

**Programme Outcomes, Programme Specific Outcomes, Course Outcomes**

**Department of Economics**

**Programme Outcomes**

After successfully completion of three year degree program in Economics student should be able to;

PO-1. Present economic theory and applications in written and oral form.

PO-2. Demonstrate an understanding of microeconomic and macroeconomic theory.

PO-3. Apply economic theory to issues in fields of economics.

PO-4. carry out economic and policy analyses that draw on microeconomic theory, apply economic analysis to everyday problems in real world situations, to understand current events and evaluate specific policy proposals.

PO-5. Explain the function of market and prices as allocative mechanisms.

PO-6. Apply the concept of equilibrium to both microeconomics and macroeconomics.

PO-7. Identify key macroeconomic indicators and measures of economics change, growth, and development.

PO-8. Identify and discuss the key concepts underlying comparative advantage.

PO-9. Identify and explain major types of market failures.

**Programme Specific Outcomes**

PSO-1. To able to understand basic concepts of economics.

PSO-2. To able to analyze economic behavior in practice.

PSO-3. Understand the economic way of thinking.

PSO-4. The ability to analyze historical and current events from an economic perspective.

PSO-5. The ability to write clearly expressing an economic point of view.

PSO-6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.

PSO-7. To create students ability to suggest of the various economic problems.

**Course outcomes of Economics**

**Indian Economy(G1) (1157)**

After completion of these course students should be able to

CO-1 Economics Students in General Will be able to pinpoint and understand the past present economics condition.

CO-2 Understand the various aspect of Indian Economy.

CO-3 Develop a perspective on the different problems and approaches to economic planning and development

### **Micro Economics(S1) (2158)**

After completion of these course students should be able to

CO-1.To Explain Know economics use economics models.

CO-2. To use graphs in common economic application.

CO-3.To Explain the cost of choice and trade of its

CO-4. TO Explain and calculate of the elastics using common Variables

### **Macro Economics(S2) (2159)**

After completion of these course students should be able to

CO-1.Student will be able to explain the circular flow Model and use the concept of aggregate demand and aggregate supply.

CO-2.To analysis the response of the economy to disturbance

### **Modern Banking(G2) (2157)**

After completion of these course students should be able to

CO-1 To explain the function and evolution of banking and finance

CO-2 Examine the operation of Modern banking and financial institution

CO-3 Critically evaluated the function and operation of modern banking

### **International Trade/Economics(S3) (3158)**

After completion of these course students should be able to

CO-1 Explain the gains from International trade

CO-2 Analyze and evaluate different trade policies of various Nations.

CO-3 perform analyses of foreign Exchange term section

### **Public Finance(S4) (3159)**

After completion of these course students should be able to

CO-1 To Introduction Students to The Public Sector reforms agenda with a focus on public finance issues.

CO-2 To develop students skill on now to write a public policy paper

CO-3 To train students how to develop budgeting

### **Economic Development and planning(G3) (3157)**

After completion of these course students should be able to

- CO-1 A Basic Understanding of the issues and on-going debates on development
- CO-2 To Discuss the important models and theories in economic development
- CO-3 Understand and evaluated The unevenness in development

### **Business Economics(micro economics)**

After completion of these course students should be able to

- CO-1. Apply the concept of opportunity cost.
- CO-2. Employee marginal analysis for decision making
- CO-3. Analyze operations of markets under varying competitive conditions.
- CO-4. Analyze causes and consequences of unemployment, inflation and economics growth.

### **Business Economics (Macro economics)**

After completion of these course students should be able to

- CO-1. Examine factors that shift aggregate supply and aggregate demand.
- CO-2. Illustrate economic growth ,unemployment inflation.
- CO-3. Describe the tenets of Keynesian economics.
- CO-4. Explain the policy implication of Keynesian economics.

### **Indian and Global Economy**

After completion of these course students should be able to

- CO-1. The course, in particular, has been prepared in the background of the globalization process and its diverse ramifications on the knowledge economy.
- CO-2. Understand the various aspect of Indian Economy

## **Department of Sociology**

### **Course Outcomes of Sociology**

#### **F. Y. B. A. Sociology (G-I) (w. e. f- 2013- 2014)**

#### **INTRODUCTION TO SOCIOLOGY**

#### **Objectives**

- 1) To introduce sociology to the students as a major social science

- 2) To introduce basic sociological concept
- 3) To get acquainted with the sociological knowledge and social phenomena

**S. Y. B. A. Sociology (General Paper-II) (w. e. f- 2013-2014)**  
**POPULATION AND SOCIETY**

Objectives

- 1) To introduce the significance to population studies and explain theories and basic concepts
- 2) To understand the impact of population on various institutions of society
- 3) To understand the importance of population studies for policy and development

**S. Y. B. A. .Sociology (Special Paper-I) (w. e. f- 2014- 2015)**  
**Foundations of sociological Thought**

Objectives

- 1) To introduce the students to the works of classical sociologists that shaped the discipline.
- 2) To expose the students to the processes that shaped the discipline of sociology in India.
- 3) To familiarize the students to major perspectives and works of some Indian sociologists

**S. Y. B. A. .Sociology (Special Paper-II) (w. e. f- 2014- 2015)**  
**Indian Society: Issues and Problem**

Objectives

- 1) To familiarize the students to different social issues and problems
- 2) To acquaint the students to the social problems in India
- 3) To enable students to analyze social issues and problems using different sociological perspectives

**T. Y. B. A. Sociology (General Paper-III) (w. e. f- 2013-2014)**  
**Crime and Society**

Objectives

- 1) To acquaint the students with recent trends in criminology, changing profile of crime and criminals
- 2) To prepare the students for professional roles of correctional agents in agencies of criminal justice

**T. Y. B. A. Sociology (Special Paper-III) (w. e. f- 2013-2014)**  
**Social Research Methods**

Objectives

- 1) To impart basic research skills.
- 2) To introduce the students to different procedures in conducting social research
- 3) To acquaint the students to different types of research and issues in research
- 4) To familiarize the students with sociological approach to research

**T. Y. B. A. Sociology (Special Paper-IV) (w. e. f- 2013-2014)**  
**Contemporary Indian Society**

Objectives

- 1) To appreciate the plurality of India, its composite culture and its resilience.
- 2) To acquaint the students to the issues of contemporary India.
- 3) To expose the student to the crisis and challenges of contemporary India.

## **Department of Marathi**

### **Program Outcome of Bachelor of Arts (B.A.)**

Students seeking admission for B.A. programme are expected to imbue with following quality which help them in their future life to achieve the expected goals.

- PO-1. Realization of human values.
- PO-2. Sense of social service.
- PO-3. Responsible and dutiful citizen.
- PO-4. Critical temper.
- PO-5. Creative ability.

### **Programmes Specific Outcomes B.A. (MARATHI)**

- PSO-1. Creating an interest in literature .
- PSO-2. Availing the job opportunities in transformation and media.
- PSO-3. Developing language.
- PSO-4. Increasing the critical attitude about literary studies.
- PSO-5. Imbuing the literary research attitude.

### **Course Outcomes B.A.I (Marathi)**

- CO-1. Understanding the interrelation between literature and society.
- CO-2. Explaining the nature of Language and Literature.
- CO-3. Obtaining the skills of literary criticism.
- CO-4. Imbuing the essay writing skills.
- CO-5. Illustrating the nature of literary forms like one-act-play, travelogue and short-story.

### **B.A. II (Marathi)**

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

### **B.A.III (Marathi) Poetry**

- CO-1. Acquaintance with oriental poetry.
- CO-2. Understanding the nature and features of poetry.
- CO-3. Creating the skills of critical appreciation of poems.
- CO-4. Developing the poetic devices and their uses.

### **B.A.III Linguistics:**

- CO-1. Getting acquainted with modern linguistics.

- CO-2. Understanding origin, nature and function of language.
- CO-3. Getting information about phonetics.
- CO-4. Enhancing the interest in Marathi Language.

### **B.A.III Medieval Marathi Literature:**

- CO-1. Introduction of the historical survey of medieval Marathi literature.
- CO-2. Introduction of the literary forms in medieval literature.
- CO-3. Explanation of the trends and structure of medieval Marathi Literature.

### **Marathi III Utility and Creativity of Marathi Language:**

- CO-1. Understanding the formal and informal language.
- CO-2. Developing various language skills.
- CO-3. Getting motivation for creative writing.
- CO-4. Understanding the technique of mass communication.

### **B.A.III Literary Criticism:**

- CO-1. Introduction to various trends in literary criticism.
- CO-2. Understanding various trends in rural literature.
- CO-3. Understanding various trends in Dalit literature.

## **Department of Hindi** **Program Outcome**

### **I. Program Outcome of Bachelor of Arts (B.A.)**

Students seeking admission for B.A. programme are expected to imbue with following quality which help them in their future life to achieve the expected goals.

- PO-1: Realization of human values.
- PO-2: Sense of social service.
- PO-3: Responsible and dutiful citizen.
- PO-4: Critical temper.
- PO-5: Creative ability.

### **II. Programmes Specific Outcomes B.A. (Hindi)**

- PSO-1: Creating an interest in literature .
- PSO-2: Availing the job opportunities in transformation and media.
- PSO-3: Developing language.
- PSO-4: Increasing the critical attitude about literary studies.
- PSO-5: Imbuing the literary research attitude.

### **III Course Outcomes B.A.I (Hindi)**

- CO-1. Understanding the interrelation between literature and society.
- CO-2. Explaining the nature of Language and Literature.
- CO-3. Obtaining the skills of literary criticism.
- CO-4. Imbuing the essay writing skills.

CO-5. Illustrating the nature of literary forms like one-act-play, travelogue and short-story.

### **B.A. II (Hindi)**

CO-1. Introduction of medieval Hindi language and literature.

CO-2. Introduction of the contemporary literary works.

CO-3. Acquiring the skill of translation.

CO-4. Explanation of the need and significance of editing.

### **B.A.III (Hindi) Poetry**

CO-1. Acquaintance with oriental poetry.

CO-2. Understanding the nature and features of poetry.

CO-3. Creating the skills of critical appreciation of poems.

CO-4. Developing the poetic devices and their uses.

### **B.A.III Linguistics:**

CO-1. Getting acquainted with modern linguistics.

CO-2. Understanding origin, nature and function of language.

CO-3. Getting information about phonetics.

CO-4. Enhancing the interest in Hindi Language.

### **B.A.III Medieval Hindi Literature:**

CO-1. Introduction of the historical survey of medieval Hindi literature.

CO-2. Introduction of the literary forms in medieval literature.

CO-3. Explanation of the trends and structure of medieval Hindi Literature.

### **III Utility and Creativity of Hindi Language:**

CO-1. Understanding the formal and informal language.

CO-2. Developing various language skills.

CO-3. Getting motivation for creative writing.

CO-4. Understanding the technique of mass communication.

## **DEPARTMENT OF ENGLISH**

### **Program Outcome of Bachelor of Arts (B.A.)**

Students seeking admission for B.A. programme are expected to imbue with following quality which help them in their future life to achieve the expected goals.

PO-1. Realization of human values.

PO-2. Sense of social service.

PO-3. Responsible and dutiful citizen.

PO-4. Critical temper.

PO-5. Creative ability.

### **Programmes Specific Outcomes B.A. (ENGLISH)**

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.

- PSO-1. Basic knowledge of English as Language.
- PSO-2. Major knowledge of English as Literature.
- PSO-3. Basic knowledge of English Grammar.
- PSO-4. Critical study of English Literary studies.
- PSO-5. Relation between pleasure of literature and real life.

### **Course Outcomes B.A.I, B.A.II (English Course)**

- CO-1. Spoken communication and written communication.
- CO-2. Writing of Resume, letters of application, business letters.
- CO-3. Writing News-report, Essay, paragraph, review, etc.
- CO-4. Narration of experience, daily routine.
- CO-5. Interview Techniques.
- CO-6. Understanding and interpretation of poem, prose, essay, short stories, etc.

