



॥ Tevo Sada Dnyanmay Pradeep ॥

Jijamata Shikshan Prasarak Mandal's

JIJAMATA MAHAVIDYALAYA SARATI

Affiliated to Savitribai Phule Pune University

[SPPU]

Criterion- II: Teaching Learning and Evaluation

2.6 Student Performance and Learning Outcomes 2021-22

Choice Based Credit System [CBCS] 2019Pattern

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution are stated and displayed in website of the institution

• Program Outcomes • Program Specific Outcomes • Course Outcomes



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F.Y.B.Sc. Semester-I	MT 111- Algebra Paper I	CO 1. The course aids in basic understanding of the integers, polynomials, system of linear equations, eigenvalues & eigenvectors. CO 2. This Course build foundation of mathematics in sets, relations, congruence's, CO 3. Study the basics of complex numbers and their properties CO 4 The student develops theoretical, applied and computational skills
	MT 112: CALCULUS -I Paper II	CO 1. Study of calculus of real valued functions of real variables. CO 2. To study basic properties of real numbers to use it in theorems CO 3. To visualize concept through maxima software CO 4. To concepts of calculus through maxima software CO 5. The student develops theoretical, applied and computational skills
	MT 113: Mathematics Practical	CO 1. Imparting skill to solve problems. CO 2 To Solve Problems in Algebra. CO 3 To Solve Problems in calculus I .
F.Y.B.Sc. Semester-II	MT 121 paper 1: Analytical geometry	CO1: Student will learn geometry of two dimensions and three dimensions CO2: Student will be able to reduce general equation of second degree to its standard form CO3: Student will learn geometry of line, plane and sphere and their equations in various forms in detail. CO4: Analytical skills will get enhanced
	MT 122 paper 2: Calculus II	CO1. By studying this course the students can develop the theoretical as well as applied, computational skills and gains the confidence in proving theorems and solving problems. CO2. By studying this course, students will be familiar with all the basic concepts of differential equations and how to use all these basic concepts for the higher study in differential equations. CO3. By studying the basic concepts and geometrical interpretation of the theorems in differentiability students will be able to relate the graphs and theoretical concepts in calculus very efficiently. CO4. By studying the different techniques of solving the differential equations, students can form differential equations and solve them efficiently and also they will become familiar with applications of those differential equations. CO5. This course will be useful to create confidence in students for equipping themselves with that part of Mathematics which is needed for various branches of Science or Humanities in which they have aptitude for higher studies and original work.
	MT 123: Mathematics Practical	CO 1. Imparting skill to solve problems. CO 2 To Solve Problems in Analytical geometry CO 3 To Solve Problems in calculus II



S.Y. B.Sc.

CBCS-2019

Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S.Y.B.Sc. Semester-III	MT-231 Multivariable Calculus. Paper I	CO 1.Study calculus of functions of several variables. CO 2 visualize the concept of multivariable calculus through maxima software CO 3. Understand the Applications of double and triple integration. CO 4 Solve Double Triple Integral Using Maxima Software
	MT-232(A): Numerical Methods and Its Applications Paper II	CO 1. Study Need of Numerical Techniques. CO 2.Finding of the solution of transcendental equations and polynomial equations by Numerical Methods. CO 3.Fitting of a curve to data by Least Square Method. CO 4.Interpolation. CO 5.Numerical Integration. CO 6.Finding of the solution of differential equations of first order and first degree by Taylors series Method, CO 7 To Solve Problems Using Maxima software
	MT-233: Mathematics Practical based on MT-231 and MT232 Paper III	CO 1 To Visualize Domain and range of function of several variables using maxima Software CO 2 To Solve the problems on Limits and Partial derivatives using maxima Software CO 3 using maxima Software understand the application of Double & Triple integral CO 4 Study of Numerical Techniques using maxima Software.
S.Y.B.Sc. Semester-IV	MT-241: Linear Algebra. Paper I	CO 1.Knowledge of vector spaces and subspaces. CO 1.Finding of the basis and dimension of vector spaces. CO 1.Knowledge and study Linear Operators on vector spaces and their properties. CO 1.Study Inner Product spaces and properties, Gram-Schmidth Process.
	MT-242(A): Vector Calculus. Paper II	CO 1. Find the vector equations of lines and planes. CO 2. Understand the parametric equations of curves and surfaces. CO 3. Find the gradient of a function. CO 4. Use the gradient operator to calculate the directional derivative of a function. CO 5 Calculate the unit normal at a point on a surface. CO 6. Understand the various integral theorems relating line, surface and volume integrals.
	MT-243: Mathematics Practical based on MT-241 and MT-242 Paper III	CO1.To Solve the Problems based on Linear Algebra & Vector Calculus CO 2.To Solve the Problems based on Linear Algebra using maxima Software CO 3.To Solve the Problems based on Vector Calculus using maxima Software



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F. Y. B. Sc. Semester-I	Paper I: EL- 111: Basics of Applied Electronics	CO1 To identify different parameters/functions/specifications of components used in electronic circuits CO2 To solve problems based on network theorems CO3 To perform simulations using simulator for analyzing network performance CO4 To understand few electronic systems
	Paper II: EL- 112: Electronic Devices and Circuits	CO1 To analyze performance parameters based on study of characteristics of electronic devices like diode, transistors etc CO2 To choose proper electronic devices as per the need of application CO3 To perform simulations for designing and analyzing diode/transistor circuits CO4 To build and test the circuits like street light controller using electronic devices
	EL- 113: ELECTRONICS LAB IA	To identify different components and devices as well as their types To understand basic parameters associated with each device To know operation of different instruments used in the laboratory To connect circuit and do required performance analysis To compare simulated and actual results of given particular experiment
F. Y. B. Sc. Semester-II	Paper I: EL-121: Fundamentals of Digital Electronics	To solve problems based on inter conversion of number systems To reduce the expression using Boolean theorems To reduce expressions using K maps in SOP and POS forms To understand how to use flip flops to build modulus counter To familiarize with applications of counters like ring counter or event counter
	Paper II: EL- 122: Analog and Digital Device applications	To compare different opamps as per specifications or performance parameters To understand opamp circuits and its usefulness in different applications To know operating principle of IC 555 in different configurations To understand different types of DAC and their performance parameters To study different types of ADC and their performance parameters
	EL- 123: ELECTRONICS LAB IB	To connect opamp circuits and analyze the output To build application circuits of opamp To design the output frequency of IC 555 as astable/monostable multivibrator To compare simulated and actual results of given circuit



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S. Y.B.Sc. Semester-III	EL-231: Paper – I: Communication Electronics	CO1. Understand different blocks in communication systems, types of noise in communication systems and its different parameters CO2 Understand need of modulation, modulation process and amplitude modulation and demodulation methods CO3 Analyse generation of FM Modulation and demodulation methods and comparison between amplitude and frequency modulation CO4. Identify different radio receivers and their performance parameters. CO5 Solve problems based on AM and FM performance parameters CO6 Compare pulse modulation techniques such as PAM, PPM, PWM and compare TDM and FDM techniques used in communication CO7 Understand need of sampling and sampling theorem as well as know about performance parameters of digital communication CO8 Analyze difference between ASK, FSK , PSK as well as PCM and its applications
	EL-232: Paper- II: Digital Circuit Design	CO1 Distinguish between different logic families based on their performance parameters CO2 Analyze basic combinational logic circuits for simple applications CO3 Design combinational logic circuits using K maps for identified applications CO4 Design Sequential logic circuits using state diagram, excitation table for identified applications CO5 Understand and compare different types of ADC and their performance parameters using data sheets/manuals CO6 Understand and compare different types of DAC and their performance parameters using data sheets/manuals
	EL-233: Paper- III: Practical Course	CO1 Describe and explain the techniques of generation of AM/ FM and demodulation CO2 Design FSK generation using standard IC XR 2206 referring data manuals CO3 Describe and explain the TDM/ FDM generation technique CO4 Demonstrate PPM/PWM/PAM and PCM techniques using standard circuits in data manuals CO5 Design and build minimum complexity digital circuits using logic gates

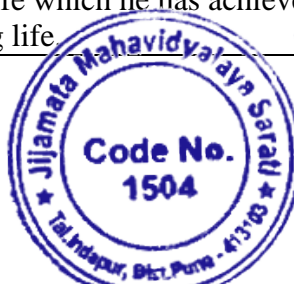


		CO6 Design and analyze different combinational and sequential logic circuits using standard ICs in data manuals CO7 Design ADC/ DAC using data manuals and study its performance parameters
S.Y.B.Sc. Semester-IV	EL-241: Paper - I: Analog Circuit Design	CO1 Design single/multistage amplifier using transistor and analyze their frequency response base on gain-bandwidth product due to coupling /bypass capacitors CO2 Classify and compare different power amplifiers CO3 Understand and design push pull amplifier and need of heat sinks CO4 Distinguish between Opamp Feedback circuits based on their configurations CO5 Analyze the effect of negative and positive feedback on characteristics of Opamp CO6 Understand and analyze the need of positive feedback in oscillator circuits CO7 Design , develop and build circuits for identified applications
	EL-242: Paper II: Microcontroller and Python Programming	CO1 Identify the features and architectural details of microcontroller(arduiuno) CO2 Write code/program using open source programming language(arduiuno) for basic identified applications CO3 Understand programming basics of python programming language CO4 Understand special features of python programming language such as importing modules, directory, tuples CO5 Design , build and implement applications using arduino and python
	EL-243: Paper- III: Practical Course	CO1 Describe and explain the design procedure of different types of active filters and analyze its frequency response CO2 Demonstrate positive feedback for oscillator circuits using standard ICs CO3 Describe and explain design procedure for two stage amplifiers and application circuits CO4 Design practical circuits for identified applications CO5 Develop working setup and write programs using programming techniques of arduino CO6 Demonstrate and explain interfacing hardware to arduino microcontroller CO7 Solve problems using programming techniques of python



