

DEPARTMENT OF ENGLISH

PROGRAMME SPECIFIC OUT COME

Students offering special and functional at UG level

PSO1 Realize the significance of the English language in context of globalization.

PSO2 Use English in formal and informal situations.

PSO3 Acquire the dynamics of communication in English.

PSO4 Think independently and imbibe core human values.

PSO5 Understand, interpret and criticize English literature.

PSO6 Use English creatively.

PSO7 Be a master phonetics and phonology

COURSE OUT COME

F.Y.B.A. COMPULSORY ENGLISH

Completion of this course will enable the students to

CO1 Realize the beauty and communicative power of English language.

CO2 Seek human values to become responsible citizens.

CO3 Seek employment by developing linguistic competence and communicative skills.

CO4 Revise and reinforce the skills already acquired.

CO5 Think independently and critically

F.Y.B.A. OPTIONAL (ADDITIONAL) ENGLISH

Completion of this course will enable the students to

CO1 Understand the basics of language and literature.

CO2 Get acquainted with minor forms of English literature.

CO3 Speak English paying attention to proper pronunciation.

CO4 Seek jobs by improving language skills.

CO5 Develop integral view of language and literature

S.Y.B.A. COMPULSORY ENGLISH

Completion of this course will enable the students to

CO1 Develop competence for self-learning.

CO2 Study and analyze excellent pieces and poetry to realize the beauty and communicative power of English.

CO3 Develop interest in reading literary pieces.

CO4 Expose themselves to native cultural experiences and situations in order to develop human values and social awareness.

CO5 Develop overall linguistic competence and communicative skills.

S.Y.B.A. GENRAL ENGLISH PAPER II
STUDY OF ENGLISH LANGUAGE AND LITERATURE

Completion of this course will enable the students to

- CO1 Understand the basics of short story as a form of literature
- CO2 Know various types of short story in English
- CO3 Understand literary merits, beauty and creative use of language
- CO4 Understand technical aspects of language and their practical usages
- CO5 Develop integrated view of language and literature

S.Y.B.A. SPECIAL ENGLISH PAPER I
A PPRECIATING DRAMA

Completion of this course will enable the students to

- CO1 Understand the basics of Drama as a form of literature
- CO2 Apply the terminology used in appreciating and analyzing Drama
- CO3 Interpret and analyze plays independently
- CO4 Understand aesthetics of drama
- CO5 Differentiate between various types of drama

S.Y.B.A. SPECIAL ENGLISH PAPER II
APPRECIATING POETRY

Completion of this course will enable the students to

- CO1 Understand the basics of poetry as a form of literature
- CO2 Apply proper terminology while analyzing poetry
- CO3 Appreciate the aesthetics of poetry
- CO4 Differentiate between various types of poetry
- CO5 Appreciate and evaluate poetry independently

T.Y.B.A. COMPULSORY ENGLISH

Completion of this course will enable the students to

- CO1 Know the best use of language in literature
- CO2 Enhance the communicative power
- CO3 Become competent users of English in real situations
- CO4 Understand various cultural experiences expressed through literature
- CO5 Improve the soft skills

GENERAL ENGLISH PAPER III
ADVANCED STUDY OF ENGLISH LANGUAGE AND LITERATURE

Completion of this course will enable the students to

- CO1 Be acquainted with the best samples of Indian English poetry

CO2 Improve analytical ability getting exposed to the Indian ethos and culture

CO3 Understand creative use of English in Indian English poetry

CO4 Know the advanced areas of language studies

CO5 Realize the integration between language and literature

**T.Y.B.A. SPECIAL PAPER III
APPRECIATING NOVEL**

Completion of this course will enable the students to

CO1 Understand the basics of novel as a form of literature

CO2 Know the historical development and nature of novel

CO3 Get exposed to various types and aspects of novel

CO4 Develop literary sensibility and realize cultural diversity

CO5 Analyze some of the best examples of novel

**T.Y.B.A. SPECIAL PAPER IV
INTRODUCTION TO LITERARY CRITICISM**

Completion of this course will enable the students to

CO1 Know the basics of literary criticism

CO2 Understand nature and historical development of literary criticism

CO3 Expose themselves to significant critical approaches and literary terms

CO4 Interpret literary works in English in the light of various critical approaches

CO5 Develop critical aptitude

F.Y.B.COM. ENGLISH

Completion of this course will enable the students to

CO1 Realize the beauty and communicative power of English language along with its practical application

CO2 Realize socio-economic ethos of contemporary life by being exposed to variety of topics prescribed

CO3 Develop oral and written communicative skills to improve employability

CO4 Improve overall linguistic competence

SPOKEN ENGLISH

Completion of this course will enable the students to

CO1 Know the dynamics of oral communication in English

CO2 Describe familiar things, persons, pictures

CO3 Describe/ narrate simple events routine activities of one self and others

CO4 Use computer in learning English and written communication

CO5 Prepare power point presentations

DEPARTMENT OF MARATHI

Faculty of Science

Faculty of Science (B. Sc.)

Students taking admission to this program of B.Sc. are expected to get equipped with following outcomes

- Understanding the issues related to nature and environmental contexts and sustainable development.
- Imbibed ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.
- Developed different communication skills such as reading, listening, speaking, etc., which we will help in expressing ideas and views clearly and effectively.

DEPARTMENT OF CHEMISTRY

Programme Outcomes

After completing B.Sc. Chemistry Programme students will be able to

PO1 Transfer and apply the acquired fundamental knowledge of chemistry, including basic concepts and principles of 1) organic chemistry, Inorganic chemistry, Physical and Analytical Chemistry; (2) analytic techniques and experimental methods for chemistry to study different branches of chemistry;

PO2 Demonstrate the ability to explain the importance of the Periodic Table of the Elements and represent key aspects of it and its role in organizing chemical information.

PO3 Plan, execute of design experiment, make documentation of it, interpret data at entry level of chemical industry and report the results;

PO4 Integrate and apply these skills to study different branches of chemistry;

PO5 The student will acquire knowledge effectively by self-study and work independently, present information in a clear, concise and logical manner and apply appropriate analytical and approximation methods;

PO6 The student will learn professionalism, including the ability to work in groups and in society, and apply basic ethical principles.

Programme Specific Outcomes

After completing B. Sc. Chemistry, students will be able to

PSO1 Understand the nature and basic concepts of Physical, Organic and Inorganic chemistry.

PSO2 Analyze Organic and inorganic compounds qualitatively and quantitatively.

PSO3 Understand the applications of physical, organic, inorganic and analytical chemistry in pharmaceutical, agriculture and chemical industries.

PSO4 Able to perform experimental procedures as per laboratory manual in the area of physical, Inorganic and organic chemistry.

PSO5 Interpretation and synthesis of chemical information and data obtained from chemical and instrumental analysis.

Course Outcome

F.Y.B.Sc (Sem-I)

Chemistry paper I Physical and Inorganic Chemistry Term -I

At the end of semester, student should be able to

CO1 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.

CO2 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.

CO3 Student should be able to solve problems regarding van der Waal's and Critical constant and regarding P-V-T relations.

CO4 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.

CO5 Mathematical background required for derivations, depictions and problem solving. This chapter strengthens these aspects.

CO6 Mole concept, GMV relationship.

CO7 Student should be able to solve problems based on GMV relationship.

CO8 Normality, Molarity, Normal solution, Molar solution, equivalent weight, ppm, % w/v, % v/v & related problems.

CO9 Standard solution, primary & secondary standard substances, standardisation of solution & related problems.

CO10 Understand the concept of oxidation & reduction, oxidizing agent, reducing agent, redox reaction, oxidation number, Balance the equation by ion electron method & oxidation number method.

CO11 Calculation of Equivalent weight of oxidant & reductant.

Course Outcome

F.Y.B.Sc (SEM – I)

PAPER - II ORGANIC & INORGANIC CHEMISTRY

At the end of semester, student should be able to

CO1 The fundamental concepts which govern the structure, bonding, properties and reactivities of organic molecules such as covalent character, hybridization, bond angles, bond energies, bond polarities and shapes of molecules.

CO2 Drawing of organic molecules and arrow pushing concept.