### **B.A.I, B.A.II & B.A.III (Optional & special English)**

#### **CO-1. Enjoyment of literature.**

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

### **Course Outcome**

#### **F. Y. B. A. Compulsory English (w. e. f- 2013- 2014)**

##### Objectives

- CO-1. To familiarize students with excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English
- CO-2. To expose them to native cultural experiences and situations in order to develop humane values and social awareness
- CO-3. To develop overall linguistic competence and communicative skills of the students.

#### **F. Y. B. A. Optional English (General Paper-I) (w. e. f- 2013-2014)**

##### Objectives

- CO-1. To expose students to the basics of literature and language
- CO-2. To familiarize them with different types of literature in English, the literary devices and terms so that they understand the literary merit, beauty and creative use of language
- CO-3. To introduce the basic units of language so that they become aware of the technical aspects and their practical usage
- CO-4. To prepare students to go for detailed study and understanding of literature and language
- CO-5. To develop an integrated view about language and literature in them.

#### **S. Y. B. A. Compulsory English (w. e. f- 2014- 2015)**

### Objectives

CO-1. To develop competence among the students for self-learning

CO-2. To familiarize students with excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English

CO-3. To develop students' interest in reading literary pieces

CO-4. To expose them to native cultural experiences and situations in order to develop humane values and social awareness

CO-5. To develop overall linguistic competence and communicative skills of the students

### **S. Y. B. A. General English (G-2) (w. e. f- 2014- 2015)**

#### **Title of the Paper: Study of English Language and Literature**

### Objectives

CO-1. To expose students to the basics of short story, one of the literary forms

CO-2. To familiarize them with different types of short stories in English

CO-3. To make them understand the literary merit, beauty and creative use of language

CO-4. To introduce some advanced units of language so that they become aware of the technical aspects and their practical usage

CO-5. To prepare students to go for detailed study and understanding of literature and language

CO-6. To develop integrated view about language and literature in them

### **S. Y. B. A. Special Paper-I (S-1) (w. e. f- 2014- 2015)**

#### **Title of the Paper: Appreciating Drama**

### Objectives:

CO-1. To acquaint and familiarize the students with the terminology in Drama Criticism (i.e. the terms used in Critical Analysis and Appreciation of Drama)

CO-2. To encourage students to make a detailed study of a few sample masterpieces of English Drama from different parts of the world

CO-3. To develop interest among the students to appreciate and analyze drama independently

CO-4. To enhance students awareness in the aesthetics of Drama and to empower them to evaluate drama independently

### **S. Y. B. A Special Paper-II (S-2) (w. e. f- 2014- 2015)**

#### **Title of the Paper: Appreciating Poetry**

### Objectives:

CO-1. To acquaint and familiarize the students with the terminology in poetry criticism (i.e. the terms used in critical analysis and appreciation of poems)

CO-2. To encourage students to make a detailed study of a few sample masterpieces of English poetry

CO-3. To enhance students' awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate the poetry independently

### **T. Y. B. A. Compulsory English (w. e. f- 2015- 2016)**

Objectives:

CO-1. To introduce students to the best uses of language in literature.

CO-2. To familiarize students with the communicative power of English

CO-3. To enable students to become competent users of English in real life situations

CO-4. To expose students to varied cultural experiences through literature

CO-5. To contribute to their overall personality development by improving their communicative and soft skills.

### **T. Y. B. A. General English (G-3) (w. e. f- 2015- 2016)**

#### **Title of the Paper: Advanced Study of English Language and Literature**

Objectives:

CO-1.To expose students to some of the best samples of Indian English Poetry

CO-2.To make the students see how Indian English poetry expresses the ethos and culture of India.

CO-3.To make them understand creative uses of language in Indian English Poetry To introduce students to some advanced areas of language study.

CO-4.To prepare students to go for detailed study and understanding of literature and language .

CO-5.To develop integrated view about language and literature among the students.

### **T.Y.B.A. Special Paper III (S-3) (w. e. f. 2015-16)**

#### **Title of the Paper: Appreciating Novel**

Objectives:

CO-1.To introduce students to the basics of novel as a literary form

CO-2.To expose students to the historical development and nature of novel

CO-3.To make students aware of different types and aspects of novel

CO-4.To develop literary sensibility and sense of cultural diversity in students

CO-5.To expose students to some of the best examples of novel.

### **T.Y.B.A. Special Paper IV(S-4) (w. e. f. 2015-16)**

#### **Title of the Paper: Introduction to Literary Criticism**

Objectives:

CO-1.To introduce students to the basics of literary criticism

CO-2.To make them aware of the nature and historical development of criticism

CO-3.To make them familiar with the significant critical approaches and terms

CO-4.To encourage students to interpret literary works in the light of the critical approaches

CO-5.To develop aptitude for critical analysis.

## **Department of History**

### **Course Outcomes Of Hindi**

## **F.Y.B.A.**

### **General Paper-1 (G1) (1177)**

#### **Chhatrapati Shivaji and His Times (1630-1760)**

CO-1. Introduce innovative study techniques in the study of History of Maratha to make it value based, conceptual and thought provocative.

CO-2. Introduce International elements in the study of Marathas to facilitate comparative analysis of this history.

CO-3. Highlight the importance of past in exploration of present context.

CO-4. Understand the Socio –economic, cultural and political background of 17th century Maharashtra.

CO-5. Increase the spirit of healthy Nationalism & Secularism among the student.

## **S.Y.B.A.**

### **General Paper-II (G2)(2177)**

#### **Modern India (1857-1950)**

CO-1. Help students to know- History of freedom movement of India, aims, objectives, problems and progress of Independent India.

CO-2. Enable students to understand the processes of rise of modern India.

CO-3. Acquaint students with fundamental aspects of Modern Indian History.

CO-4. Explain the basic concepts/ concerns/ frame work of Indian History

## **T.Y.B.A.**

### **General Paper III (G3)(3177)**

#### **History of the World in 20th Century (1914-1992)**

CO-1. Help students to know Modern World and acquaint with the Socio- economic & Political developments in other countries. And understand the contemporary world in the light of its background History.

CO-2. To orient the students with political history of Modern World.

CO-3. Acquaint with the main developments in the Contemporary World (Understand the important development in the 20th century World.)

CO-4. Impart knowledge about world concepts.

CO-5. Enable students to understand the economic transition in World during the 20th Century.

## **DEPARTMENT OF GEOGRAPHY**

### **Course Outcomes Of Geograhya:**

#### **F.Y. B.A – Element of Geomorphology (w.e.f -2013-14)**

Outcomes -

CO-1. To introduce the students to the basic concepts in geomorphology.

CO-2. To introduce latest concepts in geomorphology.

CO-3. To acquaint the students with the utility and application of geomorphology in different region and environment.

CO-4. To make the students aware of the need of protection and conservation of different landforms.

#### **S.Y. B.A – Geography of Disaster Management (w.e.f -2014-15)**

Outcomes –

CO-1. To introduce students the concepts of disaster its relation with geography.

CO-2. To acquaint the student with the utility and application of hazards in different areas and its management.

CO-3. To make the students aware of the need of protection and disaster management.

#### **T.Y. B.A – Human Geography (w.e.f- 2015-16)**

Outcomes –

CO-1. This course is to acquaint the students with the nature of man-environment relationship and human capability.

CO-2. To adopt and modify the environment under its varied conditions from primitive life style to the modern living.

CO-3. To identify and understand environment and population in terms of their quality and spatial distribution pattern

## **POLITICAL THEORY& CONCEPTS**

**F. Y. B. A. Political Science**  
**G-1 General Paper**

**INDIAN GOVERNMENT AND POLITICS**  
**(80. 20 pattern to be implemented from 2013-2014)**

**COURSE RATIONALE:**

This paper focuses in detail on the political processes and the actual functioning of

The political system .It simultaneously studies in detail the political structure both

Constitutional and Administrative. It emphasizes on local influences that derive From social stratification of castes and jatis, from language, religion, ethic and Economic determinants and critically assesses its impact on the political processes.

The major contradictions of the Indian Political Process are to be critically analyzed Along with an assessment of its relative success and failure in a comparative Perspective with other developing countries and in particular those belonging to the South Asian region.

**Course Outcome in Political Science:**

- 1 Student would have been familiarized with the political processes and the actual functioning of the political system.
- 2 Student would have been familiarized with studies in detail the political structure both Constitutional and Administrative.
- 3 Student would be emphasizes on local influences that derive from social stratification & impact on the political processes.

**S.Y.B.A Political Science**

**G-2 General Paper**

**POLITICAL THEORY& CONCEPTS**

**(80-20 Pattern to be implemented from 2014-2015)**

**Course Objectives:**

This is an introductory paper to the concepts, ideas and theories in political theory. It seeks to explain the evolution and usage of these concepts, ideas and theories with reference to individual thinkers both historically and analytically. The different ideological standpoints with regard to various concepts and theories are to be critically explained with the purpose of highlighting the differences in their perspectives and in order to understand their continuity and change. Furthermore there is a need to emphasize the continuing relevance of these concepts today and explain how an idea and theory of yesteryears gains prominence in contemporary political theory.

**Course Outcome in Political Science:**

- 1 Student would be familiarized to reference to individual thinkers both Historically & Analytically.

- 2 Student would be familiarized to different ideological standpoints with regard to various concepts and Theories.
- 3 Student would have been emphasize with the continuing relevance of these concepts today and explain how an Idea and Theory.

### **T.Y.B.A Political Science**

#### **G-3 General Paper**

#### **POLITICAL IDEALOGIES**

**(80-20 Pattern to be implemented from 2015-2016)**

#### **Course Rationale:**

This paper studies the role of different political ideologies and their impact in politics. Each ideology is critically studied in its historical context. In course of its evolution and development, the different streams and subtle nuances within each ideology, the changes and continuities in its doctrine and its relevance to contemporary times are highlighted. The close link between an idea and its actual

Realization in public policy needs to be explained as well. The philosophical basis of the ideologies is emphasized with special emphasis on key thinkers and their theoretical formulations. The legacy of all the major ideologies is to be critically assessed.

#### **Course Outcome in Political Science:**

- 1 Student would be able to understand different political ideologies and their impact in politics.
- 2 Student would have been familiarized with evolution and development, the different streams and subtle nuances within each ideology
- 3 Student would have been familiarized with the philosophical basis of the ideologies is emphasized with special emphasis on key thinkers and their theoretical formulations.

### **Department of Chemistry**

#### **Programme Outcomes, Programme Specific Outcomes, Course Outcomes**

#### **Programme Outcomes**

After successful completion of three year degree program in Chemistry student should be able to;

PO-1. Demonstrate, solve and an understanding of major concepts in alldisciplines of chemistry.

PO-2. Solve the problem and also think methodically, independently anddraw a logical conclusion.

PO-3. Employ critical thinking and the scientific knowledge to design, carryout, record and analyse the results of chemical reactions.

PO-4. Create an awareness of the impact of chemistry on the environment,society, and development outside the scientific community.

PO-5. Find out the green route for chemical reaction for sustainable development.

PO-6. To inculcate the scientific temperament in the students and outsidethe scientific community.

PO-7. Use modern techniques, decent equipment's and Chemistry software's.

### **Programme SpecificOutcomes**

PSO-1. Gain the knowledge of Chemistry through theory and practicals.

PSO-2. To explain nomenclature, stereochemistry, structures, reactivity,and mechanism of the chemical reactions.

PSO-3. Identify chemical formulae and solve numerical problems.

PSO-4. Use modern chemical tools, Models, Chem-draw, Charts and Equipment's.

PSO-5. Know structure-activity relationship.

PSO-6. Understand good laboratory practices and safety.

PSO-7. Develop research oriented skills.

PSO-8.make aware and handle the sophisticated instruments/equipment's.