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F.Y.B.Sc. Semester-I	Paper I: ZO-111) Animal Diversity –I	CO 1 The student will be able to understand classify and identify the diversity of animals. CO 2 The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. CO 3 The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
	Paper II: ZO 112 Animal Ecology	CO 1 The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population. CO 2 To understand anticipate, analyze and evaluate natural resource issues and act on a lifestyle that conserves nature. CO 3 The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community. CO 4 The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components. CO 5 The working in nature to save environment will help development of leadership skills to promote betterment of environment.
	ZO113 Zoology Practical Paper	CO 1 The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. CO 2 The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life. CO 3 The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components.
F.Y.B.Sc. Semester-II	Paper I ZO-121 Animal Diversity –II	CO 1 The student will be able to understand classify and identify the diversity of animals. CO 2 The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. CO 3 The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life



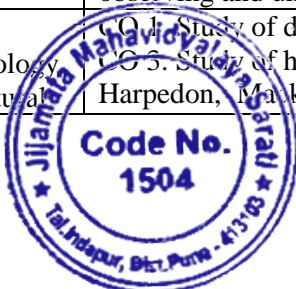
	Paper II: ZO122 Cell biology	CO 1 The learner will understand the importance of cell as a structural and functional unit of life. CO 2 The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development. CO 3 The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life. CO4. The cellular mechanisms and its functioning depends on endo-membranes and structures. They are best studied with microscopy
	ZO123 Animal Diversity –II	CO1. The student understands the importance of classification of animals and classifies them effectively using the six levels of classification CO2. The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life. CO3. The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life

S.Y. B.Sc.

CBCS-2019

Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S.Y.B.Sc. Semester-III	Paper – I: ZO – 231 Animal Diversity - III	CO 1 The students will be able to understand, classify and identify the diversity of higher vertebrates. CO 2. The students will able to understand the complexity of higher vertebrates CO 3 The students will be able to understand different life functions of higher vertebrates. CO 4 The students will be able to understand the linkage among different groups of higher vertebrates. CO 5 The student will become aware regarding his role and responsibility towards nature as a protector, to understand his role as a trustee and conservator of life which he has achieved by learning, observing and understanding life.
	Paper- II: ZY- 212 Applied Zoology (Fisheries & Agricultural)	CO 1. Study of different types of fisheries and ponds. CO 3. Study of harvesting methods of some marine forms like Harpedon, Mankeral, lobster, Pearl oyster.



	Pests and their Control) Paper II	CO 4. Study of fishery byproducts and different fish preservation techniques. CO 5. Study the Introduction to Pests and Various types of Pests. CO 6. Study the Insect pests of Agricultural Importance. (Marks of Identification, Life cycle, Nature of damage, and Control measures.) CO 7. Study of Non-insect Pests. CO 8. Study of the pest control practices in brief. CO 9. Study of the plant protection appliances. CO 10. Study of pesticides.
	(ZY 221) Animal Systematics and Diversity V (Paper-I)	CO 1. Study of invertebrate phyla like Arthropoda, Mollusca & Echinodermata CO 2. Study of Arthropoda, Mollusca Echinodermata with reference to their specific characteristics like mimicry, larval forms, shell and foot modification and pedicellariae. CO 3. Detailed study of morphology and physiology of various system of Asterius.
S. Y.B.Sc. Semester-IV	Paper - I: (ZY 222) Applied Zoology II (Apiculture & Sericulture)	CO 1 Study the concept of Apiculture and nesting behavior of A. dorsata, A. florae, A. indica and A. mellifera. CO 2. Study of bee keeping equipment. CO 3. Study of bee keeping and seasonal management. CO 4. Study of different types of bee products. CO 5. Study of bee diseases and enemies. CO 6. Study the concept of Sericulture and different types of silkworm like Mulberry, Tassar, Eri and Muga silkworms in India. CO 7. Study of morphology and life cycle of Bombyx mori . CO 8. Study of cultivation and harvesting of mulberry plant. CO 9. Study of silkworm rearing and postharvest processing
	Paper II: Microcontroller and Python Programming	CO1 Identify the features and architectural details of microcontroller(arduiuno) CO2 Write code/program using open source programming language(arduiuno) for basic identified applications CO3 Understand programming basics of python programming language CO4 Understand special features of python programming language such as importing modules, directory, tuples CO5 Design , build and implement applications using arduino and python
	Paper- III: Practical Course	CO1 Describe and explain the design procedure of different types of active filters and analyze its frequency response CO2 Demonstrate positive feedback for oscillator circuits using standard ICs CO3 Describe and explain design procedure for two stage amplifiers and application circuits CO4 Design practical circuits for identified applications CO5 Develop working setup and write programs using programming techniques of arduino CO6 Demonstrate and explain interfacing hardware to arduino microcontroller CO7 Solve problems using programming techniques of python



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F. Y. B. Sc. Semester-I	Paper I: BO-111: Plant life and utilization I	CO 1. Emphasis on understanding of different plant groups. CO 2. Inculcation of the awareness about biodiversity. CO 3. Understanding of economic implications of Algae, Fungi, Lichens, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms
	Paper II: BO-112: Plant morphology and anatomy	CO 1. Understanding of economic implications of Algae, Fungi, Lichens, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms CO 2. Provision of phylogenetic i.e. evolutionary line among the plants. CO 3. Identification of technique for research.
	BO 113: Practicals based on BO 111 & BO 112	CO 1. Development of techniques in identification, classification of plants of different groups. CO 2. Understanding of morphological features of root, stem, leaves, flower, fruits and seeds. CO 3. Enumerating the internal primary structure of dicotyledonous root, stem and leaf. CO 4. Study of internal primary structures of monocot and dicots w.r.t. root, stem and leaf. CO 5. Understanding the life cycle pattern of Study of Spirogyra, Cystopus, Riccia, Nephrolepis and Cycas. CO 6. Demonstrating the uses of plant resources in industries: food, fodder, fibre, medicine, timber and Gum. CO 7. Study of artificial plant propagation methods: Stem cutting, Air Layering, Approach grafting, and T- budding.
F. Y. B. Sc. Semester-II	Paper I BO-121: Plant life and utilization-II	CO 1. Study of Morphology Introduction, Definition and Scope. Descriptive and Interpretative. Importance in identification, nomenclature, classification, phylogeny and Plant breeding. CO 2. Understanding of Morphology of Vegetative Parts such as root, stem and leaves CO 3. Study of Morphology of Reproductive Parts such as inflorescence, flower, fruit and seeds. CO 4. Understanding of internal organisation of plants, ecological interpretations, pharmacognosy and wood identification. CO 5. Knowledge of taxonomic base on the basis of anatomical features.
	Paper II: BO-122: Principles of plant science	CO 1. Introduction to industrial applications of Botany. CO 2. The course provides basic foundation for self-employment generation through floriculture techniques, Bio fertilizers, nursery techniques, organic fertilisers, etc. CO 3. Study of Plant Nursery Industry Concept and types of nurseries: ornamental plant nursery, fruit plant CO 4. Nursery, medicinal plant nursery, vegetable plant nursery, orchid nursery, forest nursery CO 5. Understanding of the general techniques Plant Tissue Culture Industry Concept of tissue culture.



		CO 6. Understanding of the Agri industries Organic Farming: Concept, need of organic farming, types of organic fertilizers, advantages and limitations for sustainable agriculture and healthy life.
	BO 123: Practicals based on BO 121 & BO 122	CO 1. Study of the various plant tissue culture techniques: Demonstration of various stages. CO 2. Demonstration of the methods of Cultivation of Oyster mushroom and demonstration of value added mushroom products. CO 3. Study of plant resources used in bio-pesticides such as Indira, Azadiractin. CO 4. Assessing the industrially important fungi and their products. CO 5. Study of types of Biofertilizers: Rhizobium, Azotobacter, BGA, Azolla. CO 6. Performing the recipe of Jam and Squash preparation.

S.Y. B.Sc.