CO3 Acid-base theories, pKa / pKb values for common organic acids and bases and factors affecting strength of acids and bases.

CO4 Structural effects and their applications in determining strength of acids and bases.

CO5 The common and IUPAC names of alkanes, alkenes, alkynes and homocyclic, polycyclic aromatic hydrocarbons.

CO6 Methods of preparation and chemical reactions of alkanes, alkenes, alkynes and homocyclic, polycyclic aromatic hydrocarbons.

CO7 Application of Huckel's rule to different organic compounds to find out aromatic /non aromatic characters, Skeleton of long form of periodic table.

CO8 Quantum numbers.

CO9 Shells, sub-shells, types of orbital and their shapes.

CO10 Aufbau, Paulin's exclusion principle and Hunds rule.

CO11 Block, group, periodic law and periodicity.

CO12 Name, symbol, electronic configuration, trends and properties.

CO13 Crown ether and cryptans.

CO14 Separation of s-block elements with crown ethers.

CO15 Compounds of s-block elements oxides, hydroxides, peroxides and superoxides.

CO16 Application of s-block elements Industrial, biological and agricultural field.

Course Outcomes

F.Y.B.Sc (Sem-II)

Chemistry paper I Physical and Inorganic Chemistry

At the end of the semester, student should be able to

CO1 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.

CO2 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.

CO3 Basic principle of overlapping of atomic orbital with specific shapes and sizes

CO4 Fundamental concepts of theories of overlapping of atomic orbital's

CO5 Concept of hybridization and differentiation with overlap

CO6 Concept of different types valence shell electron pairs and their contribution in bonding.

CO7 Application of non-bonded lone pairs in shape of molecule

CO8 Basic understanding of geometry and effect of lone pairs with examples.

Course Outcome

F.Y.B.Sc.(SEM-II)

PAPER - II ORGANIC & INORGANIC CHEMISTRY

At the end of semester, student should be able to

CO1 Structure, nomenclature, preparation and reactions of organic compounds.

CO2 The characteristic reactions of each functional group which can be used to identify and distinguish that compound from other compounds.

CO3 Predict the conversion of one functional group into other functional group involving one or more number of steps.

CO4 Conversion of the given compound into other compound containing more or less number of carbon atoms.

CO5 Prediction of possible products when reactants are given. In case there are more than one possible products, identify the major and minor products.

CO6 Suggest the possible reagents to bring about the given conversion.

CO7 Concept of isomerism, types of isomers and representation of organic molecules.

CO8 Conformational isomerism in alkanes with energy profile diagram.

CO9 Concept of geometrical isomerism with E/Z nomenclature.

CO10 Understanding of optical activity, isomer number, tetrahedral carbon atom, concept of chirality, enantiomerism, R/S nomenclature for single chiral centre.

CO11 To write electronic configuration of any element.

CO12 To give reasons for anomalous behavior of first element of IIIA to VII A groups with other elements in the same group.

CO13 To know the exact position p-block elements in the long form of the periodic table.

CO14 To know the allotropes of carbon. v) Basic compounds of boron, aluminum, silicon

CO15 Concept of oxyanions, different than mineral acids, oxyacids of phosphorous & sulphur

CO16 Overlapping of atomic orbitals of halogens, interhalogen compounds

Course Outcome

F.Y.B.Sc

Paper III Chemistry Practical

After completion of practical course student should be able to

CO1 Verify theoretical principles experimentally.

CO2 Interpret the experimental data.

CO3 Improve analytical skills and Correlate the theory and experiments.

CO4 Verify theoretical principles experimentally.

CO5 Acquire skill of crystallisation, record correct m. p. / b. p.

CO6 Perform the complete chemical analysis of the given organic compound and should be able to recognize the type of compound.

CO7 Write balanced equation for all the reactions, they carry in the laboratory.

CO8 Perform the given organic preparation according to the given procedure and the progress of the reaction by using TLC technique.

CO9 Set up the apparatus properly for the given experiments.

CO10 Perform all the activities in the laboratory with neatness and cleanness.

CO11 Verify theoretical principles experimentally.

CO12 Interpret the experimental data.

CO13 Improve analytical skills.

CO14 Maintaining records of quantitative and qualitative analysis.

CO15 Laboratory skills for the purpose of collecting, interpreting, analysing, and reporting (in written form) chemical data.

CO16 Mole concept and its application in the preparation of normal and molar solutions.

CO17 Prepare a various inorganic complexes and determine its % purity.

CO18 Study the gravimetric and volumetric analysis of ores and alloy.

CO19 To study binary mixture with removal of borate and phosphate. To understand the chromatographic techniques

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Course Outcomes

S.Y.B.Sc (Sem-I)

Physical & Analytical Chemistry (Paper-I)

By the end of this course, the student should be able to

CO1 Thermodynamics & chemical kinetics , rate of reaction , molecularity & order of the reaction ,integrated rate law expression, factors affecting rate of reaction.

CO2 Difference between thermal & Photochemical reaction ,Laws of photochemistry & Photophysical process

CO3 Distribution Law, Nernst distribution law, its proof & application.

CO4 Chemical analysis & its application, Sampling, types of analysis, common techniques.

CO5 Error, accuracy, precision, significant figures & computations, reliability of results.

CO6 Inorganic Qualitative Analysis, Detection of acidic & basic radicals, removal of phosphate & borate.

CO7 Analysis of organic compounds.

Course outcome

S.Y.B.Sc (Sem-I)

CH-212 Paper-II Organic and Inorganic Chemistry

By the end of this course students will able to

CO1 Identify chiral centre in the given organic compounds, Define erythro threo meso diastereoisomers , R/S configuration in compound containing two chiral centers.

CO2 Bayers strain theory, heat of combustion relates stability of cycloalkanes , Stability cyclohexane, the structure of boat and chair configuration of cyclohexane.

CO3 Draw the axial and equatorial bonds in cyclohexane, Draw structure of conformations of mono and disubstituted cyclohexanes.

CO4 Define and classify heterocyclic compounds, use Hukel rule to predict aromaticity, predict product.

CO5 Difference between ore and minerals, calcinations roasting and smelting.

CO6 Different method for separation of gangue or matrix for metallic compounds, smelting and flux, difference between properties of pig iron and wrought iron.

CO7 Basic principles of different methods of preparation of steel, merits and demerits of different methods.

CO8 Corrosion types of corrosion, mechanism of corrosion factors affecting of corrosion passivity galvanizing tinning electroplating from corrosion.

Course Outcomes

S.Y.B.Sc (Sem-II)

Physical & Analytical Chemistry (Paper-I)

By the end of this course, the student will able to

CO1 State function, thermodynamics, Helmholtz free energy & its significance, Gibb's free energy & its significance, free energy change for an ideal gas, standard free energy change, Gibb's-Helmholtz equation, physical equilibrium, Application of Clausius- Clapeyron equation.

CO2 Types of solution, ideal solution, Rault's law, ideal & non-ideal solutions, Henry's law, azeotropes, partially immiscible liquids.

CO3 Methods of expressing concentration, primary & secondary standard solutions, apparatus & their calibration, Instrumental & non-instrumental analysis –principles & types.

CO4 Indicators –theory of indicators, acid base indicators, mixed & universal indicators, Acid-Base titrations, Redox titrations, EDTA titrations, choice of indicators.

Course outcome (Sem-II)

S.Y.B.Sc (Sem-II)

CH-222 Paper-II Organic and Inorganic Chemistry

By the end of this course students will able to

CO1 Concept of different reagents used in the one type of conversion, Merits & demerits of different reagents, Reagent based mechanisms, Use of different hydrogen donors for hydrogenation.

CO2 Define and classify heterocyclic compounds. Use Huckel rule to predict aromaticity, synthetic route for preparation of various heterocyclic compounds.

CO3 Different bimolecular, the role of biochemistry, importance of biochemistry, Fischer projection and perspective formula, Killani Fischer synthesis.

CO4 Position of d-block elements in periodic table, general electronic configuration & electronic configuration of elements periodic properties of these elements.

CO5 M-C bond and to define organometallic compounds, organometallic chemistry, multiple bonding due to CO ligand, methods of synthesis of binary metal carbonyls, 18 electron rule.