### **Course Outcomes B. Sc. Chemistry Semester-III**

#### **CH-331 Physical Chemistry**

After completion of this course students should be able to

CO-1. Write an expression for rate constant K for third order reaction

CO-2. Solve the numerical problems based on Rate constant

CO-3.Understand the term specific volume, molar volume and molar refraction

CO-4. Know the meaning of phase, component and degree of freedom

CO-5. Derive the expression for rotational spectra for the transition fromJ to J+1

#### **CH-332InorganicChemistry**

After completion of this course students should be able to

- CO-1. Know the meaning of various terms involved in co-ordination chemistry
- CO-2. To understand Werner's formulation of complexes and identify the types of valences
- CO-3. Know the limitations of VBT
- CO-4. Know the shapes of d-orbitals and degeneracy of d-orbitals
- CO-5. Draw the geometrical and optical isomerism of complexes

### **CH-333 Organic Chemistry**

After completion of this course students should be able to

- CO-1. Define organic acids and bases.
- CO-2. Distinguish between geometrical and optical isomerism.
- CO-3. Discuss kinetics, mechanism and stereochemistry of SN1 and SN2 reactions.
- CO-4. Compare between E1 and E2 reactions.
- CO-5. Understand the evidences, reactivity and mechanism of various elimination and substitution reactions.

### **CH-334 Analytical Chemistry**

After completion of this course students should be able to

- CO-1. Know the principles of common ion effect and solubility product.
- CO-2. Study the methods of thermo-gravimetric analysis.
- CO-3. Understand the principles of Spectro-photometric analysis and properties of electromagnetic radiations.
- CO-4. Study the Voltammetry and Polarography as an analytical tool.
- CO-5. Measure the absorbance of atoms by AAS.

### **CH-335 Industrial Chemistry**

After completion of this course students should be able to

- CO-1. Know the importance of chemical industry.
- CO-2. Classify various insecticides.
- CO-3. Study the nutritive aspects of food constituents.
- CO-4. Understand the characteristics of some food starches.
- CO-5. Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.

### **CH-336-E Agriculture Chemistry**

After completion of this course students should be able to

- CO-1. Know the role of agriculture chemistry and its potential
- CO-2. Understand the basic concept of soil, properties of soil & its classification on the basis of pH.

- CO-3. Know the different plant nutrients, their functions and deficiency symptoms.
- CO-4. Identify the problematic soil and recommend a method for theirreclamation.
- CO-5. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.

### **Course Outcomes B. Sc. Chemistry Semester-IV**

#### **CH-341 Physical Chemistry**

After completion of this course students should be able to

- CO-1. Understand Mechanics of system of particles.
- CO-2. Know the Redox reaction.
- CO-3 Study the Crystal Field Theory.
- CO-4. Solve the cell reaction and calculate EMF..
- CO-5. Calculate interplanar distance.
- CO-6. Understand De-Broglie hypothesis and Uncertainty principle
- CO-7. Derive Schrodinger's time dependent and independent equations

#### **CH-342 Inorganic Chemistry**

After completion of this course students should be able to

- CO-1 Study the electronic configuration of lanthanides and actinides.
- CO-2. Get knowledge of Crystalline solid.
- CO-3. Understand different operation in stoichiometric molecule.
- CO-4. Study the Bio-inorganic chemistry.
- CO-5. Understand the p-type semiconductor and n-type semiconductor.

#### **CH-343 Organic Chemistry**

After completion of this course students should be able to

- CO-1. To study UV, IR and NMR spectroscopy.
- CO-2. Discuss different types of rearrangement reactions.
- CO-3. Determine structure of compound by spectroscopic methods.
- CO-4. Understand the difference between carbocation and carbanion.
- CO-5. To study alkaloids, Ephedrine, citral molecule with their properties and application.

#### **CH-344 Analytical Chemistry**

After completion of this course students should be able to

- CO-1. Know the different analytical techniques.
- CO-2. To understand different types of separation techniques.

CO-3. To study principle, construction and working of GC and HPLC.

CO-4. To give an extended knowledge about chromatographic techniques used for separation of amino acids.

CO-5. Discuss the problem based on distribution coefficient and extraction techniques.

### **CH-345 Industrial Chemistry**

After completion of this course students should be able to

CO-1. Know the various pharmaceutical drugs, their application and synthesis.

CO-2. To study the waste management.

CO-3. To understand the function of dyes, paints and pigments.

CO-4. To study the various type of surfactants.

CO-5. To know about molasses and bagasse.

CO-6. To study the different types of polymer.

### **CH-346E Dairy Chemistry**

After completion of this course students should be able to

CO-1. Know the market of milk in different breeds.

CO-2. Understand the basic principle of sterilization, homogenization, and standardization of milk.

CO-3. Study the flow sheet diagram of shrikhand powder, whey powder, and ice-cream.

CO-4. Study the different nutrient value in milk.

## **S.Y.B.Sc. Chemistry**

### **Programme Outcomes**

After completion of Second Year Students should be able to

- To Verify Theoretical Principles Experimentally.
- Students should correlate theoretical & experimental knowledge.
- To develop analytical abilities for independent thinking.

### **Course Outcomes S.Y.B.Sc. Chemistry**

#### **Sem I**

#### **CH -211 Physical & Analytical Chemistry.**

After completion of this course students should be able to

1. To Introduce Concept of Kinetics Types of Order & Techniques of rate measurement.
2. To know basic knowledge of Photochemistry and its applications.
3. To understand Nernst Distribution law & its application in Solvent Extraction.

4. To Introduce basics of Analytical Chemistry that is Instrumental methods and other techniques.
5. To Understand Errors & its Interpretation for Reliability of results.
6. To Study theory underlying Inorganic Qualitative Analysis.
7. To disseminate knowledge of Qualitative & Quantitative analysis of organic compounds.

### **CH - 212 Organic & Inorganic Chemistry**

After completion of this course students should be able to

- 1 To identify chiral centre in given organic compound
- 2 To draw chair & boat conformation of cyclohexane
- 3 To define and classify heterocyclic compounds
- 4 To suggest synthetic route for preparation of heterocyclic compounds
- 5 To study Principles and Processes in Metallurgy
- 6 To study Metallurgy of Aluminium and Iron

### **Course Outcomes S.Y.B.Sc. Chemistry Sem II**

#### **CH- 221 Physical & Analytical Chemistry.**

1. To conceptualize phenomenon of free energy and equilibria
2. To Distinguish behaviour of liquid phase solutions
3. To provide basic knowledge essential for Volumetric analysis, non instrumental volumetric techniques.

#### **CH -222 Organic & Inorganic Chemistry.**

- 1 Students should understand: The concept of different reagents used in one type of conversion
- 2 Students should know different Biomolecules
- 3 To study different solvents, to know Theories of acids and bases
- 4 To know Toxic chemicals in environment

### **F.Y. B. Sc. Chemistry (w. e. f- 2013- 2014)**

1. To provide in-depth knowledge of scientific and technological aspects of Chemistry.
2. To familiarize with current and recent developments in Chemistry.
3. To enrich knowledge through programmes such as industrial visits, projects etc.
4. To train students in skills related to Chemistry for academic and industrial requirement.
5. To create foundation for research and development in Chemistry .
6. To develop analytical abilities for independent thinking.
7. To help students build-up a progressive and successful career in Chemistry.

## TERM-I

- 1) This topic makes understanding of behavior of gases, ideal gas as a model system and its extension to real gases. The dependence of physical state on pressure, volume and temperature is being realized.
- 2) The existence of liquid state, comparison of its properties with other states is to be perceived. Liquid crystal are essentials in all common and research devices and instruments hence they are introduced briefly.
- 3) Student should be able to solve problems regarding van der Waal's and Critical constant and regarding P-V-T relations
- 4) Theoretical basis of adsorption phenomena is integrated. Understanding dynamic nature of surface and its applications in catalysis and in dispersed phases will lead to new area of nanoscience.
- 5) Mathematical background required for derivations, depictions and problem solving. This chapter strengthens these aspects.
- 6) Students should know
  - a) Mole concept
  - b) GMV relationship
  - c) Student should be able to solve problems based on GMV relationship.
  - d) Normality, Molarity, Normal solution, Molar solution, equivalent weight, ppm, %w/v, %v/v & related problems.
  - e) Standard solution, primary & secondary standard substances, standardisation of solution & related problems.
  - f) Understand the concept of oxidation & reduction, oxidizing agent, reducing agent, redox reaction, oxidation number, Balance the equation by ion electron method & oxidation number method.
  - g) Calculation of Equivalent weight of oxidant & reductant.

## TERM II

### Aims & Objective

- 1) Atom being most important micro particle in construction of matter, modern developments of its structure is presented. The quantization of energy and duality of matter in this context is elaborated. Schrodinger equation is the basis of quantum chemistry that has been introduced for simplest system hydrogen atom.
- 2) Natural changes are understood with the help of second and third laws of thermodynamics. These laws are presented with the help of state function entropy. Entropy changes in various processes and under various conditions have been discussed.
- 3) Student should understand:
  - a) Basic principle of overlapping of atomic orbital with specific shapes and sizes
  - b) Fundamental concepts of theories of overlapping of atomic orbitals
  - c) Concept of hybridization and differentiation with overlap
  - d) Concept of different types valence shell electron pairs and their contribution in bonding
  - e) Application of non-bonded lone pairs in shape of molecule
  - f) Basic understanding of geometry and effect of lone pairs with examples

## **Department of Microbiology**

### **Programme Outcomes:**

After Successful completion of three year degree program in Microbiology students are able to

PO-1: Perform the basic techniques related to screening, isolation and cultivation of microorganisms from various sources.

PO-2: Understand the role of diff. microorganisms and their relationship with the environment.

PO-3: Study the microorganism with regard to morphology, cultural and biochemical characteristics. It will help for the identification and classification of microorganisms to certain extent.

PO-4: Follow the aseptic techniques and conduct the process of sterilization as well as perform the techniques to control the growth of microorganism.

PO-5: Produce and analyze the microbial products feasible to produce at laboratory level.

PO-6: Conduct basic research with these microorganisms and perform the diagnostic procedures in pharmaceutical industries mik industries.

### **Programme Specific Outcomes:**

PSO-1: Gain the knowledge of microbiology through theory and practical's.

PSO-2: Understands good laboratory practices & safety.

PSO-3: Develop research oriented skill.

PSO-4: Get aware about the standardize handling of the instruments.

PSO-5: Students will be able to acquire articulate, retain & apply specialized lag & knowledge relevant to microbiology.

PSO-6: Students will communicate specific concept, experimental result & analytical arguments clearly both verbally & in writing.

### **Course outcomes:**

#### **B.Sc (Microbiology Sem-III)**

#### **MB-331 Medical Microbiology**

CO-1: It Contains diagnostic and pathogenesis of various diseases.

CO-2: Antimicrobial defense and different toxin is covered.

CO-3: It provide knowledge of pathogenic microorganisms their characterization ,pathogenesis and control(Prophylaxis)

CO-4: Student can safeguard himself & society & can work diagnostic & hospitals.

### **MB-332 Genetics & Molecular Biology**

CO-1: It contains DNA, RNA, Protein structure & synthesis.

CO-2: Study the recombinant DNA techniques its potential uses and biohazards.

CO-3: Different techniques used in r DNA technology.

CO-4: Contains the chromosome mapping, recombination frequency.

CO-5: This paper provides basic information of molecular biology.

### **MB-333 Enzymology**

CO-1: Different biomolecules, pH & buffering, enzymes, bacterial nutrition & growth is covered.

CO-2: Different principles of enzymes assay being studied.

CO-3: Enzyme purification methods and enzyme kinetics is being studied.

CO-4: Cofactors involved in regular metabolism.

CO-5: This paper will provide basis to understand microbiology and application.

### **MB-334 Immunology**

CO-1: Provide details of formation of blood cells.

CO-2: Types of immunity, immune organs, cells, antibodies, were discussed.

CO-3: Detailed understanding of graft transformation.

CO-4: Antigen processing and presentation mechanism by immune cells.

CO-5: Immunology plays important role in diagnosis, prevention and control of diseases.

### **MB-335: Fermentation Technology**

CO-1: Provide details of strain improvement and necessary media optimization by using different methods.