CBCS-2019

Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S. Y. B. Sc. Semester-III	Paper – I: BO 231: Taxonomy of Angiosperms and Plant Ecology	CO 1. Knowledge regarding Angiosperm Taxonomy. CO 2. Understanding of Systems of classification with their merits and limitations- a) Artificial system- Carl Linnaeus, b) Natural system - Bentham and Hooker, c) Phylogenetic system- Engler and Prantl CO 3. Awareness of Taxonomic literatures w.r.t. Flora, monograph, revisions, manuals, journals, periodicals and references books. CO 4. Study of Sources of data for Systematics such as Morphology, Anatomy, Cytology, Embryology And Phytochemistry CO 5. Study of Botanical Nomenclature CO 6. Study of Plant Families with reference to systematic position, salient features, formula, floral diagram and any five examples with their economic importance – Annonaceae. CO 7. Meliaceae, Myrtaceae, Rubiaceae, Solanaceae, Asclepiadaceae, Euphorbiaceae CO 9. Study of Computer in taxonomy CO 10. Introduction to ecology includes Definition, Concept, Autecology and Synecology. CO 11. Knowledge of Ecosystem and its components: biotic and abiotic, Food chain, Food web, Ecological pyramids.
	Paper- II: BO 232: Plant Physiology	CO 1. Introduction of Plant Physiology. CO 2. Understanding of the Scope and applications of plant physiology. CO 3. Learning of the Physico-chemical properties of water. CO 4. Study of the phenomenon like Diffusion, Osmosis, Plasmolysis, Imbibition. CO 5. Understanding of Mechanisms of water absorption. CO 6. Study of the Physical force theories of Ascent of sap. CO 7. Learning of the Mechanism of opening and closing of stomata.



		<p>CO 8. Study of processes like Guttation and Exudation and their significance in plant metabolism.</p> <p>CO 9. Study of Factors affecting growth.</p> <p>CO 10. Knowledge of Properties and to understand practical applications of auxins, cytokinins, gibberellins, ethylene and abscisic acid.</p> <p>CO 11. Learning of types of seed dormancy Methods to break seed dormancy.</p> <p>CO 12. Study of physiology of flowering with respect to Photoperiodism, Phytohormones, and Vernalisation.</p>
	Semester III: Practical based on BO 231 & BO 232	<p>CO 1. Development of various techniques in the field of Taxonomy, Anatomy, Physiology, Embryology, Ecology and Biotechnology</p> <p>CO 2. Elaboration of Plant Systematics with description of flowering plants in botanical terms for Plant families like: i. Myrtaceae, ii. Rubiaceae, iii. Solanaceae, iv. Asclepidaceae, v. Amaryllidaceae</p> <p>CO 3. Study of Ecological adaptations in Hydrophytes and Xerophytes.</p> <p>CO 4. Study of Vegetation by List-count Quadrat method.</p> <p>CO 5. Study of tools of Taxonomy and Ecological instruments, Spectrophotometer, Centrifuge and pH meter.</p> <p>CO 6. Determination of WHC and pH of soil</p> <p>CO 7. Verification of Plasmolysis, DPD, rate of transpiration, Curling Experiment, Imbibition Pressure, Arc Auxanometer with experimental proofs.</p>
S.Y.B.Sc. Semester-IV	Paper - I: BO 241: Plant Anatomy and Embryology	<p>CO 1. Understanding of plant anatomy and types of tissues.</p> <p>CO 2. Study of Structure and function of epidermal tissue system.</p> <p>CO 3. Learning of Types and functions of stomata.</p> <p>CO 4. Study of epidermal outgrowth: glandular and non-glandular.</p> <p>CO 5. Study and understanding of Mechanical tissue system and Principles involved in distribution of mechanical tissues.</p> <p>CO 6. Study of Structure and function of xylem, phloem and cambium.</p> <p>CO 7. Study of Normal secondary growth and Anomalous secondary growth.</p> <p>CO 8. Understanding of the scope of plant embryology.</p> <p>CO 9. Study of process and types of Microsporogenesis and Megasporogenesis.</p> <p>CO 10. Study of details about Endosperm and embryo</p>
	Paper II: BO 242: Plant Biotechnology	<p>CO 1. Understanding of concept, techniques and scope Biotechnology.</p> <p>CO 2. Learning of properties of enzymes and Classification of enzymes.</p> <p>CO 3. Learning of method of Production of amylase, proteases and lipase enzyme.</p> <p>CO 4. Understanding of Fermentation Technology with respect to Bioreactors used and media composition, etc.</p> <p>CO 5. Study of single cell protein, Introduction and need of proteins in diet.</p> <p>CO 6. Knowledge regarding the production of SCP from algae (Spirulina) and fungi (Yeast).</p> <p>CO 7. Understanding of the economic implications of S</p>
	Practical based on BO 241 & BO 242	<p>CO 1. Testing seed viability by TTC method</p> <p>CO 2. Study of Plant Anatomy with respect to Epidermal tissue system, mechanical tissues and their distribution in root, stem and leaves, normal secondary growth in dicot stem – Annona, Moringa, anomalous secondary growth in Bignonia and Dracaena stem</p> <p>CO 3. Study of Plant Embryology with respect to tetrasporangiate anther, types of ovules and dicot and monocot embryo.</p> <p>CO 4. Estimation of Citric acid in Aspergillus fermentation.</p> <p>CO 5. Study of the production of single cell protein production i.e. Spirulina, Yeast and study of commercial products</p>



CO 6. Demonstration of fermentation and fermentation products, separation of plasmid DNA by agarose gel electrophoresis and enzyme immobilization

Department of physics

F.Y. B.Sc. CBCS-2019

Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F.Y.B.Sc. Semester-I	Paper I: PHY-111 Mechanics and Properties of Matter	CO 1. An understanding of Newton's laws of motion and applying them in calculations of the Motion of simple CO 2. Understanding the concepts of energy, work, and power. CO 3. Understanding of the concepts of conservation of energy, surface tension and viscosity the concepts of elasticity and be able to perform calculations using them.
	Paper II: PHY-112 Physics Principles and Applications	CO 1. To understand the general structure of atom, spectrum of hydrogen atom. CO 2. To understand the atomic excitation and LASER principles CO 3. To understand the bonding mechanism and its different types. CO 4. To demonstrate an understanding of electromagnetic waves and its spectrum. CO 5. Understand the types and sources of electromagnetic waves and applications. CO 6. To demonstrate quantitative problem solving skills in all the topics covered.
	Paper III PHY-113 Physics Laboratory 1A	CO 1. Exposure of techniques of handling simple instruments and also obtain mechanical and thermal properties of matter. CO 2. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. CO 3. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data.
F.Y.B.Sc. Semester-II	Paper I PHY-121 Heat and Thermodynamics	CO 1. Understanding of the: properties and relationships between the thermodynamic properties of a pure substance ideal gas equation and its limitations, real gas CO 2. The laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process, heat engines and calculate thermal efficiency. CO 3. Analyze the refrigerators, heat pumps
	Paper II: PHY-122 Electricity and Magnetism	CO1. To understand the concept of the electric force, electric field and electric potential for stationary charges. CO 2. Able to calculate electrostatic field and potential of charge distributions using Coulomb's law and Gauss's law. CO3. To understand the dielectric phenomenon and effect of electric field on dielectric CO4 To Study magnetic field for steady currents using Biot-Savart and Ampere's Circuital laws CO5. To study magnetic materials and its properties.



		CO6. Demonstrate quantitative problem solving skills in all the topics covered.
	Paper III PHY-123 Physics Laboratory 1B	CO1. Exposure of techniques of handling simple instruments and also obtain mechanical and thermal properties of matter. CO 2. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. CO3. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data. CO 4 Demonstrate an understanding of laboratory procedures including safety, and scientific methods.

S.Y. B.Sc.

CBCS-2019

Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S. Y.B.Sc. Semester-III	Paper – I: PHY-231: Mathematical Methods in	CO 1 Understand the complex algebra useful in physics courses. CO 2. Understand the concept of partial differentiation. CO 3. Understand the role of partial differential equations in physics. CO4. Understand vector algebra useful in mathematics and physics. CO5. Understand the singular points of differential equation.
	Paper- II: PHY-232(A): Electronics- I PHY-232(B): Instrumentation	CO1 Apply different theorems and laws to electrical circuits. CO2. Understand the relations in electricity. CO3. Understand the parameters, characteristics and working of transistors. CO4 Understand the functions of operational amplifiers. CO5. Design circuits using transistors and applications of operational amplifiers. CO 6 Understand the Boolean algebra and logic circuits. OR CO1. Understand the functions of different instruments. CO2. Use different instruments for measurement of parameters. CO3. Design experiments using sensors.
	Semester III: PHY-233: Physics Laboratory-2A	CO1 Use various instruments and equipment CO2 Design experiments to test a hypothesis and/or determine the value of an unknown quantity CO3 Investigate the theoretical background of an experiment. CO4 Setup experimental equipment to implement an experimental approach. CO5 Analyze the data, plot appropriate graphs and reach conclusions from data analysis. CO6 Work in a group to plan, implement and report on a project/experiment. CO7 Keep a well-maintained and instructive laboratory logbook.
S. Y.B.Sc. Semester-IV	Paper - I:	CO 1. To study underlying principles of oscillations and its scope in development.