CO6 Define acids and bases according to Arrhenius theory Lowery Bronsted concept, Lewis concept, define the conjugate acid and base pairs, oxyacids, define hard and soft acids, the strength of hydra and oxyacids.

CO7 Toxic chemical in the environment, To know the impact of toxic chemicals on enzyme, the biochemical effect of Arsenic, Cd, Pb, Hg, biological methylation.

Course Outcome

S.Y.B.Sc

Chemistry Practical Pepar III

After completion of practical course student should be able to

CO1 Verify theoretical principles experimentally.

CO2 Interpret the experimental data.

CO3 Improve analytical skills. Correlate the theory and experiments.

CO4 Verify theoretical principles experimentally.

CO5 Acquire skill of crystallisation, record correct m. p. / b. p.

CO6 Perform the complete chemical analysis of the given organic compound and should be able to recognize the type of compound.

CO7 Write balanced equation for all the reactions, they carry in the laboratory.

CO8 Perform the given organic preparation according to the given procedure. The progress of the reaction by using TLC technique.

CO9 Set up the apparatus properly for the given experiments.

CO10 Perform all the activities in the laboratory with neatness and cleanness.

CO11 Verify theoretical principles experimentally.

CO12 Interpret the experimental data.

CO13 Improve analytical skills.

CO14 Correlate the theory and experiments and understand their importance.

CO15 Prepare a various inorganic complexes and determine its % purity.

CO16 To study binary mixture with removal of borate and phosphate. To understand the chromatographic techniques.

Course outcome T. Y. B. Sc.

CH-331 Physical chemistry, Sem.-III

At the end of course students will able to

CO1 Define / recall various terms related to electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram.

CO2 Write correct equation such as Ohms law, equivalent conductance, molar conductance, rate constant of first, second, third order reactions, Kohlarch law, Debye equation, transport number, molar polarization, force constant, energy of rotational, vibrational excitations, etc.

CO3 Derive equations for half-life of third order reaction, rate constant of third order reaction, transport number, dipole moment, molar polarization, reduced mass of diatomic molecule, etc.

CO4 Explain / describe various terms in electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram. To derive relations between / among various terms / quantities in electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram.

CO5 Differentiate between / among the terms / quantities with suitable example such as molecularity and order of reaction, conductance and resistance, equivalent and molar conductance, rotational and vibrational spectra, etc.

CO6 Apply his knowledge to explain / interpret spectra of simple diatomic molecule.

CO7 Describe facts and observations in electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram.

CO8 Solve numerical related to electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram.

Course Outcomes

T.Y.B.Sc (Sem-III)

Paper II Inorganic Chemistry

At the end of semester, student should able to

CO1 Know the theories of covalent bond formation.

CO2 Know the assumptions and limitations of VBT, Understand the need of concept of MOT.

CO3 Understand and show the formation of bonding and antibonding MO's

CO4 Draw the shapes of s, p, d orbital.

CO5 Give the comparison of a) Atomic orbital and molecular orbital b) BMO and ABMO c) Sigma and pi MO's d) VBT and MOT e) Comparison between BMO, ABMO and NBMO.

CO6 Draw the MO energy level diagrams for homonuclear diatomic molecules having interactions between 2s and 2p orbitals and having no interactions between 2s and 2p orbitals H_2 , H_2^+ , He_2^+ , Li_2 , Be_2 , B_2 , C_2 , N_2 , O_2 , O_2^+ , O_2^- , O_2^{2-} , F_2 , Ne_2 . Draw the shapes of molecular orbitals.

CO7 Give the calculations of bond order, energy and explanation on stability of the above molecule and ions.

CO8 Draw the MO energy level diagrams for heteronuclear diatomic molecules CO, NO, HCl, HF and calculations of bond order, energy and explain the stability of the molecules.

CO9 Meaning of various terms involved in coordination chemistry, stereoisomerism in complexes with C.N. 4 and C. N. 6.

CO10 Explain structure and magnetic behavior of the complexes, identify the high spin and low spin complexes, Choose the correct geometry for complexes with C.N. 4 and C.N. 6 with the help of stereoisomerism.

CO11 Be able to draw crystal field splitting diagrams of d orbital of metal ion in octahedral, tetrahedral, square planer of tetragonal ligand field. xxx. Interpret the spectra of complexes and calculate the $10 Dq$.

Course Outcomes

T.Y.B.Sc (Sem-III)

CH -333 Paper III Organic chemistry

By the end of this course, students should be able to

CO1 Definition of organic acid and bases, factors affecting on strength of acids and bases. Know the concepts of pKa and pKb. Acid-base catalysis

CO2 Draw different types of disubstituted cyclohexane in chair form. Find out the stability, energy calculations with potential energy diagram and optical activity of these conformers.

CO3 Definitions of nucleophiles and leaving groups. Types of nucleophilic substitution reaction. The kinetics, mechanism and stereochemistry of SN1 and SN2 reaction. Comparison between SN1 and SN2 reaction.

CO4 Different Types of carbon-carbon unsaturated compounds. Orientation/rules in addition reactions. Mechanism of addition reaction. Reactivity of carbonyl compounds.

CO5 Definition and types of elimination reaction. Statement of Hoffmann and Saytzeff rule. Concept of good leaving and bad leaving group. The effect of structure, attacking and leaving group on reactivity of E1, E2 and E1cB reaction.

CO6 Types of aromatic substitution reactions. Classification of directing groups. Mechanism of aromatic electrophilic substitution reactions.

Course Outcome

T.Y.B.Sc (Sem-III)

CH -334 Paper IV Analytical Chemistry

By the end of this course students should be able to

CO1 Definition of Gravimetric analysis, Common ion effect, Solubility and Solubility product. Homogenous solution, Co-precipitation, Post-precipitation, Electrogravimetric Electrolytic separations of Cu and Ni,

CO2 Definition of Thermal analysis, TGA and DTA, instrumentation and applications, factors affecting the thermal analysis,

CO3 Definitions of Electromagnetic spectrum, Lamberts law, Beer law, Lambert-Beer law, Terminology involved in spectrophotometric analysis, , Instrumentation of single and double beam spectrophotometer, Spectrophotometric Titrations, Applications-Structure of organic compounds, Structure of complexes.

CO4 Definition of Polarography. Principles of polarographic analysis, Instrument and working of polarographic apparatus Polarogram and chemical analysis, Factors affecting polarographic wave, Quantitative Applications.

CO5 Definition of atomic absorption spectroscopy, single beam atomic absorption Spectrophotometer, Spectral and Chemical Interferences, Qualitative and Quantitative Applications of AAS.

CO6 Definition of atomic emission spectroscopy, Instrumentation of single beam flame emission spectrophotometer, Interferences in emission spectroscopy, Methods of analysis- calibration curve method, Standard addition method, Qualitative and Quantitative Analysis.

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Course Outcome

T.Y.B.Sc (Sem-III)

CH 336E Chemistry (Paper-VI) Agriculture

By the end of this course students should be able to

CO1 Know the role of agriculture chemistry and its potential.

CO2 Understand the basic concepts of soli and terms involved in soil chemistry, properties of soil and its classification on the basis of pH, soil solution, soil reaction and ion exchange.

CO3 Identify the problematic soil and recommend method for their reclamation, Objective of soil testing, and method of soil testing.

CO4 List of fertilizers, manures, herbicides, pesticides, insecticides and fungicides.

CO5 Explain properties of soil, impurities in water, effect of environmental condition on nutrient uptake, roll of fertilizers and effect of different types of plant protecting chemicals.

CO6 Determine quality of irrigation water in terms of ppm meq/lit, epm, TSS, SAR, ESP and RSC.

CO7 Classification of soils, plant nutrients, herbicides, pesticides, insecticides and fungicides.

CO8 Analyze different types of impurities present in irrigation and drinking water.

CO9 Select appropriate fertilizer, which would be more suitable for cultivation of different variety of crop with, improve yield.

CO11 Know the different plant nutrients, their functions and deficiency symptoms.

CO12 Have the knowledge of various pesticides, insecticides, fungicides and herbicide

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Course Outcome

CH-341 Physical chemistry, Sem.-II,

At the end of course students will able to

CO1 Define / recall various terms related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry.