CO-2: Scale up and scale down discusses in detail.

CO-3: Different methods and principles of downstream processing is discussed.

CO-4: Quality assurance and IPR is being discussed.

CO-5: The students obtain the advanced knowledge to work in fermentation industries .the knowledge of IPR makes students to enable to protect their technologies.

### **MB-336 Food and Dairy Microbiology**

CO-1: Detail knowledge of dairy development , milk chemistry and it's constituents.

CO-2: Different Preservation methods and microbial analysis of milk.

CO-3: Food spoilage and food preservation techniques.

CO-4: Application of genetically modified microorganisms in food microbiology.

### **B.Sc (Microbiology Sem-IV)**

### **MB-341 Medical Microbiology**

CO-1: Detail discussion of chemotherapy.

CO-2: Cultivation of viruses, study of parasites.

CO-3: Study of fungal pathogens.

CO-4: different concepts of medical microbiology were discussed.

### **MB-342 Genetics and Molecular Biology**

CO-1: Gene transfer techniques, DNA damage and repair.

CO-2: Tools of recombinant DNA technology.

CO-3: Familiar with concept of mutation.

CO-4: Understand the difference between basic and modern concept of genetics and molecular biology.

### **MB-343 Metabolism**

CO-1: Membrane transport mechanisms and concept of bioenergetics.

CO-2: Bacterial photosynthesis.

CO-3: Biosynthesis and degradation of various biomolecules.

CO-4: Metabolism of carbohydrates, lipids, amino acids, nucleotide.

### **MB- Immunology**

CO-1: Immune system and immune response.

CO-2: Immune response to infection and diseases.

CO-3: Histochemical and immune techniques.

### **MB- Fermentation Technology**

CO-1: Large scale production of primary and secondary.

CO-2: Large scale production of amylase, esterase, protease.

CO-3: Large scale production of antibiotics, Biomass based products, milk products.

CO-4: Production of Immune sera.

### **MB- Agricultural and Environmental Microbiology**

CO-1: Bioremediation and waste water treatment.

CO-2: Introduction to nanobiotechnology.

CO-3: Microbial biosensors and biochips in environmental monitoring.

CO-4: Bioterrorism.

**Class: S.Y.B.Sc.**

### **Programme Outcome:**

After Successful completion of course, students are able to

PO-1: Develop fundamental knowledge of various biomolecules.

PO-2: Understand the basic concept of enzymes.

PO-3: Know the concept related with the microbial interaction.

PO-4: Check potability of water , microflora of air.

PO-5: Students should get the basics of industrial microbiology, Genetics , Enzymology , Systematics.

### **Course Outcomes:**

On Completion of course students should able to

#### **MB-211 Bacterial systematic and Physiology**

CO-1: Know various biochemical pathway.

CO-2: Understand the concept of the microbial metabolism.

CO-3: Understand the basics of enzymes and classification of enzymes.

CO-4: Bacterial taxonomy is discussed.

#### **MB-212 Industrial and Soil microbiology**

CO-1: Know the industrially important microbial strains and methods of screening.

CO-2: Fermentor tank and it's different part's working and construction has been discussed.

Formulation of media and process control is discussed.

CO-3: To know about soil microorganisms and soil composition.

CO-4: Understand microbial interaction.

CO-5: To Know the basics of industrial and soil microbiology.

#### **MB-221 Bacterial Genetics (Sem-II)**

CO-1: Understand concept of genes and chromosomes.

CO-2: Familiar with concept of mutation.

CO-3: Know the Concept of spontaneous and induced mutation.

CO-4: To know the concept of central dogma of protein synthesis(Transcription, Translation).

#### **MB-222 Air and Water Microbiology (Sem-II)**

CO-1: To know the basics of air and water microbiology.

CO-2: General idea about air microflora ,air pollution and different pollutants.

CO-3: To know the different methods of air sampling.

CO-4: Air sanitation and air borne infection.

CO-5: Types of water and water purification method.

CO-6: To know about different indicators of fecal pollution and CO-7: water borne diseases transmission.

**Class: F.Y.B.Sc.**

**Course Outcomes:**

After Successful completion of course, students are able to

**MB-101 Introduction to Microbiology**

CO-1: History of microbiology has been discussed.

CO-2: Various development in microbiology such as germ theory of fermentation , germ theory of disease, surgical antisepsis has been discussed.

CO-3: General concept of vaccination and chemotherapy.

CO-4: To know the scope and application of microbiology.

CO-5: To know the anatomy of prokaryotic cell.

CO-6: To understand the taxonomic classification of microorganisms.

CO-7: To know structural organization of cell and it's importance.

CO-8: Understand the morphological and differentiating characters of microorganisms.

CO-9: To know the structure of various biomolecules.

**MB-102 Basic techniques in Microbiology**

CO-1: Know parts of microscope, types and it's principle.

CO-2: Get the theoretical concept of related stain.

CO-3: Understand different methods of staining.

CO-4: Understand nutritional requirement of microorganisms and their classification.

CO-5: Develop basic skills in aseptic techniques (different sterilization methods).

CO-6: Different methods of cultivation and preservation of bacteria.

CO-7: Understand concept of growth and reproduction of bacteria.

CO-8: Understand the enumeration techniques for microbes.

CO-9: To Know the factors affecting bacterial growth.

**Department Of Zoology**

COURSE OUTCOMES IN ZOOLOGY

F.Y. B. Sc. ZOOLOGY (w. e. f- 2013- 2014)

**ZY-101: ANIMAL SYSTEMATICS AND DIVERSITY I &II**

- Understand the animal kingdom.
- Student learn to describe unique characters of phylum Protozoa, Porifera, Coelenterata, Platyhelminthes, Aschelminthes, Annelida.
- Understand the body organization of phylum from protozoa to annelida.
- Understand the systematic position habit and habitat of Paramoecium.
- Students learned about structure, nutrition, excretion and reproduction of Paramoecium.
- Understand systematic position, habit and habitat of Earthworm with the help of charts/models/pictures.
- Students learned to describe various internal systems like digestive system, circulatory systems, excretory systems, reproductive systems, nervous system and sense organs with the help of charts.
- Understand the economic importance of Earthworm.
- Students learned the general characters and classification of phylum Hemichordata, Urochordata and Cephalochordata.
- Understand salient features of Pisces
- Students learned to distinguish between cartilaginous and bony fishes
- Understand salient features of Amphibia.
- Students learned to classify Amphibia by characters and also order of amphibia Apoda, Urodela and Anura.
- Students learned to describe systematic position, habit and habitat, external characters and sexual dimorphism of Frog.
- Students learned to describe various internal systems such as Digestive system, food, feeding and physiology of digestion, circulatory systems, central nervous system, sense organs, and reproductive systems with the help of charts.
- Understand migration in fishes, neoteny in amphibian and parental care in amphibian.

## **ZY 102: FUNDAMENTALS OF CELL BIOLOGY AND GENETICS**

- Understand the Scope of cell biology, because cell is the basic unit of life.
- Understand the principle and composition of vital staining, cytoplasmic staining and nuclear staining.
- To distinguish between the characters of prokaryotic cell (bacteria) and eukaryotic cell (plant and animal).
- Understand the cell cycle and know the importance of various cells in body of organisms
- Student should be able to describe structure and function of cell membrane.
- Understand composition of cytoplasm.
- Learned in-depth knowledge of the cell organelles such as endoplasmic reticulum, golgi complex, lysosomes, ribosomes and mitochondria with their structure and function.
- Understand the Nucleus, shape, size and position ultrastructure and functions.
- Student should be able to describe cell cycles and its significance.
- Understand the basic knowledge of genetics.
- Understand Mendelian inheritance laws.
- Understand and describe gene interaction.
- Understand and describe lethal genes.
- Understand and describe multiple alleles.
- Understand and describe structure, classification and types of chromosomes.

- Understand about chromosomal aberrations.
- Understand about sex determination, parthenogenesis, gynandromorphism.
- Understand and describe human genetics and syndroms.
- Understand and describe inborn errors of metabolism.
- Understand sex linked inheritance in humans
- Understand the cytoplasmic inheritance in humans
- Understand the application of genetics.

S.Y. B. Sc. ZOOLOGY (w. e. f- 2014- 2015)

### **ZY-211: ANIMAL SYSTEMATICS AND DIVERSITY III&IV**

- Student should be able to describe unique characters of Arthropods, Mollusks, Echinoderms with its classes.
- Understand the Mouthparts of insects with the help of charts/pictures.
- To study and understand the concepts metamorphosis, mimicry in insects, economic importance of insects, larval forms of in crustacean.
- To study and understand the economic importance of insects, shell and foot modification in Mollusca.
- To study and understand the origin of Echinodermata, types of pedicellariae and larval forms in Echinoderms.
- Understand the systemic position habit and habitat and external characters with help of animal Sea star.
- Able to know the regeneration and autotomy in Sea star.
- Student should be able to describe unique characters of Reptilia, Aves, Mammalia with its classes.
- Able to distinguish between poisonous and non poisonous snakes with examples.
- Understand desert adaptations in Reptiles in brief.
- Understand beak and feet modifications in birds.
- Able to know migration in birds.
- To study and understand arial adaptations in birds.
- To study and understand egg laying mammals
- Understand the systemic position habit and habitat and external characters with help of Scoliodon.
- Students learned to describe various internal systems like digestive system, food and feeding and physiology of digestion, respiratory system, blood vascular system, nervous system sense and reproductive systems, nervous system with the help of charts.

### **ZY-212: APPLIED ZOOLOGY I & II**

- Able to know fresh water, marine and estuarine fisheries
- Understand the different types of ponds used in fishery such as nursery pond, rearing pond, stock pond
- To observe and study the habit, habitat and culture methods of Rohu, Catla, Mrigal and Giant prawn.
- Understand the harvesting methods of the Harpadon, Mackerel, Lodsters and Pearl oysters.
- Able to know crafts such as Catamaran, Machwa, Dinghy, Dug out canoe, Built-up.
- Able to know Gears such as Gill net, Dol net, Purse net, Rampani net, Cast net.

- To observe and study the fishery byproducts such as fish meal, fish flour, liver oil, ising glass, fish glue, fish manure, fish fin, soup.
- Able to know Fish preservation technique such as Chilling freezing, salting, drying, canning.
- Understand the Agricultural Pests types of pests such as agricultural, household, stored grain, structural, veterinary, forestry and nursery.
- Able to know major insect pests of agricultural importance and describe the marks of identification, life cycle, nature of damage and control measures of Jowar stem borer, Red cotton bug, Brinjal fruit borer, Mango stem borer, Pulse beetle, Rice weevil.
- Understand the non insect pest such as Rats and Bandicoots, Crabs, Snails, Slugs, Birds and Squirrels.
- Able to know the Pest control practices such as Cultural control, Physical control, Mechanical control, Chemical control, Biological control, Pheromonal control and Concept of IPM .
- Understand the Plant protection appliances such as Rotary duster, Knapsack sprayer, Cynogas Pump.
- Able to know Hazards of pesticides on human and antidotes.
- Understand the term apiculture.
- Understand the habit, habitat and nesting behavior of *Apis dorsata*, *Apis indica*, *Apis florea* and *Apis mellifera*
- To observe and study the life cycle, colony organization and division of labour, polymorphism.
- Understand the Bee behaviour and bee communication.
- To observe and study the Bee keeping equipments-Bee box (Langstroth type), Honey extractor Smoker, Bee-veil, Gloves, Hive tool, Bee Brush, Queen excluder.
- Understand the Bee keeping and seasonal management.
- To study and understand Bee products-Honey, Wax, Bee Venom, Propolis, Royal jelly, Pollen grains.
- Understand the diseases and enemies of Bees-Bee diseases – Protozoan, Bacterial, Viral, Fungal – with examples. Bee pests-Wax moth (Greater and Lesser), Wax beetle. Bee Enemies – Bee eater, King crow, Wasp, Lizard, Bear, Man
- Able to know the Bee pollination.
- To study and understand the Sericulture.
- Able to know the study of different types of silk moths, their distribution and varieties of silk produced by Mulberry-Tassar, Eri and Muga silk worms in India.
- To observe and study the External morphology and life cycle of *Bombyx mori*.
- Understand the cultivation of mulberry (moriculture)-varieties for cultivation,
- rainfed and irrigated mulberry cultivation – Fertilize schedule, Pruning methods and leaf yield.
- To observe and study the Harvesting of mulberry-Leaf plucking, Branch cutting, Whole shoot cutting.
- To observe and study the silk worm rearing-types of rearing, rearing house, rearing techniques.
- To observe and study the post harvest processing of cocoons- Harvesting and Preparation of cocoons for marketing, stiffling, sorting, storage, deflossing and riddling, Cocoon cooking, reeling equipment and reeling, washing and polishing.