	PHY-241: Oscillations, Waves and Sound	<p>CO 2. To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves.</p> <p>CO 3. To explain oscillations in terms of energy exchange with various practical applications.</p> <p>CO4 To solve numerical problems related to undamped, damped, forced oscillations and superposition of oscillations.</p> <p>CO5. To study characteristics of sound, decibel scales and applications.</p>
	Paper II: PHY-242: Optics	<p>CO 1. Acquire the basic concept of wave optics.</p> <p>CO 2 Describe how light can constructively and destructively interfere.</p> <p>CO 3. Explain why a light beam spread out after passing through an aperture</p> <p>CO 4. Summarize the polarization characteristics of electromagnetic wave</p> <p>CO 5. Understand the operation of many modern optical devices that utilize wave optics</p> <p>CO 6. Understand optical phenomenon such polarization, diffraction and interference in terms of the wave model</p> <p>CO 7 Analyze simple example of interference and diffraction</p>
	PHY-243: Physics Laboratory-2B	<p>CO 1 Use various instruments and equipment.</p> <p>CO2. Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>CO3. Investigate the theoretical background of an experiment.</p> <p>CO4. Setup experimental equipment to implement an experimental approach.</p> <p>CO5. Analyze the data, plot appropriate graphs and reach conclusions from data analysis.</p> <p>CO 6 Work in a group to plan, implement and report on a project/experiment.</p> <p>CO 7 . Keep a well-maintained and instructive laboratory logbook</p>



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F.Y.B.Sc. Semester-I	Paper I: CH- 101: Physical Chemistry	1. To understand basic concept of physical, organic and Inorganic chemistry. 2. Students will be able to apply thermodynamic principles to physical and chemical process 3. Calculations of enthalpy , Bond energy, Bond dissociation energy , resonance energy 4.Exergonic and endergonic reaction 5. Gas equilibrium, equilibrium constant and molecular interpretation of equilibrium constant 6. Van't Haff equation and its application 7.Concept to ionization process occurred in acids, bases and pH scale 8. Related concepts such as Common ion effect hydrolysis constant, ionic product, solubility product
	Paper II: CH- 102: Organic Chemistry	1. The students are expected to understand the fundamentals, principles, and recent developments in the subject area 2. It is expected to inspire and boost interest of the students towards chemistry as themain subject 3. To familiarize with current and recent developments in Chemistry. 4. To create foundation for research and development in Chemistry.
	CH- 103: Chemistry Practical Course I	1. Importance of chemical safety and Lab safety while performing experiments in laboratory 2. Determination of thermochemical parameters and related concepts 3. Techniques of pH measurements 4. Preparation of buffer solutions 5. Elemental analysis of organic compounds (non instrumental) 6. Chromatographic Techniques for separation of constituents of mixtures
F.Y.B.Sc. Semester-II	Paper I CH-201: Inorganic Chemistry	1. Various theories and principles applied to reveal atomic structure 2. Origin of quantum mechanics and its need to understand structure of hydrogen atom 3.Explain rules for filling electrons in various orbitals- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity. 4. Discuss electronic configuration of an atom and anomalous electronic configurations 5. Describe stability of half-filled and completely filled orbitals. 6. Attainment of stable electronic configurations. 7. Define various types of chemical bonds- Ionic, covalent, coordinate and metallic bond
	Paper II: CH- 202: Analytical Chemistry	1. Introduction to Analytical Chemistry 2. Calculations used in Analytical Chemistry 3 Qualitative Analysis of Organic Compounds 4. Chromatographic Techniques – Paper and Thin layer Chromatography 5. pH metry
	CH- 203: Chemistry Practical –II	1.After completing the course work learner will be acquired with knowledge of chemical energetics, Chemical equilibrium and ionic equilibria. 2.Students will learn Fundamentals of organic chemistry, stereochemistry (Conformations, configurations and nomenclatures) and functional group approach for aliphatic hydrocarbons. 3.Students will learn quantum mechanical approach to atomic structure, Periodicity of elements, various theories for chemical bonding.

		4. Students will know about basics of analytical chemistry, some techniques of analysis and able to do calculations essential for analysis
--	--	--



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
S. Y. B. Sc. Semester-III	Paper – I: CH-301: Physical and Analytical Chemistry	<ol style="list-style-type: none"> 1. Define / Explain concept of kinetics, terms used, and rate laws, molecularity, order. 2. Explain factors affecting rate of reaction 3. Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions. 4 Discuss factors influencing adsorption, its characteristics, differentiates types as physisorption and Chemisorption 5 Classification of Adsorption Isotherms, to derive isotherms. 6 Explanation of adsorption results in the light of Langmuir adsorption isotherm, Freundlich's adsorption Isotherm and BET theory 7. Define, explain and compare meaning of accuracy and precision. 8 Apply the methods of expressing the errors in analysis from results. 9 Explain why indicator show colour change and pH range of colour change 10. To prepare standard solution and b. perform standardization of solutions.
	Paper- II: CH-302: Inorganic and Organic Chemistry	<ol style="list-style-type: none"> 1. Explain formation of different types of MO's from AO's. 2. Distinguish between atomic and molecular orbitals, bonding, anti-bonding and nonbonding molecular orbitals. 5. Draw and explain MO energy level diagrams for homo and hetero diatomic molecules. Explain bond order and magnetic property of molecule 6. Explain Werner's theory of coordination compounds. Differentiate between primary and secondary valency. Correlate coordination number and structure of complex ion. 7. Apply IUPAC nomenclature to coordination compound. 8. Give the mechanism of reactions involved 9. Explain /Discuss important reactions of aromatic hydrocarbon 10. To correlate reagent and reactions 11. Explain /Discuss important reactions of alkyl / aryl halides. 12 To correlate reagent and reactions. 13. Give synthesis of expected alkyl / aryl halides. 14. Able to differentiate between alcohols and phenols. 15. Explain / discuss synthesis of alcohols / phenols 16. Write / discuss the mechanism of various reactions involved.
	CH-303: Practical Chemistry-III	<ol style="list-style-type: none"> 1. Verify theoretical principles experimentally 2. Interpret the experimental data on the basis of theoretical principles 3. Correlate theory to experiments. Understand/verify theoretical principles by experiment observations; explain practical output / data with the help of theory



		<p>4. Understand systematic methods of identification of substance by chemical methods.</p> <p>5. Write balanced equation for the chemical reactions performed in the laboratory.</p> <p>6. Perform organic and inorganic synthesis and is able to follow the progress of the chemical reaction by suitable method (colour change, ppt. formation, TLC).</p> <p>7. Set up the apparatus / prepare the solutions - properly for the designed experiments.</p> <p>8. Perform the quantitative chemical analysis of substances explain principles behind it.</p> <p>9. Systematic working skill in laboratory will be imparted in student</p>
S. Y.B.Sc. Semester-IV	Paper - I: CH-401: Physical and Analytical Chemistry	<p>1. Discuss meaning of phase, component and degree of freedom</p> <p>2. Derive of phase rule</p> <p>3. Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system</p> <p>4. Define various terms, laws, differentiate ideal and non-ideal solutions.</p> <p>5. Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution</p> <p>6. Differentiate between ideal and non-ideal solutions and can apply Raoult's law.</p> <p>7. Explain / discuss conductometric titrations.</p> <p>8. Apply conductometric methods of analysis to real problem in analytical laboratory.</p> <p>9. Solve problems based on theory / equations</p> <p>10. Correlate different terms with each other and derive equations for their correlations.</p> <p>11. Discuss / explain / derive Beer's law of absorptivity.</p> <p>12 Explain construction and working of colorimeter</p> <p>13 Apply colorimetric methods of analysis to real problem in analytical laboratory</p> <p>14. Explain properties of adsorbents, ion exchange resins, etc.</p> <p>15. Discuss / explain separation of ionic substances using resins.</p> <p>16. Discuss / explain separation of substances using silica gel / alumina</p>
	Paper II: CH-402: Inorganic and Organic Chemistry	<p>1. Apply principles of VBT to explain bonding in coordination compound of different geometries</p> <p>2. Correlate no of unpaired electrons and orbitals used for bonding.</p> <p>3. Identify / explain / discuss inner and outer orbital complex</p> <p>4. Explain / discuss limitation of VBT.</p> <p>5. Explain principle of CFT.</p> <p>6. Apply crystal field theory to different type of complexes (Td, Oh, Sq, Pl complexes)</p> <p>7. Identify and draw the structures aldehydes and ketones from their names or from structure name can be assigned.</p> <p>8. Explain / discuss synthesis of aldehydes and ketones.</p> <p>9. Write / discuss the mechanism reactions aldehydes and ketones.</p> <p>10. Explain /Discuss important reactions of aldehydes and ketones.</p> <p>11. Explain / discuss synthesis of carboxylic acids and their derivatives</p> <p>12. Write / discuss the mechanism reactions carboxylic acids and their derivatives.</p>



		<p>13. Explain /Discuss important reactions of carboxylic acids and their derivatives.</p> <p>14. Correlate reagent and reactions of carboxylic acids and their derivatives</p> <p>15. To correlate reagent and reactions of carboxylic amines.</p> <p>16. Give synthesis diazonium salt from amines and reactions of diazonium salt.</p> <p>17. Perform inter conversion of functional group</p> <p>18. Draw the structures of different conformations of cyclohexane</p> <p>19. Define terms such as axial hydrogen, equatorial hydrogen, confirmation, substituted cyclohexane, etc</p> <p>20. Convert one conformation of cyclohexane to another conformation and should able to identify governing structural changes</p>
	<p>CH-403: Practical Chemistry-IV</p>	<p>1. Verify theoretical principles experimentally</p> <p>2. Interpret the experimental data on the basis of theoretical principles</p> <p>3. Correlate the theory to the experiments. Understand / verify theoretical principles by experiment or explain practical output with the help of theory.</p> <p>4. Understand systematic methods of identification of substance by chemical methods.</p> <p>5. Write balanced equation for all the chemical reactions performed in the laboratory.</p> <p>6. Perform organic and inorganic synthesis and able to follow the progress of the chemical reaction.</p> <p>7. Set up the apparatus properly for the designed experiments.</p> <p>8. Perform the quantitative chemical analysis of substances and able to explain principles behind it.</p>



T.Y. B.Sc.