CO2 Write / remember the correct equation such as Nernst equation, representation of cell and cell reactions, Bragg equation, half of radioactive materials, etc.

CO3 Derive equations for potentials of various types of cells and electrodes, Bragg equation, half of radioactive materials, kinetics of decay of radioactive materials, particle in 1D box, quantum tunneling, etc.

CO4 Explain / describe various terms related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry.

CO5 Derive relations between / among various terms / quantities related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry.

CO6 Apply his knowledge to explain experimental observation and should able to correlate theory and particle or observed facts.

CO7 Describe facts and observations related to electrochemistry, nuclear chemistry and application of radioactivity, crystallography and basics of quantum chemistry.

CO8 Solve numerical in in electrolytic conductance, molecular spectroscopy, chemical kinetics and phase diagram.

Course Outcomes

T.Y.B.Sc Sem-IV

Paper II Inorganic Chemistry

At the end of semester, student should be able to

CO1 The meaning of term f-block elements, Inner transition elements, lanthanides, actinides. Electronic configuration of lanthanides and actinides.

CO2 Transuranic elements, Preparation methods of transuranic elements, Nuclear fuels and their applications, IUPAC nomenclature for super heavy elements with atomic no. 100 onwards.

CO3 The difference between metal, semiconductor and insulator, Metallic bond on the basis of band theory, The energy band and energy curve, Draw $n(E)$ & $N(E)$ curves.

CO4 The difference between Na, Mg, and Al in terms of valence electrons and conductivity.

CO5 Know the crystal structures of solids, Draw the simple cubic, BCC and FCC structures, Identify the C.N. of an ion in ionic solid.

CO6 Homogeneous catalysis, give examples of homogeneous catalysts, Understand the essential properties of homogeneous catalysts-Give the catalytic reactions for Wilkinson's Catalysis, Zeigler Natta Catalysis, Monsanto acetic acid synthesis.

CO7 Abundance of elements in living system and earth crust, Give the classification of metals as enzymatic and non-enzymatic, Understand the role of metals in non-enzymatic processes.

Course Outcomes

T.Y.B.Sc Sem. IV

CH-343 Paper III Organic chemistry

By the end of this course students should be able to

CO1 Definition of carbanions. Methods for formation of carbanions. Mechanism of reactions involving carbanions. Definition of ylides and application in organic synthesis.

CO2 Definition of terms Disconnection, Synthons, Synthetic equivalence, functional group interconversion, Target molecule. Retrosynthesis of one functional group.

CO3 Definition of rearrangement reaction. Types of intermediate in rearrangement reactions. Mechanism of Hofmann, Beckmann, Bayer-Villiger, Pinacol-pincolone, Curtis, Favorski and Claisen rearrangement.

CO4 Meaning of spectroscopy and various terms used in spectroscopy, regions of electromagnetic radiations.

CO5 Beer's Law, Types of electronic excitations, Terms used in UV spectroscopy, Effect of conjugation on UV band. Calculation of λ_{\max} for dienes and enone systems.

CO6 IR spectroscopy, Calculation of fundamental modes of vibrations for linear and non-linear molecule. Factors affecting on IR frequencies. Determination of structure of compounds using IR spectrum.

CO7 Principle of PMR. Terminology used in PMR spectroscopy. Explain the Coupling constant and distinguish the compounds using PMR.

CO8 Meaning of terpenoids and alkaloids. Chemical methods for determination of structure. Isolation of natural products. Synthesis of Citral and Ephedrin.

Course Outcomes

T.Y.B.Sc Sem. IV

CH -344 Paper IV Analytical Chemistry

By the end of this course students should be able to

CO1 Definition of Distribution coefficient, distribution ratio, factors affecting solvent extraction, percentage extracted, separation factor, batch extraction, counter current extraction.

CO2 Definition of Chromatography, classification of chromatographic methods, Theoretical plates and column efficiency, Principle, technique and applications of-Column Chromatography, Ion exchange Chromatography, Thin layer Chromatography, Paper Chromatography.

CO3 Principle of GSC and GLC, Instrumentation of Gas chromatography, qualitative- quantitative analysis.

CO4 Definition of High Performance Liquid Chromatography, Instrumentation and working of HPLC, Applications of HPLC.

CO5 Definition of Electrophoresis, Principle of electrophoresis, types of electrophoresis techniques, Applications of electrophoresis.

CO6 Principles of Nephelometry and Turbidimetry, Choice between Nephelometry and Turbidimetry, Factors affecting Nephelometric and Turbidimetric measurements.

Course Outcome

T.Y.B.Sc Sem. IV

CH -335 Industrial chemistry

By the end of this course students should be able to

CO1 Know the role of polymer chemistry in daily life.

CO2 Understand the basic concepts for polymer industry ,commercial polymer , resin and it's importance.

CO3 Understand scope of agro based industry like sugar. Manufacture and flow sheet for sugar industry and by product of sugar industry, how it is related to fermentation industry.

CO4 Understand manufacture of industrial alcohol, wine, beer, whisky, rum, power alcohol and it's importance.

CO5 Know basic raw material for soap, detergents and cosmetics and basic terms and uses.

CO6 Classification of dyes, paints, pigments and it' properties, structure and applications.

CO7 Understand basic concepts of pharmaceutical industry, drug action ,synthesis and uses of different drugs.

CO8 Know the different terms like antibiotics, anti-inflammatory, anti –viral.

CO9 Have the knowledge of pollution preservation and waste management.

Course Outcomes

T.Y.B.Sc Sem. IV

CH 346E Dairy Chemistry (Paper-VI)

By the end of this course, the student should be able to

CO1 Definitions of market milks, special milks, milk protein, carbohydrates, vitamins, died milk, butter, cheese, enzymes and adulterants in milk.

CO2 Major and minor constituent of milk, properties of milk constituents and factors affecting on composition of milk.

CO3 Cream and methods for cream separation, pasteurization and its objective, methods for pasteurization, standards for pasteurization of milk.

CO4 Discuss about common dairy products, special milks, milk protein, carbohydrates and vitamins, adulterants in milk, cream, butter, cheese and dried milk.

CO5 Explain properties of market milks, common dairy products, special milks, milk protein, carbohydrates and vitamins, cream, butter, cheese and dried milk products.

CO6 Know about common dairy products.

CO7 Analyze different types of adulterations in milk, milk products and dried milk powders

Course Outcomes

T.Y.B.Sc

CH-348 Practical Paper-I,Physical Chemistry Practical

CO1 Student are trained to different instrumental technique in physical chemistry like, pH metry, colorimeter, conductometry, potentiometry etc.

CO2 Student are made aware of safety technique & handling of chemicals.

CO3 Students are made aware different types of technique are used to determine viscosity, partial molar volume, and rate of reactions.

CO4 This practical course is designed to understand the various techniques in physical chemistry.

Course Outcomes

T.Y.B.Sc**CH-348 Practical Paper-II, Inorganic Chemistry Practical**

By the end of this course students will able to

CO1 Maintaining records of quantitative and qualitative analysis.

CO2 Laboratory skills for the purpose of collecting, interpreting, analysing, and reporting (in written form) chemical data.

CO3 Mole concept and its application in the preparation of normal and molar solutions, and use of mole concept in quantitative calculations for inorganic analysis.

CO4 Prepare a various inorganic complexes and determine its % purity

CO5 Study the gravimetric and volumetric analysis of ores and alloy.

CO6 To study binary mixture with removal of borate and phosphate.

CO7 To understand the chromatographic techniques.

Course Outcomes**T.Y.B.Sc****CH -333 Paper III Organic chemistry Practicals**

By the end of this course students will able to

CO1 Qualitative & Quantitative analysis of organic compounds

CO2 To determine nature, type of the mixture. Separation of mixture into two components. Purification of compounds & to find out functional group of two components.

CO3 Identification of copound is Aliphatic or Aromatic , Saturated or Unsaturated.

CO4 Estimation of different compounds given

CO5 Preparation of complexes , Purification of Complex.

CO6 TLC plate preparation, To calculate Rf values.

CO7 Identification of components.