## Department of Botany

### Programme Outcomes

**PO1. Knowledge and understanding of:**

1. The range of plant diversity in terms of structure, function and environmental relationships.
2. The evaluation of plant diversity.
3. Plant classification and the flora of Maharashtra.
4. The role of plants in the functioning of the global ecosystem.
5. A selection of more specialized, optional topics.
6. Statistics as applied to biological data.

**PO2. Intellectual skills – able to:**

1. Think logically and organize tasks into a structured form.
2. Assimilate knowledge and ideas based on wide reading and through the internet.
3. Transfer of appropriate knowledge and methods from one topic to another within the subject.
4. Understand the evolving state of knowledge in a rapidly developing field.
5. Construct and test hypothesis.
6. Plan, conduct and write a report on an independent term project.

**PO3. Practical skills:** Students learn to carry out practical work, in the field and in the laboratory, with minimal risk. They gain introductory experience in applying each of the following skills and gain greater proficiency in a selection of them depending on their choice of optional modules.

1. Interpreting plant morphology and anatomy.
2. Plant identification.
3. Vegetation analysis techniques.
4. A range of physiochemical analyses of plant materials in the context of plant physiology and biochemistry.
5. Analyze data using appropriate statistical methods and computer packages.
6. Plant pathology to be added for sharing of field and lab data obtained.

**PO4. Transferable skills:**

1. Use of IT (word-processing, use of internet, statistical packages and databases).
2. Communication of scientific ideas in writing and orally.
3. Ability to work as part of a team.
4. Ability to use library resources.
5. Time management.
6. Career planning.

**PO5. Scientific Knowledge:** Apply the knowledge of basic science, life sciences and fundamental process of plants to study and analyze any plant form.

**PO6. Problem analysis:** Identify the taxonomic position of plants, formulate the research literature, and analyze non reported plants with substantiated conclusions using first principles and methods of nomenclature and classification in Botany.

- PO7. **Design/development of solutions:** Design solutions from medicinal plants for health problems, disorders and disease of human beings and estimate the phytochemical content of plants which meet the specified needs to appropriate consideration for the public health
- PO8. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and development of the information to provide valid conclusions.
- PO9. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern instruments and equipments for Biochemical estimation, Molecular Biology, Biotechnology, Plant Tissue culture experiments, cellular and physiological activities of plants with an understanding of the application and limitations.
- PO10. **The Botanist and society:** Apply reasoning informed by the contextual knowledge to assess plant diversity, its importance for society, health, safety, legal and environmental issues and the consequent responsibilities relevant to the biodiversity conservation practice.
- PO11. **Environment and sustainability:** Understand the impact of the plant diversity in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- PO12. **Ethics:** Apply ethical principles and commit to environmental ethics and responsibilities and norms of the biodiversity conservation.
- PO13. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- PO14. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO15. **Project management and finance:** Demonstrate knowledge and understanding of the engineering 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.
- PO16. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### Course Outcomes

- CO1. Critically evaluation of ideas and arguments by collection relevant information about the plants, so as recognize the position of plant in the broad classification and phylogenetic level.
- CO2. Identify problems and independently propose solutions using creative approaches, acquired through interdisciplinary experiences, and a depth and breadth of knowledge/expertise in the field of Plant Identification.
- CO3. Accurately interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.
- CO4. Students will be able to apply the scientific method to questions in botany by formulating testable hypotheses, collecting data that address these hypotheses, and analyzing those data to assess the degree to which their scientific work supports their hypotheses.

- CO5. Students will be able to present scientific hypotheses and data both orally and in writing in the formats that are used by practicing scientists.
- CO6. Students will be able to access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.
- CO7. Students will be able to apply fundamental mathematical tools (statistics, calculus) and physical principles (physics, chemistry) to the analysis of relevant biological situations.
- CO8. Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework. Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.
- CO9. Students will be able to use the evidence of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth. They will be able to use specific examples to explicate how descent with modification has shaped plant morphology, physiology, and life history.
- CO10. Students will be able to explain how Plants function at the level of the gene, genome, cell, tissue, Flower development. Drawing upon this knowledge, they will be able to give specific examples of the physiological adaptations, development, reproduction and mode of life cycle followed by different forms of plants.
- CO11. Students will be able to explain the ecological inter connectedness of life on earth by tracing energy and nutrient flow through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.
- CO12. Students will be able to demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

**Class – F.Y.B.Sc. Paper I – Plant Diversity and Morphology and Anatomy.**

On completion of the course, students are able to:

1. Understand the diversity of Algae, Fungi, Bryophytes, Lichens, Pteridophytes & Gymnosperms.
2. Know the systematic, morphology and structure of Algae, Fungi, Bryophytes, Lichens, Pteridophytes and Gymnosperms.
3. Understand the life cycle pattern of Algae, Fungi, Bryophytes, Lichens, Pteridophytes and Gymnosperms.
4. Know importance and scope of plant Anatomy.
5. Understand the Anatomical and morphological features of Plants.
6. Understand the habit of the angiosperm plant body.
7. Know the vegetative characteristics of the plant.
8. Learn about the reproductive characteristics of the plant.
9. Understand the plant morphology and basic taxonomy.

**Class – F.Y.B.Sc. Paper II – Industrial Botany I and II.**

On completion of the course, students are able to:

1. Understand the economic importance of the Plants.

2. Become aware of applications of different plants in various industries.
3. To highlight the potential of these studies to become an entrepreneur.
4. To equip the students with skills related to laboratory as well as industries based studies
5. Understand the role plants in human welfare.
6. Gain knowledge about various plants of economic use.
7. Know importance of plants & plant products.
8. Understand the chemical contents of the plant products.
9. Know about the utility of plant resources.

**Class – S.Y.B.Sc. Semester I Paper I – Fundamentals of Plant systematic and Plant Ecology**

On completion of the course, students are able to:

1. Know the scope and importance of the discipline.
2. Understand plant communities and ecological adaptations in plants.
3. Know the concept of methodology in taxonomy.
4. Learn about conservation of biodiversity, Non-conventional Energy and Pollution.
5. Discover botanical regions of India and vegetation types of Maharashtra.
6. Know the conceptual development of taxonomy and systematic.
7. Understand the Phylogeny of angiosperms -A general account of the origin of Angiosperms.
8. Learn about the characters of biologically important families of angiosperms.
9. Know the floral variations in angiospermic families, their phylogeny and evolution.
10. Understand various rules, principles and recommendations of plant nomenclature produces in plant identification.
11. Understand major evolutionary trends in various parts of angiospermic plants.

**Class – S.Y.B.Sc. Semester I Paper II – Plant Physiology.**

On completion of the course, students are able to:

1. Know importance and scope of plant physiology.
2. Understand the plants and plant cells in relation to water.
3. Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
4. Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.
5. Learn about the movement of sap and absorption of water in plant body.
6. Understand the plant movements.
7. Learn and understand about mineral nutrition in plants.
8. Understand the growth and developmental processes in plants.
9. Know about Photosynthesis and Respiration in plants.
10. Understand the process of translocation of solutes in plants.
11. Know the nitrogen metabolism and its importance.

**Class – S.Y.B.Sc. Semester II Paper I – Plant Anatomy and Embryology.**

On completion of the course, students are able to:

1. Know the scope and importance of the discipline.
2. Understand the Anatomical features of Plants.
3. Understand major evolutionary trends in various parts of angiospermic plants.
4. Know the methods of pollination and fertilization.

5. Know fertilization, endosperm and embryogeny.
6. Understand the scope & importance of Anatomy.
7. Know various tissue systems.
8. Understand the normal and anomalous secondary growth in plants and their causes.
9. Perform the techniques in anatomy.

**Class – S.Y.B.Sc. Semester II Paper II – Plant Biotechnology.**

On completion of the course, students are able to Understand:

1. Know about the genomic organization of living organisms, study of genes genome, chromosome etc.
2. Gain knowledge about the mechanism and essential component required for prokaryotic DNA replication.
3. Understand the fundamentals of Recombinant DNA Technology.
4. Know about the Genetic Engineering.
5. Understand the principle and basic protocols for Plant Tissue Culture.
6. The concept of operon and its structure and regulation.

## **Department of Physics**

### **F. Y. B. Sc.**

#### **Course Outcomes:**

1. To provide in-depth knowledge of scientific and technological aspects of Physics.
2. To familiarize with current and recent scientific and technological developments in Physics.
3. To enrich knowledge through problem solving, hands on activities, study visits, projects etc.
4. To train students in skills related to research, education, industry and market.
5. To create foundation for research and development in Electronics.
6. To develop analytical abilities towards real world problems.
7. To help students build-up a progressive and successful career in Physics.

### **S. Y. B. Sc.**

#### **Course Outcomes:**

1. Understand the complex algebra useful in Physics courses.
2. Understand the concept of partial differentiation.
3. Understand the role of partial differential equations in Physics.
4. Understand the vector algebra useful in mathematics and Physics.
5. Understand the singular points of differential equations.
6. Apply laws of electrical circuits to different circuits.
7. Understand the relations in electricity.
8. Understand the properties and working of transistors.
9. Understand the functions of operational amplifiers.
10. Understand the Boolean algebra and logic circuits.
11. Design circuits using transistors and operational amplifiers.
12. Understand the Physics and mathematics of oscillations.

13. Solve the equations of motion for simple harmonic, damped and forced oscillators.
14. Formulate these equations and understand their
15. Describe oscillatory motion with graphs and equations and use these descriptions to solve problems of oscillatory motion.
16. Explain oscillation in terms of energy exchange, giving various examples.
17. Understand the mathematical description of travelling and standing waves.
18. Recognize 1-D classical wave equation and solutions to it.
19. Understand the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.
20. Define the decibel scale qualitatively, and give examples of sounds at various levels

## **Department Of Mathematics**

Course outcome in mathematics

### **F.Y.B.Sc(Comp.Sci) And S.Y.B.Sc(Comp. Sci)(w.e.f.2013-14)**

Objectives:

- i) A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.
- (ii) A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
- (iii) A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.
- (iv) A student be able to apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.
- (v) A student should be made aware of history of mathematics and hence of its

### **F.Y.B.Sc And S.Y.B.Sc(w.e.f.2013-14)**

Objectives:

- (i) A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.
- (ii) A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.
- (iii) A student should get adequate exposure to global and local concerns that

explore them many aspects of Mathematical Sciences.

(iv) A student be able to apply their skills and knowledge ,that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

## **Department Of Statistics**

### **Course Outcome In Statistics:**

**F.Y.B.Sc. (w.e.f. 2013-2014)**

#### **Paper I: Descriptive Statistics**

Objectives:

- to compute various measures of central tendency, dispersion, skewness and kurtosis.
- to analyze data pertaining to attributes and to interpret the results.
- to compute the correlation coefficient for bivariate data and interpret it.
- to fit linear, quadratic and exponential curves to the bivariate data to investigate relation between two variables.
- to fit linear regression model to the bivariate data
- to compute and interpret various index numbers.

#### **Paper II: Discrete Probability and Probability Distributions**

Objectives:

- to distinguish between random and non-random experiments.
- to find the probabilities of events.
- to obtain a probability distribution of random variable (one or two dimensional) in the given situation, and
- to apply standard discrete probability distribution to different situations.