CBCS-2019

Course Outcomes After completion of these courses students should be able to;

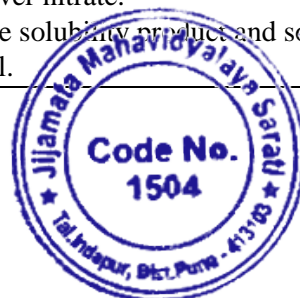
Class&Sem	Course Name	Course Outcome
T.Y. B.Sc. Semester V - (2019 credit Pattern)	DSEC-I: CH-501: Physical Chemistry	1. Know historical of development of quantum mechanics in chemistry. 2. Understand and explain the differences between classical and quantum mechanics. 3. Understand the idea of wave function 4. Dipole moment and its experimental determination by temperature variation method, 5. Electromagnetic spectrum, Nature of wave and its characteristics such as wavelength, wave number, frequency and velocity, Energy level diagram 6. Classification of molecules on the basis of moment of Inertia, 7. Experimental method for the determination of quantum yields 8. Photochemical reactions: photosynthesis, photolysis, photocatalysis, photosensitization 9. Various photochemical phenomena like fluorescence and phosphorescence, Chemiluminescence, 10. Problems
	DSEC-I: CH-502: Analytical Chemistry- I	1. Explain different principles involved in the gravimetry, spectrophotometry, parameters in instrumental analysis, qualitative analysis. 2. Perform quantitative calculations depending upon equations student has studied in the theory. Furthermore, student should able to solve problems on the basis of theory. 3. Discuss / Describe procedure for different types analyses included in the syllabus 4. Differentiate / distinguish / Compare among the different analytical terms, process and analytical methods. 5. Demonstrate theoretical principles with help of practical. 6. Design analytical procedure for given sample. 7. Select particular method of analysis if analyte sample is given to him
	DSEC-I: CH-503: Physical Chemistry Practical - I	CO1. Prepare different molar and normal concentrations of solution. CO2. Determine concentration of unknown solutions by colorimetric method. CO3. Measure the pH, pKa and Ka of various acids by pH- Metry and potentiometer. CO4. Measure refractive index and determine unknown concentration of various solvents. CO5. Determine the molecular weight of a given polymer by Viscometry. CO6. Investigate the reaction rate by physical and polarometric method
	DSEC-II: CH-504: Inorganic Chemistry - I	i. Explain electroneutrality principle and different types of pi bonding ii. Able to explain Nephelauxetic effect towards covalent bonding. iii. Explain MOT of Octahedral complexes with sigma bonding. iv. Able to explain Charge Transfer Spectra v. Able to compare the different approaches to bonding in Coordination compounds.
	DSEC-II: CH-505: Industrial Chemistry	1. Importance of chemical industry, 2. Meaning of the terms involved, 3. Concept of basic chemicals, 4. Their uses and manufacturing process.



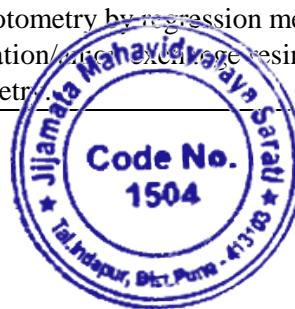
		<p>5. Importance of sugar industry, ,</p> <p>6. Manufacture of direct</p> <p>7. Cane juice extraction by various methods</p> <p>8. Consumption (plantation white) sugar with flow diagram.</p> <p>9. Different types of soap products.</p> <p>10. Chemistry of soap</p> <p>11. Raw materials required for soap manufacture</p>
	DSEC-II: CH-506: Inorganic Chemistry Practical - I	<p>CO1. Estimate the metal by gravimetric method..</p> <p>CO2. Carry out quantitative analysis by volumetric method and gravimetric methods.</p> <p>CO3. Carry out quantitative analysis by volumetric method.</p> <p>CO4. Prepare and determine percent purity of various inorganic complexes</p> <p>CO5. Understand and Perform paper chromatographic technique</p> <p>CO6. Estimate Titanium and Iron by colorimetric method</p>
	DSEC-III: CH-507: Organic Chemistry - I	<p>1. Define and classify polynuclear and hetroonuclear aromatic hydrocarbons.</p> <p>2. Write the structure, synthesis of polynuclear and hetroonuclear aromatic hydrocarbons.</p> <p>3. Understand the reactions and mechanisms</p> <p>4. To predict product with panning or supply the reagent/s for these reactions</p> <p>5. Hoffmann and Saytzeff's Orientation</p> <p>6. Effect of factors on the rate elimination reactions</p>
	DSEC-III: CH-508: Chemistry of Biomolecules	<p>1. The student will understanding of Cell types, Difference between a bacterial cell, Plant cell and animal cell. Biological composition and organization of cell membrane, structure and function of various cell organelles of plant and animal cell</p> <p>2. The student will understand the types of carbohydrates and their biochemical significance in living organisms, structure of carbohydrates and reactions of carbohydrates with Glucose as example. Properties of carbohydrates.</p> <p>3. The student needs to know the types of lipids with examples, structure of lipids, properties of lipids</p> <p>4. The student will understand the structure and types of amino acids. Reactions of amino acids.</p> <p>5. The student know the classes of enzymes with subclasses and examples. Enzyme specificity, Equations of enzyme kinetics K_m and its significance, features of various types of enzyme inhibitions, industrial applications of enzymes.</p> <p>6. Basic concepts of Endocrinology. Types of Endocrine glands and their hormones. Biochemical nature of hormones. Mechanism of action of lipophilic and hydrophilic hormones.</p>
	DSEC-III: CH-509: Organic Chemistry Practical-I	<p>CO1. Understand and use Micro scale techniques for qualitative.</p> <p>CO2. Separate and analyze binary water soluble and insoluble mixture. CO3. Estimate - acetamide, glucose by volumetric method.</p> <p>CO4. Estimate basicity of various acids</p> <p>CO5. Prepare various organic compounds.</p> <p>CO6. Apply the crystallization technique for purification of compounds CO7. Understand Thin Layer Chromatographic techniques</p>
	CH-510: Skills Enhancing Course-I CH-510(B): Polymer Chemistry	<p>1) History of polymers, Difference between simple compounds and polymer, Names of polymers, Various ways of nomenclature.</p> <p>2) Difference between natural, synthetic, organic and inorganic polymers, Terms Monomer, Polymer, Polymerization, Degree of polymerization, Functionality, Number average, Weight average molecular weight, Mechanisms of polymerization, Polymerization techniques, Uses & properties of polymers.</p> <p>3) Role of polymer industry in the economy.</p> <p>4) Advantages of polymers.</p>



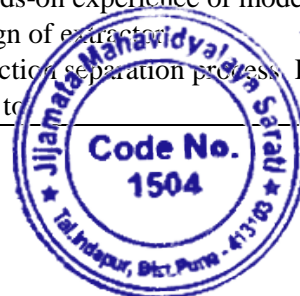
	CH-511: Skills Enhancing Course-II CH-511(A): Environmental Chemistry	CO-1. Importance and conservation of environment. CO-2. Importance of biogeochemical cycles CO-3 Students should know i. Water resources ii. Hydrological Cycle iii. Organic and inorganic pollutants iv. Water quality parameters. CO-4. Water pollutants, Eutrophication, Waste water treatment (domestic waste water, aerobic treatment, anaerobic treatment, up flow aerobic sludge bed, industrial waste water treatment, drinking water supplies, Trace elements in water, chemical speciation.
T.Y. B.Sc. Sem-VI	CH-601: Physical Chemistry-II	CO-1. Photochemical laws: Grothus - Draper law, Stark-Einstein law, CO-2. Photochemical reactions: photosynthesis, photolysis, photocatalysis, photosensitization CO-3. Various photochemical phenomena like fluorescence and phosphorescence, Chemiluminescence, CO-4. Electrochemical cells: Explanation of Daniell cell, Conventions to represent electrochemical cells CO-5. Types of concentration cells: Concentration cells without and with transference Concentration cells with liquid junction potential. CO-6. Fuel Cells: Types of fuel cells, advantages, disadvantages of these fuels' cells, comparison of battery Vs fuel cell CO-7. Methods of Crystal structure analysis: The Laue method and Bragg's method: Derivation of Bragg's equation. CO-8. Detection and Measurement of Radioactivity: Cloud chamber, Ionization Chamber, Geiger-Muller Counter, Scintillation Counter, Film Badges.
	CH-602: Physical Chemistry-III	CO-1. Meaning of the terms-Solution, electrolytes, nonelectrolytes and colligative properties CO-2. Lowering of vapour pressure of solvent in solution. CO-3. Application of colligative properties to determine molecular weight of nonelectrolyte, abnormal molecular weight. CO-4. Relation between Vant Hoff's factor and degree of dissociation of electrolyte by colligative property. CO-5. Factors affecting on solid state reactions. CO-6. Rate laws for reactions in solid state. CO-7. Applying rate laws for solid state reactions. CO-8. Cohesive Energy of ionic crystals based on coulomb's law and Born Haber Cycle CO-9. Correspondence between energy levels in the atom and energy bands in solid CO-10. Conductors and insulators – Its correlation with Extent of energy in energy bands CO-11. Semiconductors – Role of impurity in transformation of insulator into semiconductor CO-12. Chemical bonding & Molecular forces in Polymer CO-13. Practical significance of polymer molecular weights.
	CH-603: Physical Chemistry Practical-II	1) To determine the PKa value of given monobasic weak acid by potentiometric titration. 2) To determine the formal redox potential of Fe ²⁺ /Fe ³⁺ system potentiometrically. 3) To determine the amount of NaCl in the given solution by potentiometric titration against silver nitrate. 4) To determine the solubility product and solubility of AgCl potentiometrically using chemical cell.