CO8 To develop laboratory skill for analysis of different compounds.

Program Outcomes Physics

PO1 The T. Y. B. Sc., students learn most of the science concepts.

PO2 The students perform the practicals and hence students can apply practical knowledge.

PO3 The knowledge gained by T. Y. B. Sc. students can be beneficial in their future studies and jobs.

PO4 The T. Y. B. Sc. students may do the research in specific branch.

Specific Program Outcomes

(Physics)

Specific Program Outcomes

PSO1 After completion of T. Y. B. Sc.(Physics), students learn about different branches in physics like classical mechanics, quantum mechanics, electrodynamics , nuclear physics, electronics, thermodynamics and statistical physics, solid state physics, mathematical methods in physics, atomic and molecular physics, laser, renewable energy sources etc.

PSO2 The students understand and perform practical's on surface tension, viscosity, moduli of elasticity, computer interfacing , optics, thermodynamics, electronics, C-programming , lasers etc.

PSO3 The projects performed by the students can be beneficial in their future studies and jobs.

B.Sc. ZOOLOGY DEGREE PROGRAM

Courses Offered

B. Sc. I, B. Sc. II& B. Sc. III

Zoology Program Outcomes, Program Specific Outcomes

PO1 Students gain knowledge and develop skill over animal sciences, understands the interactions among various living organisms.

PO2 Students are able to study animals of different phyla, their distribution and their relationship with the environment.

PO3 Students are able to understand internal structure of cell, functions of various cellular organelles.

PO4 Understand the complex evolutionary processes and behavioural pattern of various animals.

PO5 Students are able to correlate the physiological and biochemical processes of animals.

PO6 Understanding of ecological factors, environmental conservation processes and its importance, pollution control and biodiversity and protection of threatened species.

PO7 Gain knowledge about applied fields like sericulture, fisheries, apiculture, poultry and dairy farms along with tissue preparation, molecular and statistical techniques.

PO8 Understanding about various concepts of genetics and its importance in human health.

PO9 Apply ethical principles and commit to professional ethics and responsibilities in delivering his duties.

PO10 Apply the knowledge and understanding of Zoology to one's own life and work.

PO11 Develops empathy and love towards the animals

Program Specific Outcomes

PSO1 Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology.

PSO2 Analyze the relationships among animals with their ecosystems.

PSO3 Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology.

PSO4 Understand the applications of Zoology in Agriculture, Medicine and daily life.

PSO5 Gains knowledge about research methodologies, effective communication and skills of problem solving methods.

PSO6 Contributes the knowledge for Nation building.

Department of Zoology
Course out come

F.Y.B.Sc., Term- I.

Paper I Animal Systematics and Diversity –I

CO1 Ability to love and understand the fascinating world of invertebrates.

CO2 Get a concrete idea of the evolution, hierarchy and classification of invertebrate phyla.

CO3 Understand the basics of Systematics by learning the diagnostic and general Characters of various groups.

CO4 Getting an overview of typical examples in each phyla.(Salient features and classification up to classes).

CO5 Aware the economic importance of Earth worm.

CO6 Understanding of general taxonomic rules on animal classification.

Paper II Fundamentals of Cell Biology

CO1 Gives basic Knowledge of Cell Biology along with various cellular functions.

CO2 Students gives knowledge about basic difference in Prokaryotic and Eukaryotic cell .

CO3 Students gives knowledge about basic different types of stain.

CO4 Gives basic concepts cell aging and different cell organelles.

CO5 Students gain knowledge of different biomolecules and biochemical processes of cells.

CO6 Gives basic concepts cell division and it's significance.

F.Y.B.Sc., Term- II.

Paper I Animal Systematics and Diversity –II

CO1 Knowledge of classification of protochordates and chordates along with studies on various physiological functions and interactions of chordate organisms with examples.

CO2 Inculcate in the student a fascination for nature and learn the bionomics of Vertebrates.

CO3 Learn the evolution, hierarchy and classification of different classes of chordates.

CO4 Imparts conceptual knowledge of vertebrate adaptations in relation to their environment.

CO5 Knowledge of classification of chordates along with studies on various physiological functions and comparative anatomy of organs of chordate with examples.

CO6 Familiar the adaptations and economic importance of specific vertebrates.

Department of Zoology

Course out come

S.Y.B.Sc., Sem I.

Paper I Animal Systematics and Diversity – III

CO1 Ability to love and understand the fascinating world of invertebrates.

CO2 Get a concrete idea of the evolution, hierarchy and classification of invertebrate phyla.

CO3 Understand the basics of Systematics by learning the diagnostic and general Characters of various groups.

CO4 Getting an overview of typical examples in each phyla.

CO5 Aware the economic importance of invertebrates.

CO6 Understanding of general taxonomic rules on animal classification.

Paper II Applied Zoology-I

CO1 Understands concepts of fisheries, Agriculture pest management along with tissue and cell culture techniques.

CO2 Aware the economic importance of Fish with the special reference to IMC, Crustacean, Mollusca etc.

CO3 Gives basic concepts of Fisheries and fishing technology.

CO4 Students gain fundamental knowledge Agricultural Pests and their control.

CO5 Awareness of Students Hazards of pesticides on human and antidotes.

CO6 Students gives basic knowledge of Crafts and gears& Fish preservation technique.

Course out come

S.Y.B.Sc., Sem II.

Paper I Animal Systematics and Diversity – IV

CO1 Inculcate in the student a fascination for nature and learn the bionomics of vertebrates.

CO2 Learn the evolution, hierarchy and classification of different classes of chordates.

CO3 Get an overview of the morphology and physiology of typical examples.

CO4 Familiars the adaptations and economic importance of specific vertebrates.

CO5 Students gain fundamental knowledge of identification of Poisonous and Non poisonous Snakes.

CO6 Students gives basic knowledge of Beak and feet modifications in birds& Migration in birds.

Paper II Applied Zoology-II

CO1 Understands concepts of Sericulture & Apiculture along with Economics important.

CO2 Identify various methodology and perspectives of applied branches of zoology for the possibilities of self-employment.

CO3 Learn the basic principles involved in the Bee keeping and seasonal management.

CO4 Students gives basic knowledge Silk worm rearing.

CO5 Students gives basic knowledge of byproducts of Honey bee.

CO6 Students gives basic knowledge of different types of silk moths, their Distribution and varieties of silk produced.

Paper III, First and Second Semester Practical

CO1 Experience in anatomy through simple dissections.

CO2 Familiarize organ system.

CO3 Aware about economically important specimen (preserved).

CO4 Understands Practical skill of fisheries, sericulture, apiculture, poultry, dairy along with crop pest management techniques.

CO5 Identifications of non-chordate and chordate specimens (fresh and preserved) along with larval forms and sections.

CO6 Field visits to various ecological areas like sea-shore, tea plantations, zoological gardens allowed students to prepare reports on them.

PO1 Students will be able to possess a broad, liberal arts foundation and understanding of how developments in social and intellectual history shape and affect human values and institutions.

PO2 Students will be able to analyse human behavior, problems or situations from social science, cross-cultural and global perspectives.

PO3 Students will be able to evaluate how theories and models within the social sciences have been established and maintained through systems of power and oppression.

PO4 Enable the students to apply knowledge and skills to contemporary problems and issues.

PSO1 Economics subject enables the learners to build up a professional carrier as economists, financial analysts, financial advisors, economics planners and policy makers. It prepares them to cope up with the stress and strain involved in the process of economic development. Department support and motivate the students to study and research in Economics.

Department of Economics

Programme Outcomes and Course Outcomes

Programme Outcomes (B.A.)

Program Specific Outcome

PSO2 Students will be able to understand the impact of government policies and will be able to assess the consequences of the policies on the parties involved.

PSO3 Through organizing guest lectures, workshops, seminars, industrial visit and extension activities it enables students to learn Economics, particularly its applications and foster the development of their own skills in economic reasoning and understanding.

CO1 Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.

Course Outcome

Course Economics (B.A.)

Class F.Y.B.A.

Indian Economic Environment

CO2 Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.

CO3 Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.

CO4 Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy as a whole.

CO5 Understand the challenges faced by Indian economy.