#### **S.Y.B.Sc.(w.e.f.2014-2015)**

Objectives :

- To fit various discrete and continuous probability distributions and to study various real life situations.
- To identify the appropriate probability model that can be used.
- To use forecasting and data analysis techniques in case of univariate and multivariate data sets.
- To use statistical software packages.
- To test the hypotheses particularly about mean, variance, correlation, proportions and goodness of fit.
- To study applications of statistics in the field of demography etc

## **Department of Electronics**

**Course Outcome**

**For B.Sc.(Regular)**

### **F. Y. B.Sc. Electronics (w. e. f- 2013- 2014)**

1. To provide indepthknowledge of scientific and technological aspects of
2. electronics
3. To familiarize withcurrent and recent technological developments
4. To enrich knowledge through programmessuch asindustrial visits, hobby projects, market survey, projects etc.
5. To train students in skills related to electronics industry and market.
6. To creat foundation for research and development in Electronics
7. To develop analytical abilities towards real world problems
8. To help students build-up a progressive and successful career in Electronics

### **F. Y. B.Sc.Electronics1 (w. e. f- 2013-2014)**

#### Objectives

1. To get familiar with basic circuit elements and passive components
2. To understand DC circuit theorems and their use in circuit analysis
3. To study characteristic features of semiconductor devices
4. To study elementary electronic circuits and applications
5. To understand basics of operational amplifiers.

### **F. Y. B.Sc.Electronics2 (w. e. f- 2013-2014)**

#### Objectives

1. To get familiar with concepts of digital electronics
2. To learn number systems and their representation
3. To understand basic logic gates, Boolean algebra and K-maps
4. To study arithmetic circuits, combinational circuits and sequential circuits
5. To study comparative aspects of logic families.

### **S. Y. B.Sc.sem1 Elect.1 (w. e. f- 2014- 2015)**

#### Objectives

1. To study basic principles of amplifiers and oscillators.
2. To understand the working of various analog circuits.
3. To develop analog circuit design skills.
4. To apply the knowledge of analog circuits in different applications.

### **S. Y. B.Sc. sem1 elect2 (w. e. f- 2013- 2014)**

#### Objectives

1. To utilize k-maps in the design of combinational circuits.
2. To understand the design principles of sequential circuits.
3. To study the design and working of various data converters
4. To configure the digital circuits in system interfacing and applications.

### **S. Y. B.Sc. sem2 Elect1 (w. e. f- 2013-2014)**

#### Objectives

1. To study the block diagram of electronic instruments
2. To understand the working principles of frequently used instruments.
3. To know important technical specifications of an instruments.
4. To learn the operating procedure of instruments.

### **S. Y. B.Sc.sem2 Elect.2 (w. e. f- 2014- 2015)**

## Objectives

1. To study basics of communication systems and telephone system.
2. To understand Amplitude and Frequency Modulation.
3. To understand basics of AM and FM Receivers.
4. To study the digital communication system.

## For B.Sc.(comp.Science)

### F. Y. B.Sc. Electronics (w. e. f- 2013- 2014)

1. To provide indepthknowledge of scientific and technological aspects of
2. electronics
3. To familiarize withcurrent and recent technological developments
4. To enrich knowledge through programmessuch asindustrial visits, hobby
5. projects, market survey, projects etc.
6. To train students in skills related to electronics industry and market.
7. To creat foundation for research and development in Electronics
8. To develop analytical abilities towards real world problems
9. To help students build-up a progressive and successful career in Electronics

### F. Y. B.Sc.Electronics1 (w. e. f- 2013-2014)

#### Objectives

1. To get familiar with basic circuit elements and passive components
2. To understand DC circuit theorems and their use in circuit analysis
3. To study characteristic features of semiconductor devices
4. To study elementary electronic circuits and applications
5. To understand basics of operational amplifiers.

### F. Y. B.Sc.Electronics2 (w. e. f- 2013-2014)

#### Objectives

1. To get familiar with concepts of digital electronics
2. To learn number systems and their representation
3. To understand basic logic gates, booleanalgebra and K-maps
4. To study arithmetic circuits, combinational circuits and sequential circuits
5. To study comparative aspects of logic families.

### S. Y. B.Sc.sem1 Elect.1 (w. e. f- 2014- 2015)

#### Objectives

1. To study the applications of logic gates.
2. To use K-maps for digital circuit design.
3. To study and understand basics of microprocessors
4. To understand fundamentals of multicore technology

### S. Y. B.Sc. sem1 elect2 (w. e. f- 2013- 2014)

#### Objectives

- 1) To understand basics of analog electronics
- 2) To study different types of sensors
- 3) To understand different types of signal conditioning circuits
- 4) To learn data conversion techniques
- 5) To apply knowledge of analog systems in different applications

### S. Y. B.Sc. sem2Elct1 (w. e. f- 2013-2014)

### Objectives

1. To study the basics of 8051 microcontroller
2. To study the Programming and interfacing techniques of 8051
3. To apply knowledge of 8051 to design different application circuits
4. To introduce the basic concepts of advanced Microcontrollers

### **S. Y. B.Sc.sem2 Elect.2 (w. e. f- 2014- 2015)**

#### Objectives

1. To understand basics of communication systems.
2. To understand modulation, demodulation and multiplexing of signals.
3. To understand digital communication techniques
4. To introduce concepts in advanced wireless communication.

## **Subject Outcome**

### **S. Y. B. Sc. And S. Y. B. Sc. Comp. Sci.**

#### **Subject: English**

English Subject for S. Y. B. Sc. And S. Y. B. Sc. Comp. Sci. has the following outcomes:

1. Use correct English in oral as well as written form.
2. Inculcate the human values for one's transformation of behaviour.
3. Interpret the literary works by critical analysis.
4. Compare literary works of the great writers and philosophers by using their logic and literary competency
5. Nurture themselves in soft skills and develop research aptitude.
6. Apply the study of English Language & Grammar in their practical life.

## **Department Of Computer Science**

### **Program outcomes for the computer science program**

- PO:1 Students will possess problem-solving skills, especially those required to analyze, design and implement solutions involving the use of a computer.
- PO:2 Students will have a thorough understanding in current computing systems and the theoretical aspects of computer science.
- PO:3 Challenge students to consider the ethical and social impacts of technology, for responsible action as a professional.
- PO:4 Prepare students for current and continued learning in a rapidly changing discipline of

- computer science and technology.
- PO:5 Students will attain an ability to apply knowledge of computing and mathematics appropriate to the discipline.
- PO:6 Students will attain an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- PO:7 Students will attain an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- PO:8 Students will attain an ability to function effectively on teams to accomplish a common goal.
- PO:9 Students will attain an understanding of professional, ethical, legal, security and social issues and responsibilities.
- PO:10 Students will attain an ability to use current techniques, skills, and tools necessary for computing practice.
- PO:11 Students will attain an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- PO:12 Students will attain an ability to apply design and development principles in the construction of software systems of varying complexity.

### **T.Y.B.Sc. (Computer Science ) Sem-III**

#### **Course Outcome:**

#### **Systems Programming:**

CO1: To understand the design structure of a simple editor.

CO2: To understand the design structure of Assembler and macro processor for an hypothetical simulated computer.

CO3: To understand the working of linkers and loaders and other development utilities.

CO4: To understand Complexity of Operating system as a software

#### **Theoretical Computer Science**

CO1: To have an understanding of finite state and pushdown automata.

CO2: To have a knowledge of regular languages and context free languages.

CO3: To know the relation between regular language, context free language and corresponding recognizers.

CO4: To study the Turing machine and classes of problems

#### **Computer Networks –I**

CO1: Understand different types of networks, various topologies and application of networks.

CO2: Understand types of addresses, data communication.

CO3: Understand the concept of networking models, protocols, functionality of each layer.

CO4: Learn basic networking hardware and tools.

#### **Internet Programming I**

CO1: Learn Core-PHP, Server Side Scripting Language

CO2: Learn PHP-Database handling.

### **Programming in Java-I**

CO1: To learn Object Oriented Programming language

CO2: To handle abnormal termination of a program using exception handling

CO3: To create flat files

CO4: To design User Interface using Swing and AWT

### **Object Oriented Software Engineering**

CO1: Knowledge of Object Oriented Concepts

CO2: Knowledge of Classical Software Engineering

### **T.Y.B.Sc. (Computer Science ) Sem-IV**

#### **Course Outcome:**

#### **Operating Systems**

CO1: To understand design issues related to process management and various related algorithms

CO2: To understand design issues related to memory management and various related algorithms

CO3: To understand design issues related to File management and various related algorithms

#### **Compiler Construction**

CO1: To understand design issues of a lexical analyzer and use of Lex tool

CO2: To understand design issues of a parser and use of Yacc tool

CO3: To understand issues related to memory allocation

CO4: To understand and design code generation schemes

#### **Computer Networks –II**

CO1: Basic networking concepts.

CO2: Understand wired and wireless networks, its types, functionality of layer.

CO3: Understand importance of network security and cryptography

#### **Internet Programming II**

CO1: Learn different technologies used at client Side Scripting Language

CO2: Learn XML,CSS and XML parsers.

CO3: One PHP framework for effective design of web application.

CO4: Learn JavaScript to program the behavior of web pages.

CO5: Learn AJAX to make our application more dynamic.

#### **Programming in Java-II**

CO1: To learn database programming using Java

CO2: To study web development concept using Servlet and JSP

CO3: To develop a game application using multithreading

CO4: To learn socket programming concept

### **Computer Graphics**

CO1: Computer programming skills in C programming language

CO2: Basic understanding of use of data structures

CO3: Basic Mathematical concepts related to matrices and geometry

### **S.Y.B.Sc. (Computer Science )Sem-I & Sem-II**

#### **DATA STRUCTURES USING 'C'**

CO1: To learn the systematic way of solving problem

CO2: To understand the different methods of organizing large amount of data

CO3: To efficiently implement the different data structures

CO4: To efficiently implement solutions for specific problems

#### **Relational Database Management System**

CO1: To teach fundamental concepts of RDBMS (PL/PgSQL)

CO2: To teach principles of databases

CO3: To teach database management operations

CO4: To teach data security and its importance

CO5: To teach client server architecture

### **F.Y.B.Sc. (Computer Science )**

Problem Solving Using Computers and 'C' Programming

CO1: To develop Problem Solving abilities using computers

CO2: To teach basic principles of programming

CO3: To develop skills for writing programs using 'C'

#### **File Organization and Fundamental of Databases**

CO1: To learn and understand the basic concepts of database.

CO2: To learn about database handling

### **M.Sc. (Computer Science) SEM-I**

#### **Principles of Programming Languages**

CO1: This course will prepare you to think about programming languages analytically: -

Separate syntax from semantics - Compare programming language designs - Learn new languages more quickly - Use standard vocabulary when discussing languages - Understand basic language implementation techniques

#### **Advanced Networking**

CO 1: The course objectives are to provide the student with knowledge of advanced network engineering concepts and techniques.

CO2 : The learning outcomes include understanding the principles for implementing a multi layer network, management systems for the network and routing of information throughout the network.

## **Distributed Database Concepts**

CO1: Main objective is to understand the principles and foundations of distributed databases. This course addresses architecture, design issues, integrity control, query processing and optimization, transactions, and concurrency control & distributed transaction reliability.

## **Design and Analysis of Algorithms**

- CO1: This course will prepare students in
- CO2: Basic Algorithm Analysis techniques and understand the use of asymptotic notation
- CO3: Understand different design strategies
- CO4: Understand the use of data structures in improving algorithm performance
- CO5: Understand classical problem and solutions
- CO6: Learn a variety of useful algorithms
- CO7: Understand classification of problems

## **Network Programming**

CO1 : The main objectives of this lab is to impart the students with hands of experience on Unix system calls, Unix Inter Process communication, Remote Procedure Call, Socket programming, Process Synchronization.