		<p>5) Estimate the amount of Cl⁻, Br⁻ and I⁻ in given unknown halide mixture by titrating it against standard AgNO₃ solution (mixture of any two ions).</p> <p>6) To prepare standard 0.2 M Na₂HPO₄ and 0.1 M Citric acid solution, hence prepare four different buffer solutions using them. Determine the pH value of these and unknown solution.</p> <p>7) To determine the composition of Zinc ferrocyanide complex potentiometrically.</p> <p>8) To determine the standard electrode potentials of Cu and Ag electrodes and to determine the EMF of a concentration cell.</p> <p>9) To determine the degree of hydrolysis of aniline hydrochloride.</p> <p>10) To determine the dissociation constant of oxalic acid by pH-metric titration with strong base.</p> <p>11) Determination of P_{ka} of given weak acid by PH metry titration with strong base</p> <p>12) To determine the acid and base dissociation constant of an amino acid and hence the isoelectric point of an acid.</p> <p>13) PH metric titration of strong acid against strong base by pH measurement and hence determine the concentration and strength of strong acid.</p> <p>14) To determine plateau voltage of the given G M counter.</p> <p>15) To determine the molecular weight of solute by depression in freezing point method</p> <p>16) To study the association of Benzoic acid in benzene by Beckmann Method</p> <p>17) Determine the molecular weight of given electrolyte and non-electrolyte by Landsberger's method and to study the abnormal molecular weight of electrolyte</p> <p>18) Determination of SO₄²⁻ and Cl⁻ by turbidimetric method (turbidimetric titration or calibration curve method)</p> <p>19) To determine the molecular weight of a given polymer by turbidometry.</p>
	CH-604: Inorganic Chemistry -II	<p>CO-1. To know trends in periodic properties of these elements w.r.t. size of atom and ions, reactivity, catalytic activity, oxidation state, complex formation ability, colour, magnetic properties, nonstoichiometry, density, melting point, boiling point.</p> <p>CO-2. The meaning of term f-block elements, Inner transition elements, lanthanides, actinides.</p> <p>CO-3. Lanthanide contraction and effects of lanthanide contraction on post-lanthanides.</p> <p>CO-4. The meaning of metal & semiconductor.</p> <p>CO-5. Explain the effect of temperature and impurity on conductivity of metals and semiconductors.</p>
	CH-605: Inorganic Chemistry-III	<p>CO-1. To understand M-C bond and to define organometallic compounds</p> <p>CO-2. To understand the structure and bonding using valence electron count (18 ele. rule)</p> <p>CO-3. Define and differentiate homogeneous and heterogeneous catalysis.</p> <p>CO-4. Understand the essential properties of homogeneous catalysts-Give the catalytic reactions for Wilkinson's Catalysis, hydroformylation reaction, Monsanto acetic acid synthesis, Heck reaction.</p> <p>CO-5. Identify the biological role of inorganic ions & compounds.</p>
	CH-606: Inorganic Chemistry Practical-II	<p>1. 2. Analyze of Iodine from Iodized salt.</p> <p>3. Determine Strength of medicinal H₂O₂.</p> <p>4. Analyze of Calcium from milk powder.</p> <p>5. Analyze of Cu from Cu-Fungicide.</p> <p>6. Estimate of Na by flame photometry by calibration curve method.</p> <p>7. Estimation of K by flame photometry by regression method.</p> <p>8. Purification of water using cationic exchange resin and analysis by qualitative analysis /conductometry.</p>



		<p>9. Synthesize of Silver nano-particles.</p> <p>10. Synthesize of ZnO nanoparticles.</p> <p>11. Verify of periodic trends using solubility of alkaline earth metal hydroxides Ca(OH)₂, Mg(OH)₂, Cr(OH)₂, Ba(OH)₂.</p> <p>12. Synthesize of amine complexes of Ni (II) and its ligand exchange reaction (bidentate ligands like acac, DMG, Glycine) by substitution method. Analyze of Phosphate (PO₄³⁻) from Fertilizer.</p>
	CH-607: Organic Chemistry-II	<p>CO-1. Students will learn the principle of mass spectroscopy, its instrumentation and nature of mass spectrum.</p> <p>CO-2. Students will understand the principle of UV spectroscopy and the nature of UV spectrum. They will learn types of electronic excitations.</p> <p>CO-3. Students will understand the principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy. They will learn measurement of chemical shift and coupling constants.</p> <p>CO-4. Students will be able to determine the structure of simple organic compounds on the basis of spectral data such as λ max values, IR frequencies, chemical shift (δ values).</p> <p>CO-5. The use of models to draw different types of disubstituted cyclo hexanes in chair form.</p>
	CH-608: Organic Chemistry-III	<p>CO-1. Students will learn different terms used – Disconnection, Synthons, Synthetic equivalence, FGI, TM. One group disconnection, Retrosynthesis and Synthesis of target molecules: Acetophenone, Crotonaldehyde, Cyclohexene, Benzyl benzoate, and Benzyl diethyl malonate.</p> <p>CO-2. Chemistry of reactive intermediates (carbocations, carbanions, free radicals, carbenes, nitrenes, benzyne etc...)</p> <p>CO-3. Functional group interconversions and structural problems using chemical reactions.</p> <p>CO-4. Preparation and Applications of oxidising and reducing reagents.</p> <p>CO-5. Students will learn extraction, Purification, Some examples of alkaloids and their natural resources. Ephedrine- structure determination using chemical methods, Synthesis of Ephedrine by Nagai</p>
	CH-609: Organic Chemistry Practical-II	<p>A) Interpretations of IR and PMR Spectra The students will be able to</p> <ol style="list-style-type: none"> 1. Explain “fingerprint region” of an infrared spectrum can used in the identification of an unknown compound. 2. Identify the functional group or groups presenting a compound. 3. Identify the broad regions of the infrared spectrum in which occur absorptions caused by N–H, C–H, and O–H, C≡C and C≡N, C=O, C=N, and C=C. 4. Understand use NMR spectra to determine the structures of compounds. 5. Interpret integration of NMR spectra 6. Calculate coupling constants from 1-HNMR spectra. 7. Interpret elemental analysis technique <p>B) Organic Estimations The students will be able to</p> <ol style="list-style-type: none"> 1. Practical knowledge of handling chemicals. 2. Achieve the practical skills required to estimations of glucose and glycine. 3. Achieve the practical skills required to Saponification value of oil. 4. Determine the molecular weight of given tribasic acids. <p>C) Organic Extractions The students will be able to</p> <ol style="list-style-type: none"> 1. Apply the principles of extraction 2. Understand the equipment for extraction. 3. Gain practical hands-on experience of modern Extraction. 4. Develop basic design of extractor. 5. Describe the extraction, separation process <p>D) Column chromatography The students will be able to</p>



		<ol style="list-style-type: none"> 1. Defines the basic parameters in chromatography 2. Explain the processes of a chromatography analysis. 3. Describes the types and materials of column. 4. Explains the types of mobile phase and elution. 5. Realize the selection of appropriate mobile phase, column and detector.
	<p>CH-610: Skill Enhancing Course-III CH-610(A): Chemistry of Soil and Agrochemicals</p>	<ol style="list-style-type: none"> 1) Understood various components of soil and soil properties and the irimpacton plant growth. 2) Understood the classification of the soil. 3) Explores the problems and potentials of soil and decide the most appropriate treatment for land use. 4) Understood the Reclamation and management of soil physical and chemical constraints. 5) Useful in making decisions on nutrient dose, choice of fertilizers and method of application etc. Practiced in crop production. 6) Got experience on advanced analytical and instrumentation methods in the estimation of soil. 7) Understood various Nutrient management concepts and Nutrient use efficiencies of major and micro nutrients and enhancement techniques. 8) Proper understanding of chemistry of pesticides will be inculcated among the students. 9) Imparts knowledge on different pesticides, their nature and, mode of action and their fate in soil so as to monitor their effect on the environment.
	<p>CH-611: Skill Enhancing Course-IV CH-611(A): Analytical Chemistry-II</p>	<p>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. CO-6. Identify important parameters in analytical processes or estimations. Example: minimum analyte concentration in particular method, reagent concentration for particular analysis, reagent for particular analysis, reaction condition to convert analyte into measurable form, wavelength selection in HPLC with spectrophotometric and fluorometric detector, solvent or carrier gas in HPLC and GC, choice method for the sample preparation in atomic spectroscopic methods, choice of filter and HCL in atomic spectroscopic methods. CO-7. Explain different principles involved in the analyses using solvent extraction, basics of instrumental chromatography, HPLC, GC, and atomic spectroscopic techniques. CO-8. Perform quantitative calculations depending upon equations students has studied in the theory. Furthermore, student should able to solve problems on the basis of theory. CO-9. Select particular method of analysis if analyte sample is given to him. Differentiate / distinguish / compare among the different analytical terms, process and analytical methods.</p>