Class S.Y. B.A.

.Micro Economics (Spl-1)

CO1 Demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, and illustrate different theories of interest and profits.

CO2 Understand how factor market works, identify the various determinants of firm's demand for factor services, bilateral monopoly, demonstrate monopsony in factor market and factor market equilibrium.

CO3 Understand how factor market works, illustrate basic tools in welfare economics, and illustrate the concept of social welfare functions and compensation principles.

CO4 Identify the various types of investment function analysis and understand the elements of social cost benefit analysis.

CO5 Understand distribution theories. Understand theories of Wages, Interest, Rent and Profit.

Macro Economics (Spl.2)

CO1 Define and explain the process of calculating national income, identify its components, demonstrate circular flow of income, analyse the various income identities with government and international trade, define the concept of green accounting.

CO2 Understand Say's law of market, classical theory of employment and Keynes objection to the classical theory, demonstrate the principle of effective demand and income determination.

CO3 Explain the meaning of consumption function, relationship between APC and MPC, consumption and income, concept of multiplier and analyse the theories of absolute and relative income hypotheses.

CO4 Understand the relationship between investment and savings, demonstrate investment multiplier, and understand the meaning and functions of accelerator.

CO5 Illustrate the meaning of interest, analyse the various theories of interest.

CO6 Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.

CO7 Illustrate the meaning of inflation, deflation and stagflation and identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, describe different measures to control inflation.

Modern Banking (G.2)

CO1 Clear understanding of the operations of banking.

CO2 Explain the broad features of Indian banking system with its apex banks' objectives and purview.

CO3 Understand the instruments to control credit in the country.

CO4 Effectively narrate the kinds and components of money with its regulatory system, be aware of the functions, objectives and limitations of commercial banks.

CO5 Identify the existence and development of Indian banking system, know the important role of Co-operative banks.

CO6 Understand the conditions of financial markets and its impact in the economy.

CO7 Demonstrate the role and significance of foreign exchange rate and its markets with its impact on various sectors in the economy.

T.Y.B.A.

International Economics (Spl3)

CO1 Identify the basic difference between inter-regional and international trade, understand how international trade has helped countries to acquire goods at cheaper cost and explain it through the various international trade theories.

CO2 Show the benefits of international trade in a way how nations with strong international trade have become prosperous and have the power to control world economy and how global trade can be one of the major contributors of reducing poverty.

CO3 Explain how restrictions to international trade would limit a nation in the services and goods produced within its territories and at the same time explain that a rise in international trade is essential for the growth of globalization.

CO4 Show the importance of maintaining equilibrium in the balance of payments and suggests suitable measures to correct disequilibrium as well.

CO5 Be aware of the changes in the composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments, measures adopted to correct the deficits and identify the need for having trade reforms.

Public Finance (Spl.4)

CO1 Understand the role and functions of the Government in an economy.

CO2 Understand the sources of finance both public and private; demonstrate the role of government to correct market failures and possible advantage of public financing.

CO3 Attain the advantages and knowledge of public investments and other government expenditures. Understand the causes of growing public

expenditures for various programmes and policies within and outside the country.

CO4 Understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.

CO5 Understand the needs of public borrowing from all possible sources to meet necessary public investment/expenditures. Also be alerted to find sources for repayment.

CO6 Deliver effectively the preparation of budget and how they are passed in the house. Understand the changes in size and flexibility of state and central budget along with the role played by Finance Commission.

Economic Development & Planning (G.-3)

CO1 Understand the concepts of economic development and indicators of development.

CO2 It makes the students to understand the aspect of development process in low income counties. Its focus is on improving the potential for the mass of population through health and education.

CO3 Understand the process of Economic Planning and critical evaluation of Planning.

CO4 Attain the knowledge of recent changes and development in the field of Economic Planning.

Course Economics (B.Com.)

F.Y.B.Com.

Business Economics (Micro Economics)

CO1 Understand how factor market works, identify the various determinants of firm's demand for factor services, bilateral monopoly, demonstrate monopsony in factor market and factor market equilibrium.

CO2 Understand how factor market works, illustrate basic tools in welfare economics, and illustrate the concept of social welfare functions and compensation principles.

CO3 Identify the various types of investment function analysis and understand the elements of Business Economics.

CO4 Understand distribution theories. Understand theories of Wages, Interest, Rent and Profit.

CO5 Attain the practical knowledge of Business Economics.

S.Y.B.Com.

Business Economics (Macro Economics)

CO1 Define and explain the process of calculating national income, identify its components, demonstrate circular flow of income, analyse the various income identities with government and international trade, define the concept of green accounting.

CO2 Understand Say's law of market, classical theory of employment and Keynes objection to the classical theory, demonstrate the principle of effective demand and income determination.

CO3 Analyze different phases of trade cycle, demonstrate various trade cycle theories, understand the impact of cyclical fluctuation on the growth of business, and lay policies to control trade cycle.

CO4 Illustrate the meaning of inflation, deflation and stagflation and identify different kinds of inflation, causes and effects of inflation on different sectors of the economy, describe different measures to control inflation.

CO5 Understand the possible burden, benefits and distribution of various types of taxes among various classes of people, know the general trend and impact on general welfare and arouse them to suggest good and bad tax system.

CO6 Attain the practical knowledge of Business Economics.

T.Y.B.Com.

Indian & Global Economic Development

CO1 Understand the features of Indian Economy as LDCs and as emerging economy.

CO2 Identify the constraints in the Agricultural Development.

CO3 Understand problems of Rural Indebtedness and suggest measures to solve the indebtedness problems

CO4 Analyse India's Industrial Policy since 1991.

CO5 Understand challenges of LPG.

CO6 Identify the role and problems of foreign capital

CO7 Understand India's recent position of foreign trade.

CO8 Identify the objectives, functions and performance of international organizations such as SAARC, IMF, World Bank. WTO, BRICS.

International Economics

CO1 Identify the basic difference between inter-regional and international trade, understand how international trade has helped countries to acquire goods at cheaper cost and explain it through the various international trade theories.

CO2 Understand the benefits of international trade in a way how nations with strong international trade have become prosperous and have the power to control world economy and how global trade can be one of the major contributors of reducing poverty.

CO3 Identify how restrictions to international trade would limit a nation in the services and goods produced within its territories and at the same time explain that a rise in international trade is essential for the growth of globalization.

CO4 Understand the importance of maintaining equilibrium in the balance of payments and suggests suitable measures to correct disequilibrium as well.

CO5 Be aware of the changes in the composition as well as direction of foreign trade after international trade and know the causes and effects of deficits in the balance of payments, measures adopted to correct the deficits and identify the need for having trade reforms.

CO6 Attain the knowledge of recent development and trends in International Organizations.

Department of Geography

Programme Outcome of BA Geography Program Specific Outcomes On Completion the BA (Geography)

Students are able to:

PSO1 Serve as a Geographer.

PSO2 Work as a surveyor in various Govt. Departments.

PSO3 Work as a teacher in schools and high schools.

PSO4 Serve as conservator in forest, Soil, Agri, Departments.

PSO5 Work in disaster and water resources management.

PSO6 Serve in forest department as forest conservator.

PSO7 Serve in cartographer in map making divisions of Government.

PSO8 Work in NGOs.

PSO9 Can Prepare for Competitive exams.

PSO10 Aware about Remote Sensing and GIS Technology

GENERAL PAPER 1 FOR FYBA (G1) FYBA

Elements of Geomorphology Gg- 110

Course Out Come

CO1 The student develops theoretical, applied and computational skills.

CO2 Describe what Geography and Physical Geography are.

CO3 Understand the physical principles and processes governing the circulation and characteristics of the atmosphere and climates on Earth.

CO4 Understand the principles of geomorphology and the processes that shape the landscape.

CO5 Understand the directional and location systems employed on the surface of the Earth

CO6 Be able to use and analyze maps.

CO7 The broad objective of the course is to introduce to the students the fundamentals of atmospheric phenomena, global climate systems and climate change.

CO8 The atmosphere and climate are a critical part of the earth system, and climatic variability and change are central to the issue of current and future global environmental change.

CO9 To understand the dynamics of the atmosphere, the ocean and the overall climatologically system.

