple and complex tissues and secondary growth in root and stem.

e. Students will acquire knowledge of anatomy of root stem and leaf in dicot and monocot plants..

2. Name of the Paper - VII Plant Physiology and Biochemistry:

a. To make students realize how plants function, namely the importance of water, minerals, hormones, and light in plant growth and development; understand transport mechanisms and translocation in the phloem, applications of plant physiology.

b. To acquaint the students with the types and their functions of different biomolecules and secondary metabolites

c. To know the role of different plant growth regulators in plant physiology..

d. Students will gain the knowledge of water and nutrient uptake, movement in plants, role of mineral elements, translocation of sugars, Role of various plant growth regulators, phytochrome in plants.

e. Students shall learn different types of biomolecules and secondary metabolites

f. Students will learn the flowering physiology, vernalization and seed dormancy in plants

I Semester – IV

Name of the Paper – VIII Plant Embryology:

a. To study the flowering and fruiting, reproduction process, role of pollinators, ovule fertilization, Endosperm and seed development in angiosperms.

b. This course will be able to demonstrate foundational knowledge in embryology of plants

c. Students will be able to understand the development of pollen, Ovule, and fertilization and palynological information

2. Name of The Paper-IX Plant Metabolism and Biotechnology





- a. To study of different pathways in photosynthesis, respiration, nitrogen metabolism
 - b. To gain the knowledge of basic aspects and applications of plant tissue culture
 - c. To study the different aspects of genetic engineering and bioinformatics
 - d. Students will be able to understand the various Metabolic process such as photosynthesis, respiration, nitrogen metabolism etc. which are important for life
 - e. Students shall become familiar with the gene cloning and its transfer in plants
3. Students shall learn different databases and their applications
- f. Students should learn thermal and photochemical reactions

4. Name Of The Paper- X based on Theory Paper-VI & VII

- a. 1. Study of Meristematic tissues (Study of root apex and shoot apex) with the help of Slides/ Models/Charts/ Photocopies (2 practical's)
- b. Study of tissues, Parenchyma, Collenchyma, Sclerenchyma, Xylem and Phloem (Permanent slides only) (2 practical's)
- c. Maceration of tissues and the observation of sclereids-Type, Vessels-thickening
- d. Study secretory tissues with the help of Slides/Models/Charts/ Photocopies
- e. Study of Epidermal tissue system: stomata types; trichomes: non-trichomes: non-glandular and glandular
- f. Microtomy: dehydration, clearing and embedding of material, section cutting, dewaxing
- g. Preparation of a double stained permanent slide of stem of Maize, Sunflower, Achyranthes, Mimosa pudica, Bignonia and Dracaena, for the study of internal structures (6 practical's)
- h. Study of wood specimens for Heart wood, sap wood etc
- i. Study of Leaf anatomy: Dicot and Monocot leaf (only Permanent slides)
- j. Study of root anatomy: Monocot: Zea mays; Dicot: Helianthus; Secondary growth: Helianthus (only Permanent slides).

5. Name of The Paper- XI: BASED ON THEORY PAPERS-VII & IX

1. To determine the water potential of potato tuber
2. To determine the osmotic potential of vacuolar sap by plasmolysis
3. To study the effect of temperature/ organic solvent/concentration of different organic solvents on permeability of plasma membrane (beet root) by using colorimeter/Spectrophotometer
4. Separation of photosynthetic pigments by paper chromatography
5. To study the effect of light intensity on rate of photosynthesis
6. Determination of RF value and identification of amino acids in a mixture
7. Preparation of standard graph of starch/glucose using colorimeter/spectrophotometer and determination of starch/glucose content of the given plant material
8. Preparation of standard graph of protein using colorimeter/spectrophotometer and determination of protein content from given plant material
9. To estimate the percentage of oil content in given oil seeds using Soxhlet extractor.

1. Name Of The Paper-XII : Plant Physiology (Compulsory) :

- a. To make students realize how plants function, namely the importance of water, mineral, hormones and light in plant growth and development; understand transport mechanisms and translocation in the phloem, applications of plant physiology
- b. To acquaint the students with the types and their functions of different biomolecules and secondary metabolites
- c. To know the role of different plant growth regulators in plant physiology
- d. Students will gain the knowledge of water and nutrient uptake, movement in plant, role of mineral elements, translocation of sugars, role of various plant growth regulators, phytochrome in plants
- e. Students will learn the flowering physiology, vernalization and seed dormancy in plants

2. Name Of The Paper -XIII PLANT PATHOLOGY -I

- a. To study the diseases or disorders caused by biotic and abiotic agent
- b. To study the mechanism of disease development by pathogens
- c. To study the interaction between plant and pathogen in relation to the overall environment
- d. To develop suitable management strategies for managing the disease and losses caused by the pathogen

Semester - VI

1. Name of the Paper - XIV Plant Metabolism, Biochemistry and Biotechnology (Compulsory):

- a. To study of different pathways in Photosynthesis, respiration, nitrogen metabolism
- b. To gain the knowledge of basic aspects and applications of plant tissue culture
- c. To study the different aspects of genetic engineering and bioinformatics.
- d. Students will be able to understand the various metabolic processes such as photosynthesis, respiration, Nitrogen metabolism etc, which are important for life.
- e. Students shall become familiar with the gene cloning and its transfer in plants
- f. Students shall learn different databases and their applications.
- g. Students should learn thermal and photochemical reactions.

Name of the Paper-XV (Optional) Plant Pathology-II

- a. Survey of fields, orchards and areas in order to find out prevalence of diseases and their incidence.
- b. Recording new diseases of economic importance if any, with their identification and extent of incidence.
- c. Assessment of losses caused by different diseases of economic importance.

Head of the Department of Botany

Principal

Dr. Dhavle S.D