Course Outcomes After completion of these courses students should be able to;

Class&Sem	Course Name	Course Outcome
F.Y.B.Sc Sem I	Paper No-I GG-111:Introduction to Physical Geography-I (Geomorphology)	CO1 Explain principal terms, definitions, concept and theories of Geomorphology. CO2 Discuss how different scales of time and space affect geomorphological processes and the development of micro to mega scale landforms. CO3 Apply knowledge of basic landforms from tectonic, volcanic, fluvial, glacial, Aeolian and coastal environments. CO4 Describe the different Materials of the earth crust, rock types, types of weathering, mass movements and types of slope. CO5 Categorizes slope Segments in various types. CO6 Compares exogenous and endogenous processes in the formation of landforms.
	Paper No-II GG-112:Introduction to Physical Geography -II (Ggeography of Atmosphere and Hydrosphere)	CO1 Describe composition and Structure of Earth Atmosphere CO2 Explain principal terms and concept of Climatology. CO3 Apply skill of weather forecasting and application in deferent sectors of Climatology. CO4 Compare the Lapse Rate, Stable and unstable Atmosphere, Air Masses & Fronts. CO5 Explain basic concepts of hydrological cycle, condensation and evaporation. CO6 Identify the Climatic regions of Indian sub-continent.
	Paper No-III GG-113: Practicals in Physical Geography	CO1 Explain principal terms, definitions, and concept of geomorphology. CO2 Describe drainage network analysis and drainage basin relief analysis. CO3 Constructions of various map projection. CO4 Apply and locate statistical data on Thematic Maps. CO5 Reading & Design of maps according to statistical data. CO6 Planning and executing field surveys.
F.Y.B.Sc Sem II	Paper No-IV GG-121:Introduction to Human Geography	CO1 Identify various Human Races throughout world. CO2 Comparison of various economic activites. CO3 Critical Evaluation of Various Human Races in India CO4 Carryout the survey's of various economic activities. CO5 Analyze various factors determines the economic activities in particular enviroment CO6 analyze man and environment relationship
	Paper V GG-122: Population and Settlement Geography	CO1 Identify various patterns of settlement using topo sheet. CO2 Explain Evaluation of settlement and population geography globally. CO3 Constriction of Various settlement pattern CO4 Apply of theories of population growth to study settlement history. CO5 Evaluate effects of technology on shelter and pattern of settlement. CO6 Describ. factors influencing growth and distribution of settlements



	Paper VI GG-123: Practicalsin Human Geography	CO1 Apply different models for statistical analysis CO2 Data analysis and presentation using computer CO3 Constrctions of survey report. CO4 Derive conclusions from the analysis of own data. CO5 Assess the language used to describe Geography experiments and how it can alter perceptions of the method and results.

S.Y. B.Sc.

CBCS-2019

Class&Sem	Course Name	Course Outcome
S.Y.B.Sc Sem III	Paper I GG-231: Environmental Geography -I	CO1 Explain principal terms, definitions and concept of environment geography. CO2 Describe various environmental issues with their trend and impact. CO3 Identify the different Disaster management techniques with their application. CO4 Identify & describe the various environmental issues in India and their management. CO5 design solution orientaed environment projects CO6 Apply and use of ICST for different disaster management
	Paper II GG-232 :Geography of Maharashtra (Physical)- I	CO1 Describe geographical location, economic position and geological structure of Maharashtra. CO2 Explain physiographic divisions and drainage system of Maharashtra. CO3 Apply climatic related knowledge for cropping pattern. CO4 Identify soil types and their distribution in Maharashtra by using geographical map. CO5 Evaluate population growth and distribution in Maharashtra. CO6 Camparison ethe mineral power resources and major Industries distribution in Maharashtra
	Paper III GG -233: Surveying- I	CO1 Explain principle terms, definitions, and methods used in surveying CO2 Implementation of computation and drawing for surveying CO3 Apply the knowledge of surveying to survey of a selected fields CO4 Write report in proper format. CO5 Constuction of projects through surveys CO6 Preparation of maps using survey methods
S.Y.B.Sc. Semester-IV	Paper I GG-241: Environmental Geography -II	CO1 Awareness of environment assessment methods CO2 Recognised the environmental laws CO3 Application of various conservation methods CO4 Identify the different Disaster management techniques with their application CO5 Describe the Environmental Planning and their Management. CO6 Identify the various Environmental Problems and their solutions.
	Paper II GG-242 :Geography of Maharashtra (Human)-II	CO1 Describe the Agriculture problems and prospects of Maharashtra. CO2 Describe the Population and Settlement in Maharashtra CO3 Camparison Population distribution and their distribution in Maharashtra CO4 Evaluate prospectus in Industry in Maharashtra and the role of MTDC and Role of MIDC in industrial development in rural area of Maharashtra. CO5 Aaply for all agriculture pattern in rural area CO6 identify agriculture problems in variuos region
	Paper II	CO1 Develop practical skill and use of various types of surveying.



	GG -243: Surveying- II	CO2 To make students aware of the new techniques, accuracy and skills of surveying. . CO3 Explain basic concepts of Cartographic Techniques and Surveying. CO4 Identify different types of Survey. CO5 Apply Surveying Techniques in Geography
--	---------------------------	---



Jijamata Mahavidyalaya, Sarati

Department of Chemistry

Programme Outcomes: B. Sc Chemistry

Chemistry (Semester-III)

Department of Chemistry

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

Programme Outcomes

- PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of Chemistry.
- PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.
- PO-3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze 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 outside the scientific community.
- PO-7. Use modern techniques, decent equipments and Chemistry softwares

Programme Specific Outcomes

- PSO-1. Gain the knowledge of Chemistry through theory and practicals.
- PSO-2. To explain nomenclature, stereo Chemistry, 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. 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.



Department of Zoology

B.Sc. Zoology

Programme outcomes

- PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of Zoology.
- PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-3. Understand the evolution, history of phylum.
- PO-4. Create an awareness of the impact of Zoology on the environment, society, and development outside the scientific community.
- PO-5. To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures.
- PO-6. To inculcate the scientific temperament in the students and outside the scientific community.
- PO-7. Use modern techniques, decent equipments and Zoology software"s

Programme Specific Outcomes

- PSO-1. Gain the knowledge of Zoology through theory and practical"s.
- PSO-2. Study and understand the DNA Recombinant technology. PSO-3. Understand the testing of hypothesis.
- PSO-4. Use modern Zoological tools, Models, Charts and Equipments.
- 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/equipments.



Department of Mathematics

B.Sc. Mathematics

Programme outcomes

PO1: Scientific temper will be developed in Students.

PO2: Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.

PO3: Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.

PO4: Students will possess basic subject knowledge required for higher studies, professional and applied courses like Management Studies, Law etc.

PO5: Students will be aware of and able to develop solution oriented approach towards various Social and Environmental issues

Programme specific outcomes

PSO1: A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations , terminology.

PSO2: A student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences.

PSO3 : Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.

PSO4: Student should 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.

PSO5: Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study



Department of Physics

Programme Outcomes:

PSO 1. To foster scientific attitude, provide in-depth knowledge of scientific and technological concepts of Physics.

PSO 2. To enrich knowledge through problem solving, minor/major projects, seminars, tutorials, review of research articles/papers, participation in scientific events, study visits, etc.

PSO 3. To familiarize with recent scientific and technological developments.

PSO 4. To create foundation for research and development in Physics.

PSO 5. To help students to learn various experimental and computational tools thereby developing analytical abilities to address real world problems.

PSO 6. To train students in skills related to research, education, industry and market.

PSO 7 To help students to build-up a progressive and successful career in Physics.



Department of Botany

B.Sc. Botany

Programme outcomes

1. The scope of plant diversity with respect to environmental relationships.
2. Study of plant classification to understand the taxonomy.
3. The utilization of plants for human beings in terms of its economic importance.
4. Take projects, study case to understand plant biodiversity.
5. Student learns practical work as per the syllabus prescribed by SPPU, field studies for optimizing proficiency the subject.
6. Use of IT tools, communication skills in scientific knowledge for specific needs.
7. Career planning.





Jijamata Shikshan Prasarak Mandal's
JIJAMATA MAHAVIDYALAYA SARATI

Criterion- II: Teaching Learning and Evaluation

2.6 Student Performance and Learning Outcomes 2021-22

2.6.1 Program outcomes, program specific outcomes and course outcomes for all programs offered by the institution are stated and displayed in website of the institution



DEPARTMENT OF COMMERCE

Bachelor of Commerce (B. Com.)

Goals: 1. The department strives hard to inculcate its core values which are good thought, good words and good deeds in the students overall personality to live by these values.

2. Every efforts are made to encourage every student in his or her formative years to take an active part in all activities that help to build up their character and knowledge.

Programme

Outcomes:

After successfully Completing B.Com. programme, students will able to

PO1: In depth knowledge, understanding and skills in commerce.

PO2: Build a strong foundation of knowledge in different areas of Commerce.

PO3: Develop the skill of applying concepts and techniques used in Commerce for real life problems.

PO4: Inculcate reading, writing, speaking skills and Business correspondence.