CO10 On successful completion of this course, students should be able to understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

GENERAL PAPER 2 FOR SYBA (G2)

Gg-210 Geography of Disaster Management

Course Outcome

CO1 To recognize the difference between hazards and disaster and its type.

CO2 To know the basic concept in disaster management and its terminology.

CO3 To understand the measures of disaster management.

CO4 Student can understand the climatic disaster and its management.

CO5 Student can know the Geological and Geomorphic disaster and its management.

CO6 Student can be aware of the anthropogenic disaster and its management.

CO7 To comprehend the global issues and movements regarding disaster.

GENERAL PAPER 3 FOR TYBA (G3)

Gg-310 Regional Geography of India

Course Outcomes

CO1 To know the physical characteristics of India.

CO2 To be familiar with the cultural characteristics of India.

CO3 To sensitize the students with development issues and policies and programmes designed for regional development.

CO4 Students can understand the drainage system of India.

CO5 To understand the climatic zone, Characteristics, Origin and Mechanism of Monsoon.

CO6 Students can know the soils and forestry of India.

CO7 Understand uses and location of the Mineral Resources and Energy Resources

CO8 Student can be aware of the agricultural pattern and recent trends in agricultural of India.

POLITICAL SCIENCE DEPARTMENT

Program Specific Outcome

PSO1 To create awareness about Indian Constitution, rules and laws.

PSO2 To develop responsible citizenship.

PSO3 To create a pool of academia with in-depth understanding of national as well as international political scenario.

PSO4 To make students learn political scenario at regional and local level.

PSO5 To promote an understanding about local state as well as central level governance.

PSO6 To develop an understanding of democracy and democratic values.

FYBA – G-1

Indian Constitution

Course Outcome

CO1 To understand the history of Indian Constitution.

CO2 To study Indian Political Process.

CO3 To understand the fundamental Rights.

CO4 To understand the structure of union & state government

CO5 To understand the role of caste & Religion in Indian politics

General Paper-G-2

UK and USA Constitution

CO1 To understand the evolution and usage of Political theories & concepts.

CO2 To understand the different ideological perspectives.

CO3 To understand the continuity and changes in political theory.

CO4 To understand the relevance of political theory in contemporary era.

TYBA

General Paper- G-3

Political Ideologies

CO1 To understand the different political ideologies.

CO2 To understand the impact of political ideologies on contemporary politics

CO3 To understand the historical context of each ideology

CO4 To understand the link between an idea and its actual realization in public policy

Department of History

Course Outcomes

F.Y.B.A. General Paper-1 (G1) (1177)

Chhatrapati Shivaji and His Times (1630- 1760)

CO1 Introduce innovative study techniques in the study of History of Maratha to make it value based, conceptual and thought provocative.

CO2 Introduce International elements in the study of Marathas to facilitate comparative analysis of this history.

CO3 Highlight the importance of past in exploration of present context.

CO4 Understand the Socio –economic, cultural and political background of 17th century Maharashtra.

CO5 Increase the spirit of healthy Nationalism & Secularism among the student.

S.Y.B.A. General Paper-II (G2)(2177)

Modern India (1857 -1950)

CO1 Help students to know- History of freedom movement of India, aims, objectives, problems and progress of Independent India.

CO2 Enable students to understand the processes of rise of modern India.

CO3 Acquaint students with fundamental aspects of Modern Indian History.

CO4 Explain the basic concepts/ concerns/ frame work of Indian History

S.Y.B.A. Special Paper-I (G2)(2178)

CO1 Help students to know- History of freedom movement of India, aims, objectives, problems and progress of Independent India.

CO2 Enable students to understand the processes of rise of modern India.

CO3 Acquaint students with fundamental aspects of Modern Indian History.

CO4 Explain the basic concepts/ concerns/ frame work of Indian History

S.Y.B.A. Special Paper-II (G2)(2179)

CO1 Help students to know- History of freedom movement of India, aims, objectives, problems and progress of Indian History.

CO2 Enable students to understand and equip with the processes of rise of modern India.

CO3 Acquaint students with fundamental aspects of Modern Indian History.

CO4 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)**

CO1 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.

CO2 To orient the students with political history of Modern World.

CO3 Acquaint with the main developments in the Contemporary World (Understand the important development in the 20th century World.)

CO4 Impart knowledge about world concepts.

CO5 Enable students to understand the economic transition in World during the 20th Century.

T.Y.B.A. Special Paper-III (S3) (3178)

CO1 To orient the students with political history of Modern World.

CO2 Acquaint with the main developments in the Contemporary World (Understand the important development in the 20th century World.)

CO3 Impart knowledge about world concepts.

T.Y.B.A. Special Paper-IV (S4) (3179)

CO1 Help students to know- History of freedom movement of India, aims, objectives, problems and progress of Independent India.

CO2 Enable students to understand the processes of rise of modern India.

CO3 Acquaint students with fundamental aspects of Modern Indian History.

CO4 Explain the basic concepts/ concerns/ frame work of Indian History

Department of Botany**B.Sc. Botany****Program Specific outcome**

Student will acquire core knowledge in the subject.

PSO1 Students will get thorough knowledge about various plant groups from primitive to highly evolved.

PSO2 Students will be aware of application of plant in various industries.

PSO3 Students will get awareness about conservation and sustainable use of plants.

PSO4 Students will learn the experimental techniques in the area of specialization in Botany.

PSO5 Students will be able to understand the research and address practical problems.

PSO6 Enable the students to become entrepreneurs.

PSO7 Equip students with skills related to laboratory and industry based studies.

Course outcome

F.Y.B.Sc. Botany Term-I

Paper-I Plant Diversity

On completion of the course, students are able to

CO1 Understand the diversity among plant kingdom and their classification.

CO2 Know about morphological diversity, characters, classification and systematic position of Algae, Fungi, Bryophytes, Pteridophytes and Gymnosperms.

CO3 Learn the life cycle of *Spirogyra*, *Cystopus*, *Riccia*, *Nephrolepis* and *Cycas*.

CO4 Understand the characters and types of Lichens.

CO5 Know about the evolutionary success of Angiosperms.

CO6 Know the characters of Dicotyledons and Monocotyledons and able to distinguish them.

F.Y.B.Sc. Botany Term-I;

Paper-II Industrial Botany

Students should

CO1 Understand the concept and scope of Industrial Botany.

CO2 Gain thorough knowledge about sustainable use of plants and their applications in various industries.

- CO3 Acquire skills related to industries and laboratory based studies.
- CO4 Learn about open and closed cultivation practices and equip them with cultivation and marketing skills.
- CO5 Know about concepts and types of plant nurseries and the various methods of plant propagation.
- CO6 Understand the concept, techniques and significance of plant tissue culture technology.
- CO7 Learn about organic farming system, seed processing and the importance of seed industries.
- CO8 Acquire skills of Oyster mushroom cultivation and their marketing.

F.Y.B.Sc. Botany Term-II;
Paper-I Morphology and Anatomy

Students should

- CO1 Understand plant morphology with reference to habit and vegetative as well as reproductive characters of Angiosperms and their importance.
- CO2 Know about the morphology, functions, types and modifications of root, stem and leaf.
- CO3 Understand morphology and types of Inflorescence, flower and fruits.
- CO4 Know about parts of flower, fruit and seeds and about seed dispersal.
- CO5 Understand anatomy and its importance.
- CO6 Know about types of tissues and their functions and the internal organization of dicot and monocot root, stem and leaf.

F.Y.B.Sc. Botany Term-II
Paper-II Industrial Botany

The students should be able to

- CO1 Understand the concept, advantages and significance of biofuels.
- CO2 Identify different plants used in biofuel production and acquire knowledge about the techniques to produce biodiesel.
- CO3 Understand the concept and significance of biocontrol, IPM and biopesticides.
- CO4 Learn about the types and preparation of biopesticides and their advantages.

CO5 Know about concept, need and significance of Industrial mycology, biofertilizer and fruit processing industry.

CO6 Understand the preparation and application of Nitrogen fixing and Phosphate solubilizing biofertilizers.

CO7 Know about cold storage and types of fruit processing.