## **M.Sc. (Computer Science) SEM-II**

### **Digital Image Processing**

- CO 1: To learn the fundamental concepts of Digital Image Processing.
- CO 2: To study basic image processing operations.
- CO 3: To expose students to current applications in the field of digital image processing

## **Advanced Operating Systems**

CO 1: This course teaches Advanced Operating Systems Concepts using Unix/Linux and Windows as representative examples.

CO 2: This course strikes a delicate balance between theory (covered in TextBook-2, 3) and practical applications (covered in TextBook-1, 4). In fact, most Units start with the theory and then switches focus on how the concepts are implemented in a C program.

CO 3: This course describes the programming interface to the Unix/Linux system - the system call interface. It is intended for anyone writing C programs that run under Unix/Linux. Finally, it concludes with an overview of Windows Threads Management.

CO 4: This course provides an understanding of the functions of Operating Systems. It also provides an insight into functional modules of Operating Systems. It discusses the concepts underlying in the design and implementation of Operating Systems

## **Data Mining and Data Warehousing**

CO1: Students will be enabled to understand and implement classical models and algorithms in data warehousing and data mining.

CO2: They will further be able to assess the strengths and weaknesses of various methods and algorithms and to analyze their behavior.

### **Programming With DOT NET**

CO1: To understand the DOTNET framework, C# language features and Web development using ASP.NET

### **Artificial Intelligence**

CO1: To understand and gain the Data Structure knowledge of Design and Analysis of algorithms

### **M.Sc. (Computer Science) SEM-III**

#### **Software Metrics & Project Management**

CO1: Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects.

CO2: It examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects.

CO3: Student learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.

#### **Mobile Computing**

CO1: To familiarize the students with the buzz words and technology of mobile communication

CO2: Understand the GSM architecture

CO3: Understand the issues relating to Wireless applications

#### **Soft Computing**

CO1 : To understand the concepts of how an intelligent system work and its brief development process

#### **Web Services**

CO1 : To Understand Web Services and implementation model for SOA

CO2 : To Understand the SOA, its Principles and Benefits

CO3: Understanding cloud computing as a web service

CO4 : Discuss the concept of virtualization and data in cloud.

### **M.Sc. (Computer Science) Sem IV**

#### **Business Intelligence**

CO1: Understand the role of BI in enterprise performance management and decision support.

CO2: Understand the applications of data mining and intelligent systems in managerial work.

CO3: Understand data warehousing and online analytical processing (OLAP) concepts, including dimensional modeling, star and snowflake schemas, attribute hierarchies, metrics, and cubes.

CO4 : Learn data analysis and reporting using an available BI software.

## **Department of commerce**

### **Programme outcomes**

After successful completion of three year degree programme In commerce Student should be able to:

PO-1.An Understanding and solved and recognised practical The students are well acquainted with the development in the industries.

PO-2.The new trends in Banking sector is made loan to the studentsTo the Banking Regulation Act,1949

PO-3.The Role of GST in the economic prosperity and its practical Application is familiar to the students.

PO-4. The powers conferred by the RBI and its guidelines is the parameter is made known to the students SEBI guideline and its impact on stock exchange is been and important contribution to the society is imparted to the students.

PO-5.Awareness of income tax and structure is made familiar to the students.

PO-6.Use of modern technology such as Tally ERP -9.00 and GST

PO-7.Corporate social Responsibility of the company and its Implementation according to the companies Act 2013 has to be practice is mandatory.

### **Programme specific outcomes:**

**Pso-1.**Gain the knowledge of banking through theory and practical

**Pso-2.**Importance of soft skill is well-known to the students.

**Pso-3.**The theories of Maslow, Mcgrager, Henry Feyol, ,F.W.Taylor, Ouchi,has practical relevance.

**Pso-4.** Accounting standards and its various concept has been made known to the students

**Pso-5.** Employee provident funds and Bonus Act usefulness is being made known to the students

### **Course Outcomes**

After completion of this courses student should be able to

### **F.Y.B.Com**

#### **102 Financial Accounting**

1. To impart the knowledge of various accounting concepts
2. To instill the knowledge about accounting procedures, methods and techniques.

3. To acquaint them with practical approach to accounts writing by using software package.

### **103 Business Economics (Micro)**

1. To expose Students of Commerce to basic micro economic concepts and inculcate an analytical approach to the subject matter.
2. To stimulate the student interest by showing the relevance and use of various economic theories.
3. To apply economic reasoning to problems of business.

### **105 – a. Organizational Skill Development.**

1. To orient the students towards the concept of Organization and Modern Office.
2. To acquaint the students with the role of and Functions of Office Manager.
3. To develop the insights regarding Organizational Skills for Office Managers.
4. To know the functioning of Modern office appliances equipments and e- format records

### **105 – b. Banking and Finance[Fundamentals of Banking]**

1. To acquaint the students with the fundamentals of banking.
2. To develop the capability of students for knowing banking concepts and operations.
3. To make the students aware of banking business and practices.
4. To give thorough knowledge of banking operations.
5. To enlighten the students regarding the new concepts introduced in the banking system

### **106 – c. Marketing and Salesmanship[Fundamentals of Marketing]**

- a) To understand the basic concept of marketing.
- b) To understand marketing philosophy and generating ideas for marketing research.
- c) To know the relevance of marketing in modern competitive world.
- d) To develop an analytical ability to plan for various marketing strategy.

### **106 – d. Consumer Protection and Business Ethics**

- 1) To acquaint the students with consumer and consumer movement.
- 2) To make the students aware about consumer rights, duties and mechanism for resolving their disputes.
- 3) To make students aware about role of united nations and consumers' associations in protection of consumers.
- 4) To make the students aware about laws relating to consumers.
- 5) To acquaint the students with role of Business Ethics in various functional areas.

## **S.Y. B.Com.**

### **201. Business Communication.**

1. To understand the concept, process and importance of communication.

2. To develop awareness regarding new trends in business communication.
3. To provide knowledge of various media of communication.
4. To develop business communication skills through the application and exercises.

### **202. Corporate Accounting**

1. To make aware the students about the conceptual aspect of corporate accounting
2. To enable the students to develop skills for Computerized Accounting
3. To enable the students to develop skills about accounting standards

### **203. Business Economics (Macro)**

1. The objective of the course is to familiarize the students the basic concept of Macro Economics and application.
2. To Study the behavior of the economy as a whole.
3. To Study the relationship among broad aggregates.
4. To apply economic reasoning to problems of the economy.

### **204. Business Management**

1. To provide basic knowledge & understanding about business management concept.
2. To provide an understanding about various functions of management.

### **205. Elements of Company Law.**

- 1) To impart students with the knowledge of fundamentals of Company Law.
- 2) To update the knowledge of provisions of the Companies Act of 2013.
- 3) To apprise the students of new concepts involving in company law regime.
- 4) To acquaint the students with the duties and responsibilities of Key Managerial Personnel.
- 5) To impart students the provisions and procedures under company law.

### **206. special paper Business law &Practice I**

- 1) To impart students with the knowledge of Business Law
- 2) To apprise the students of New concepts involving in Business Law regime.
- 3) To Impart students the provision and procedure under company
- 4) To update knowledge of provision ,rules,and regulation

### **Banking & Finance I**

- 1.To evaluate the student and knowledge impart of the banking sector
2. To know the importance of RBI and it guidelines
3. To seek opportunities in the banking sector

### **Cost & works Accounting I**

- 1) To study the cost accounting and its practical implication in the business world
- 2) To know the standard in the costing and the use in the manufacturing Concern
- 3) To formulate plans for the smooth work of the manufacturing concern

- 4) To enhance the skill of the student in the costing modules

## **T.Y.B.Com**

### **301 Business Regulatory & Framework**

- 1) To acquaint students with the basic concepts, terms & Provisions of Mercantile and Business Laws
- 2) To Develop the awareness among the students regarding these laws affecting business, trade and commerce

### **302 Advanced Accounting**

- 1) To impart the knowledge of various accounting concepts
- 2) To Instill the knowledge about accounting procedures, methods and techniques

### **303 (A) Indian and Global Economic development**

- 1) To expose students to a new approach to the study of the Indians.
- 2) To help the students in analyzing the present phase of Indian economy
- 3) To enable students to understand the process of integration of the Indian economy with various economics of the world

### **304 Auditing and Taxation**

- 1) To provide adequate knowledge to the students about the concept and principles of Auditing
- 2) To aware the students about how to prepare audit report and their content
- 3) To provide knowledge about auditing and assurance standards, Tax audit and audit of computer systems
- 4) To prepare students competent enough to take up to employment in tax planner.

### **305 Cost and works accounting –II**

- 1) To provide training about the concept and application of overheads
- 2) To understanding various methods of costing and their application

### **305 Business law and practices –II**

- 1) To make familiar to the students the business laws which are applicable in the modern scenario
- 2) To understand the importance of FEMA act in the business world

### **305 Banking and finance- II**

- 1) To give the students an understanding of the operations and development in financial market in india
- 2) To acquaint the students with financial market and its various segments
- 3) To enable them to gain an insight into the functioning and role of financial institutions in the Indian economy

### **306 Cost and works accounting – III**

- 1) To impart training regarding techniques of cost control
- 2) To create awareness about the students regarding cost control and cost reduction
- 3) To provide training as regards concepts, procedure and legal provision of cost audit

### **306 Business law and practices –III**

- 1) To make familiar with the students of basic concepts, provisions and rules of indirect taxes
- 2) To acquaint the student with knowledge of valuation and computation of excise duty and MVAT

### **306 Banking and finance- III**

1. To understand the impact of banking regulation act in the Indian economy
2. To overcome the drawbacks in the economy through credit policy and its practical methods in the present scenario
3. To use the knowledge of the banking sector properly to enhance the growth of the Indian economy.

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## **M.com part I &II**

M.com –I

### **101 Management Accounting**

- 1.To enable students to acquire sound Knowledge of concepts, methods and techniques of management accounting
- 2.To make the students develop competence with their usage in managerial decision making and control.

### **102 Strategic Management**

1. To study the basic concepts of Strategic Management.
2. To study the significance and problems of Management.
3. To study the impact of Business Economy and Growth

### **103 Advanced Accounting**

- 1.To lay a theoretical foundation of Accounting and Accounting Standards.
2. To gain ability to solve problems relating to Company Accounts, Valuations and special types of situations.

### **104 Income Tax**

- 1.To gain knowledge of the provisions of Income - tax including Rules
2. To develop ability to calculate taxable Income of ‘Individual’, ‘Hindu Undivided Family’ and ‘Firm’ assesses

### **113 Production and operation Management**

1. To study Principles of production and operations Management
2. To take knowledge of ISO 9000- ISO 4000
3. To learn TQM system

### **114 Financial Management**

1. To study the role of RBI in Indian Financial system
2. To gain knowledge of Investment Decisions
3. To learn techniques of Financial Analysis

### **201 Financial Analysis and Control**

1. To enable students to acquire sound knowledge of concepts, methods and techniques of management accounting

### **202 Industrial Economics**

1. To study the basic concepts of Industrial Economics.
2. To study the significance and problems of Industrialization.
3. To study the impact of Industrialization on Indian Economy.

### **203 Specialized Areas in Accounting**

1. To develop competency of students to solve problems relating Special areas in accounting including accounting for Services Sector.
2. To understanding of Financial Reporting Practices.
3. To familiarize the student with procedure of accounting for Taxation.

### **204 Business Tax Assessment & Planning**

1. To provide understanding of Direct Taxes including Rules pertaining thereto and their application to different business situations.
2. To understand principles underlying the Service Tax.
3. To understand basic concepts of VAT, Excise Duty and Customs Duty.

### **213 Business Ethics and Professional Values**

213 Business Ethics and Professional Values

### **214 Elements of Knowledge Management**

1. To understand management tools and change management
2. To understand of organizational culture and climate
3. To learn about team learning

## MCOM-II

### **301 Business Finance/ Financial System**

1.To enable students to acquire sound knowledge of concepts, nature and structure of business finance.