CO8 Understand the concept, types, advantages and significance of pharmaceuticals, nutraceuticals and cosmeceuticals.

CO9 Know about the manufacture of Churna, Asava and Arishta, and source, active principles and uses of *Adathoda*, *Tinospora*, *Asparagus*, *Amla* and *Aloe*.

F.Y.B.Sc. Botany

Paper-III Practicals

The students should understand

CO1 Morphology of root and stem with its modifications.

CO2 Morphology and types of leaves, inflorescence, fruits and seeds.

CO3 Flower morphology.

CO4 Internal primary structure of dicot and monocot root, stem and leaf.

CO5 Morphology and lifecycle of *Spirogyra*, *Cystopus*, *Riccia*, *Nephrolepis* and *Cycas*.

CO6 Plant resources in food, fodder, fiber, medicine, timber and gum.

CO7 Techniques of artificial plant propagation namely Stem cutting, Air layering, Approach grafting and T-budding.

CO8 Techniques of plant tissue culture and oyster mushroom cultivation.

CO9 Resources in biopesticides and various fungal products.

CO10 Types of biofertilizers and green manure.

CO11 Preparation of Jam and Squash.

S.Y.B.Sc. Botany Semester-I; Paper-I
Taxonomy of Angiosperms and Plant community

The students should

CO1 Understand concept of plant taxonomy and systematics and about identification, classification and nomenclature.

CO2 Know about the types, with merits and demerits of artificial, natural and phylogenetic system of classification.

CO3 Learn about taxonomic literatures like flora, monograph, revisions, manuals, journals, periodicals and reference books.

CO4 Know about the use of various sources of data for systematic, history and principles of ICBN, rules of coining of generic and specific epithets and taxa names.

CO5 Understand the comparative account, distinguishing features and economic importance of angiosperm families and about the use of computers in taxonomy.

CO6 Know the definition and concept of ecology and about the components of ecosystem.

CO7 Learn about food chain, food web and ecological pyramids.

CO8 Understand plant communities and ecological adaptations in plants.

S.Y.B.Sc. Botany Semester-I; Paper-II

Plant Physiology

The students must be able to

CO1 Understand the definition, importance, scope and applications of plant physiology and contributions of various plant physiologists.

CO2 Understand plants and plant cells in relation to water and various processes like diffusion, osmosis, plasmolysis and imbibition.

CO3 Learn about absorption of water, movement of sap and transpiration in plants.

CO4 Understand growth and development of plants and its regulations.

CO5 Understand nitrogen metabolism, seed dormancy and flowering physiology.

S.Y.B.Sc. Botany Semester-II; Paper-I

Plant Anatomy and Embryology

Students must

CO1 Understand the definition and scope of plant anatomy and about types of tissues.

CO2 Learn about structure, function, types and distribution of epidermal, mechanical and vascular tissue system.

CO3 Know about the process of normal secondary growth and structures like annual rings, periderm, bark, tyloses and lenticels.

CO4 Understand the causes and process of anomalous secondary growth in *Bignonia* and *Dracaena*.

CO5 Know the definition and scope of Plant embryology and about the structure of microsporangium, process of microsporogenesis and male gametophyte development.

CO6 Understand structure of megasporangium, types of ovules, megasporogenesis and female gametophyte.

CO7 Learn about the process of pollination and fertilization, types of endosperm and process of seed formation and structure of monocot and dicot embryo.

S.Y.B.Sc. Botany Semester-II; Paper-II

Plant Biotechnology

Students should

CO1 Learn about the definition, concept, scope and interdisciplinary nature of biotechnology.

CO2 Understand definition, properties, classification and industrial applications of enzymes.

CO3 Know about the production of amylase, protease and lipase enzyme and about the concept and techniques of enzyme immobilization.

CO4 Know about process, types, media composition and industrial applications of fermentation.

CO5 Understand the principles of microbial growth and about the structure and functions of stirred tank, tubular tower and digestive tank bioreactors.

CO6 Understand the downstream processing for citric acid production.

CO7 Know about SCP, their need, economic implications and acceptability and their production from *Spirulina* and yeast.

CO8 Know the definition, concept and methods of phytoremediation and about environmental sustainability.

CO9 Understand the structure of DNA and gene and methods of gene isolation, gene cloning and gene transfer.

CO10 Know about applications of plant genetic engineering and nanotechnology in agriculture.

S.Y.B.Sc. Botany Paper-III Practicals

The students should be able to

CO1 Describe flowering plants in botanical terms and identify the distinguishing characters of plant families.

CO2 Distinguish Hydrophytes and Xerophytes based on the external and internal characters and identify their adaptive characters.

CO3 Survey the vegetation by list count quadrant method.

CO4 Identify and use different taxonomic tools and ecological instruments.

CO5 Know how to find out WHC and pH of Soil.

CO6 Learn the processes like plasmolysis, DPD, transpiration, curling and imbibition in different plants.

CO7 Know the use and functions of Arc Auxanometer, auxins, Transpiration pull, Spectrophotometer, Portable leaf area meter, Conductivity meter and Centrifuge.

CO8 Assess the viability of seeds by TTC method.

CO9 Prepare slides, observe and understand epidermal tissues, mechanical tissues and their distribution and the process of normal and anomalous secondary growth in different plants.

CO10 Know about tetrasporangiate anther, ovules and embryo in monocots and dicots.

CO11 Estimate the amount of citric acid in fermented and unfermented broth.

CO12 Understand the technique of production of SCP from Spirulina and Yeast and their commercial products.

CO13 Learn the process of production of alcohol through fermentation.

CO14 Know the DNA separation process through Agarose gel electrophoresis.

CO15 Understand the process of enzyme immobilization.

Department of Geography

Programme Outcome of BA Geography Program Specific Outcomes on Completion the BA (Geography)
Students are able to:

PSO1 Serve as a Geographer.

PSO2 Work as a surveyor in various Govt. Departments.

PSO3 Work as a teacher in schools and high schools.

PSO4 Serve as conservator in forest, Soil, Agri, Departments.

PSO5 Work in disaster and water resources management.

PSO6 Serve in forest department as forest conservator.

PSO7 Serve in cartographer in map making divisions of Government.

PSO8 Work in NGOs.

PSO9 Can Prepare for Competitive exams.

PSO10 Aware about Remote Sensing and GIS Technology

GENERAL PAPER 1 FOR FYBA (G1)

FYBA Elements of Geomorphology Gg- 110

Course out Come

CO1 The student develops theoretical, applied and computational skills.

CO2 Describe what Geography and Physical Geography are.

CO3 Understand the physical principles and processes governing the circulation and characteristics of the atmosphere and climates on Earth.

CO4 Understand the principles of geomorphology and the processes that shape the landscape. CO5 Understand the directional and location systems employed on the surface of the Earth

CO6 Be able to use and analyze maps.

CO7 The broad objective of the course is to introduce to the students the fundamentals of atmospheric phenomena, global climate systems and climate change.

CO8 The atmosphere and climate are a critical part of the earth system, and climatic variability and change are central to the issue of current and future global environmental change.

CO9 To understand the dynamics of the atmosphere, the ocean and the overall climatologically system.

CO10 On successful completion of this course, students should be able to understand the mean global atmospheric circulations and disturbances, world climate systems, climatic variability and change.

GENERAL PAPER 2 FOR SYBA (G2)

Gg-210 Geography of Disaster Management

Course Outcome

CO1 To recognize the difference between hazards and disaster and its type.

CO2 To know the basic concept in disaster management and its terminology.

CO3 To understand the measures of disaster management.

CO4 Student can understand the climatic disaster and its management.

CO5 Student can know the Geological and Geomorphic disaster and its management.

CO6 Student can be aware of the anthropogenic disaster and its management.

CO7 To comprehend the global issues and movements regarding disaster.

GENERAL PAPER 3 FOR TYBA (G3)

Gg-310 Human Geography

Course Outcomes

CO1 To know the meaning nature and scope of human geography.

CO2 Students can understand the Racial Classification.

CO3 To understand the Human Evolution Stages and Process.

CO4 Students can know the Tribes and their Life in India.

CO5 Understand Migration of population

CO6 Student can be aware of the Resources and their uses.