### **302 Research Methodology for Business**

1. To acquaint the students with the areas of Business Research Activities.
2. To enhance capabilities of students to conduct the research in the field of business and social sciences
3. To enable students, in developing the most appropriate methodology for their research studies.
4. To make them familiar with the art of using different research methods and techniques.

### **303 Advanced Auditing**

1.To impart knowledge and develop understanding of methods of auditing and their application

### **304 Specialized Auditing**

1.To impart knowledge and develop understanding of methods of audit in Specialized areas.

### **313 Human Resource Management**

1. To acquaint the students with in-depth knowledge of HRM.
2. To inculcate among students various practices followed by HR managers.
3. To create understanding about recent trends in HRM

### **314 Organizational Behaviour**

1. To make the students understand various concepts of organisation behavior
2. To provide in depth knowledge about process of formation of group behaviour in an organization

### **401 Capital Market and Financial Services**

1.To enable students to acquire sound knowledge, concept and structure of capital market and financial services.

### **402 Industrial Economic Environment**

1. To study the basic concepts of Industrial Finance.
2. To study the effects of New Economic Policy.

3. To study the impact of Labor reforms on Industries.

### **403 Recent Advances in Accounting, Taxation, Taxation and Auditing**

1. To up-date the students with latest developments in the Subject
2. To inculcate the habit of referring to various periodicals and publications in the given subject, apart from text books and reference books
3. To develop the ability to read, understand, interpret and Summarize various articles from

### **413 Recent Advances in Business Administration**

1. To familiarise the students with the recent advancements in business administration
2. To develop an understanding about tools and their application in the business.

## **Department Of B.B.A(C.A)**

### **T.Y.BBA(CA)**

#### **501 Java Programming**

1. learn the basic concept of Java Programming
2. Understand how to use programming in day to day applications.

#### **502 Web Technologies**

1. Know & understand concepts of internet programming.
2. Understand how to developed web based applications using PHP.

#### **503 Dot Net Programming**

1. Understand visual programming and event driven programming practically.
2. Enhance applications development skill of the student.

#### **504 Object Oriented Software Engg.**

1. Understand concept of system design using UML
2. Understand system development through object oriented techniques.

#### **601 Advanced Web Technologies**

1. Know & understand concepts of internet programming.
2. Understand the concepts of XML and AJAX.

#### **602 Advanced Java**

1. Know the concept of Java Programming.
2. Understand how to use programming in day to day applications.
3. Developed programming logic.

#### **603 Recent Trends in IT**

1. Introduce upcoming trends in Information technology.
2. Study Eco friendly software development.

#### **604 Software Testing**

1. Know the concept of software testing.
2. Understand how to test bugs in software.
3. Develop programming logic.

#### **S.Y.BBA(CA)**

#### **301 Relational Database Management Systems**

1. Students understand relational database concepts and transaction management concepts in database system
2. Student to write PL/SQL programs that use: procedure, function, package, cursor and trigger.

#### **302 Data Structures using C**

1. understand different methods of organizing large amounts of data
2. efficiently implement different data structure
3. get more knowledge on C programming language

#### **303 Operating System Concept**

1. know system programming
2. know services provided by operating system
3. know the Scheduling concepts

#### **304 Business Mathematics**

1. Developed analytical power of students
2. Application of mathematics in business.

#### **305 Software Engineering**

1. Students understand system concepts and its application in Software development.
2. Students aware about the life cycle of software development.
3. Developed power of pictorial representation of developing software.

#### **401 OOP's using C++**

1. Understanding of basic object-oriented concepts and the issues involved in effective class design
2. Student to write C++ programs that use: object-oriented concepts such as information hiding, constructors, destructors, inheritance.

#### **402 Programming in Visual Basic**

1. Learn properties and events, methods of controls and how to handle events of different controls.
2. Understand the use of active controls and how to design VB application to learn connectivity between VB and databases.

#### **403 Computer Networking**

1. know about computer network

2. understanding the use of connecting device used in network

#### **404 Enterprise Resource Planning**

1. know what is ERP
2. learn different ERP technologies

#### **405 Human Resource Management**

1. Acquaint the students with the Human Resource Management its different functions in an organization and the Human Resource Processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization.

### **F.Y.BBA(CA)**

#### **101 Modern Operating Environment And MS-OFFICE**

1. Students aware about basics knowledge of computer
2. Students aware about software and hardware of computers
3. They understand Office suits.

#### **102 Financial accounting**

1. Developed Analytical / Logical Thinking
2. Students acquire Problem Solving capabilities.
3. Students understand techniques of Searching and sorting.

#### **103 Programming Principal Algorithms**

1. students acquired sound knowledge of basic concepts of accounting
2. Impart the knowledge about recording of transactions and preparation of final accounts

#### **104 Business Communication**

1. Understand the concept, process and importance of communication
2. Created awareness among students about Methods and Media of communication
3. To create awareness among students about Methods and Media of communication

#### **105 Principles Of Management**

1. Provided the fundamental knowledge about working of business organization.
2. Students familiar with recent trends in management.
3. Students well acquainted with management process , functions and principles

#### **201 Procedure Oriented Programming using C**

1. understanding of basic concept of programming language
2. Developed Analytical / Logical Thinking

#### **202 Data Base Management System**

1. Students understand basic concepts of database
2. Students learnt to create, delete and update the database.

#### **203 Organizational Behaviour**

1. Students understand the impact that individual, group & structures have on their behaviour within the organizations.
2. They understand the organisational Culture.
3. Students learnt to manage the conflict and stress.

4. Students learnt to manage the Cultural Diversity in the Organisation.

#### **204 Computer Applications in Statistics**

1. Understand the power of excel spread-sheet in computing summary statistics
2. Understand the concept of various measures of central tendency and variation and their importance in business
3. Understand the concept of probability, probability distributions and simulations in business world and decision making

#### **205 E-Commerce Concepts**

1. Students aware about Electronic payment System
2. Application of commerce in electronic way.

## Department Of B.B.A

### **T.Y.B.B.A**

#### **501 Supply & Chain Logistics**

1. Students understand the fundamental concepts in Materials and Logistics Management.
2. Students are familiar with the issues in core functions in materials and logistics management

#### **502 Entrepreneurship Development**

1. Students are aware of entrepreneurship..
2. Students develop their entrepreneurial competence.
3. Students develop knowledge and understand, create and manage new Venture.
4. Students upbringing out their own business plan.

#### **503 Business Ethics.**

1. Students understand Business Ethics .
2. Students understand various Business Ethics practices.
3. Student understand modern Business Ethics and give their understanding residing applications in different context.

#### **504 Research Methodology (Tools & Analysis).**

1. Students are exposed to the areas of commercial and business research activities.

#### **505A Finance Special Paper I Analysis of Financial Statements.**

1. Students study various financial statements of corporate organisations.
2. Student are well acquainted with current financial practices

#### **505 C Human Resource Management Special Paper I Human Resource Management Principles and Functions**

1. Students understand the concept, principles & practices of H.R.M.

**506A Finance Special Paper II Long Term Finance.**

1. Students study long term financing
2. Student are acquainted regarding current financial structure.

**506 C Human Resource Management Special Paper II. Human Resource Practices.**

1. Students are familiar with HRM and its practices

**601 Business Planning & Project Management**

1. Students are acquainted with the planning process in business and familiarise them with the function & techniques of project management.

**602 Event Management.**

1. Students are acquainted with concept issues and various aspects of event management.

**603 Management Control System**

1. Students are introduced with the function of management control, its nature functional areas, and techniques.

**604 E-Commerce.**

1. Students know the concept of electronic commerce
2. Students know what is Internet and Extranet
3. Students know Internet marketing techniques

**605-A Finance Special Paper III. Financial Services**

1. Students studied various financial services in India.
2. Students are well acquainted regarding financial market.

**605-C Human Resource Management Special Paper III.**

**Labour Laws.**

1. Students are acquainted with important legal provisions governing the industrial employees.
2. Important provisions under the following Acts are discussed with the students and they understand the applicability of labour laws.\

**S.Y.B.B.A**

**301 Personality Development**

1. Students are aware about dimensions of personality.
2. Students understand personality traits and its application in corporate sector development

**302 Business Law**

1. Students understand basic legal terms and concepts used in law pertaining to business

2. Students comprehend applicability of legal principles to situations in Business world by referring to few decided leading cases.

### **303 Human Resource Management and Organisational Behaviour**

1. Students are acquainted with the Human Resource Management its different functions in an organisation and the Human Resource Processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organisation.

### **304 Management Accounting**

1. Students understand basic knowledge of Management Accounting

### **305 Business Economics (Macro)**

2. Students study the behaviour and working of the economy as a whole.
3. Students understand relationships among broad aggregates
4. Students apply economic reasoning to problems of business and public policy.

### **306 IT (Information Technology in Management**

1. Students are aware about the use of computers in management

### **401 Production & Operations Management**

1. Students understand the industry and the process of production

### **402 Industrial Relations & Labour Laws**

- 1) Students develop an understanding of the legal framework of industrial and labour laws
- 2) Students understand the knowledge of laws & how law affects the industry & labour

### **403 Business Taxation**

- 1) Students understand the basic concepts and definitions under the Income Tax Act, 1961.
- 2) Students acquired knowledge about Computation of Income under different heads of Income of Income Tax Act, 1961
- 3) Students acquired knowledge about the submission of Income Tax Return, Advance Tax, Tax deducted at Source, Tax Collection Authorities
- 4) Students are competent enough to take up to employment as a Tax planner.

### **404 International Business**

- 1) Students are acquainted with emerging issues in international business
- 2) Students studied the impact of international business environment on foreign market operations of a firm.

### **405 Management Information System**

- 1) Students are introduced to the general nature and structure of source selected industries and business organisation.

## **406 Industrial Exposure**

- 1) Students are aware towards study and user of Trade and Industry Directories and websites and published data and information relating to trade, commerce and industry.

## **F.Y.B.B.A**

### **101 Business Organisation System**

- a. Students understand the basic concepts in commerce, trade and industry and is exposed to modern business world
- b. Students understand modern business practices, forms, procedures and functioning of various business organizations.

### **102 Business Organisation System**

- a. Students understand the concept, process and importance of communication.
- b. Students gain knowledge of media of communication.
- c. Students develop skills of effective communication - both written and oral.
- d. Students are acquainted with application of communication skills in the business world

### **103 Business Accounting**

- 1) Students impart basic accounting knowledge

### **104 Business Economics (Micro)**

1. Students understand basic micro economic concepts.
2. Students apply economic analysis in the formulation of business policies.
3. Students use economic reasoning to problems of business.

### **105 Business Mathematics**

1. Students understand the concepts of ratio , proportion and percentage.
2. Students understand the concept and application of profit and loss in
3. Students use the concept of EMI.
4. Students understand the concept of stock exchange and to calculate Dividend
5. Students understand applications of matrices in business.

### **106 Business Demography And environmental Studies.**

- 1) Students develop knowledge base for demographic and environmental factors affecting business
- 2) Students are aware of environmental problems related to Business and Commerce
- 3) Students inculcate values of Environmental ethics.

### **201 Principles of Management**

1. Students working of business organisation through the process of management

## **202 Principles of Marketing**

1. Students study & critically analyze the basic concepts in marketing

## **203 Principles of Finance**

1. Students understand the nature, importance, structure of finance related areas and knowledge regarding source of finance for a business.

## **204 Basics of Cost Accounting**

2. Students understand the Basic cost concepts, element of cost & preparation of cost sheet
3. Students understand important Methods & Techniques of costing

## **205 Business Statistics**

1. Students understand the concept of population and sample.
2. Students use frequency distribution to make decision.
3. Students understand and to calculate various types of averages and variation
4. Students use regression analysis to estimate the relationship between two variables
5. Students solve LPP to maximize the profit and to minimize the cost.
6. Students solve TP to maximize the profit and to minimize the cost.

## **206 Business Informatics**

- 1) Students know the Fundamentals of Computers
- 2) Students understand how to use Computer applications in day to Day Application.