PO5: Creates awareness among society about Law and Legislations related to commerce and business. PO6: Use effectively recent Trends in Business, Organizations and Industries.

PO7: Communicate effectively about Economic Environment of Country as well as World.

PO8: Use effectively practical skills in real life related to banking and corporate world.



PO9: Provides a platform for overall development and develop knowledge level and awareness about Recent Trends of World

PO10: Use new technologies effectively to communicate ideas in the area of commerce.

PO11: Critically evaluate new research findings, ideas, methodologies and theoretical frame work in specialized study.

PO12: Work collaboratively and productively in groups.

Programme Outcomes

PSO1: Students will be able to apply basic skills learnt in commerce necessary for analysis of various problems in accounting, marketing, business economics, management and finance.

PSO2: Students will demonstrate progressive affective domain development of values, the role of accounting in society and business.

PSO3: Students will able to demonstrate quantitative and qualitative knowledge in key areas of organization behaviour.

PSO4: Students will able to evaluate national and international issue and discussion on economic, commercial and business related topics.



Course Outcomes

F.Y.B.COM

Course	Outcomes
Course 1123: Financial Accounting	<p>After successfully completing this course, student will be able to</p> <p>CO 1: Classify liabilities under piecemeal distribution of cash and student also able to practically solve problems.</p> <p>CO 2: Discuss disposal of assets and liabilities not taken over by new firm in amalgamation process with example.</p> <p>CO 3: Explain Accounting Procedure in the books of the firm under Conversion of Partnership Firm into Ltd. Co. and solve the problems.</p> <p>CO 2: Discuss disposal of assets and liabilities not taken over by new firm in amalgamation process with example.</p> <p>CO 3: Explain Accounting Procedure in the books of the firm under Conversion of Partnership Firm into Ltd. Co. and solve the problems.</p> <p>CO 4: Demonstrate how to create a company, grouping, generation, Accounting Report with the help of Accounting Software Package.</p> <p>CO 5: Explain the Accounting Standard applicable in India</p> <p>CO 6: Explain suffered recoupment and lapse of short-working with examples.</p> <p>CO 7: Distinguish between Hire Purchase System and Instalment System and solve problems thereon. CO 8: Demonstrate allocation of expenses on basis of Apportionment in Departmental Accounts</p>



Course	Outcomes
<p>Course 1153:</p> <p>Computer Concepts and Applications</p>	<p>After successfully completing this course, student will be able to</p> <p>CO1: Identify and discuss the different components of a personal computer system.</p> <p>CO2: Explain windows operating system and its operating environment such as WAN, LAN.</p> <p>CO3: Demonstrate organization of files and documents on a hard drive.</p> <p>CO4: Illustrate use of MS-Word, MS-Excel and MS-Power Point as business communication tools.</p> <p>CO5: Discuss computer as a tool for real life business practices such as data processing, file organization, calculation, data processing and presentation and data analysis.</p>

Course	Outcomes
<p>Course 1253:</p> <p>Marketing & Salesmanship</p>	<p>After successfully completing this course, student will be able to</p> <p>CO1: Define concept of market and Marketing</p> <p>CO2: Explain marketing environment and impact of marketing environment on market decision making.</p> <p>CO3: Discuss buyer behavior and factors affecting on buyer behavior and buying process.</p> <p>CO4: Describe concept of product, product life cycle, pricing decision their methods and factors affecting pricing decision.</p> <p>CO5: Understand the logistic management, it's importance in marketing.</p> <p>CO6: Explain the term advertisement, its importance, advantages, types and role of advertisement in sales promotion.</p> <p>CO7: Discuss concept of rural market, it's nature, differentiate rural and urban market and challenges before rural market.</p> <p>CO8: Explain the role of modern marketing in globalized era.</p>



Course	Outcomes After successfully completing this course, student will be able to
Course 2133 Business Economics (Macro)	CO1: Students will understand concepts and theories of money CO2: Will understand the concepts of stagflation CO3: Will understand public revenue and public expenditure concept CO4: Will be able to critically evaluate supply of money in the economics

Course	Outcomes After successfully completing this course, student will be able to
Course 2223 Banking & Finance-I	CO1: To analyze the type and process of stock trading CO2: To enable student to acquire sound knowledge of regulatory bodies in India CO3: To understand the aspects of paying and collecting the banker CO4: To analyze the banker and customers relationship



DEPARTMENT OF MARATHI

B. COM. (Marathi) Programme

Programme Outcomes:

- PO1. मराठी साहित्यातून मिळालेल्या ज्ञानामुळे त्यांना त्यांच्या जबाबदारीची जाणीव होईल समर्थ नागरिक म्हणून त्या ज्ञानाचा उपयोग करू शकतील.
- PO2. आत्मसात केलेली भाषा विषयक कौशल्य समूह मध्ये काम करताना प्रभावीपणे वापरू शकतील.
- PO3. मराठी भाषे च्या सर्व कक्ष ज्ञानामुळे साहित्य व संस्कृती याविषयीच्या संशोधनांमध्ये प्रभावीपणे वापर करू शकतील.
- PO4. मराठी साहित्यातून मांडलेले पर्यावरणाचे प्रश्न विद्यार्थी पर्यावरणाच्या रक्षणासाठी आणते टिकवण्यासाठी प्रयत्न करतील.
- PO5. वेगवेगळ्या साहित्य प्रकाराचा अभ्यास करून त्यातून समाज विषयी ज्ञान अवगत करू शकतील.
- PO6. साहित्यातून आत्मसात केलेली नैतिक तत्वे यांचा वैयक्तिक जीवन संघटन यामध्ये प्रभावीपणे वापर करतील.
- PO7. मराठी विषयाचे सखोल ज्ञान प्राप्त होईल व कौशल्य आत्मसात होतील.
- PO8. मराठी साहित्यातील विद्यार्थ्यांना जीवनाकडे पाहण्याचा सकारात्मक
- PO9. दृष्टिकोन भाषेत सर्वेक्षण करून एक प्रकारे मराठीचे विद्यार्थी समाजाचे संवादी होतील.
- PO10. मराठी साहित्य व संस्कृती यांच्या त्याविषयी संवाद संवाद साधू शकतील.
- PO11. मराठीतील भाषिक कौशल्य आत्मसात केल्याने ते समाजाशी संवाद साधू शकते.

Programme Specific Outcomes

- PSO1. साहित्याचे विश्लेषण करता येईल.
- PSO2. साहित्याची समीक्षा करता येईल.



FYBCOM MARATHI-1523 व्यावहारिक व उपयोजित मराठी

हा अभ्यासक्रम यशस्वीरित्या पूर्ण केल्यानंतर विद्यार्थी खालील गोष्टी करू शकतील.

CO1: मराठीच्या व्यवहारक्षेत्राची माहिती होईल तसेच विविध क्षेत्रातील भाषा व्यवहाराचे स्वरूप त्यांना लिहिता येईल.

CO2: यशस्वी मराठी व्यक्तिकांच्या अनुभवांचे जीवनात उपयोजन करता येईल.

CO3: यशस्वी व्यक्तिकांच्या कार्याविषयी ओळख करून देऊ शकतील.

CQ4: राजभाषा म्हणून मराठीचे स्थान, कार्यालयीन वापर स्वरूप, तंत्रे व कौशल्ये याविषयी ते उदाहरणसह स्पष्टीकरण देऊ शकतील.

CO5: मराठी भाषेचा व्यवहारात प्रत्यक्ष वापर कसा करावयाचा याचे त्यांना विश्लेषण करता येईल.

CO6: कार्यालयीन कामासाठी मराठी भाषेचा कौशल्याने वापर करू शकतील.

CO7: प्रसारमाध्यमातील विविध लेखन प्रकारांचा परिचय होऊन त्याचे प्रत्यक्ष लेखन त्यांना करता येईल.

CO8: वाणिज्य शाखा व मराठी भाषा यातील परस्परसंबंधांचे ते मूल्यमापन करतील.



DEPARTMENT OF ENGLISH

B. COM. English Programme Outcomes:

After successfully completing B.A. English Programme students will be able to:

PO1: Ethics: The students will be able to perceive the complexities of human behaviour and identity through various forms of literature. They will be able to develop a deeper understanding of human values such as morality, empathy, good will etc.

PO2: Comprehension Skills: The students will be able to comprehend the evolution of different categories of literature such as short story, drama, poetry, fiction and non-fiction.

PO3: Effective Communication: The students will be able to develop oral and written communication skills in English. They will be able to enrich their vocabulary and its usage in communication. The students will be able to apply grammatical rules to day to day spoken and written language.

PO4: Effective Communication: Capable of oral and written scientific communication, and will prove that they can think critically and work independently

PO5: Social Interaction: The students will be able to use interpersonal and intrapersonal communication skills to interact effectively in social situations like interviews, group discussions, seminars etc.

Programme Specific Outcomes

PSO 1: Students will be able to understand the evolution of criticism and its application in language and literature

PSO 2: Students will be able to comprehend excellent pieces of prose and poetry in English literature.

PSO 3: Students will be able to apply knowledge of English language to improve skills in Listening, Speaking, Reading and Writing.



S.Y.B.COM

Course	Outcomes After successfully completing this course, student will be able to
Course 2123: Corporate Accounting	CO1: Study of Accounting Standards 5, 6, 10, 14, 21 with Practical Examples. CO2: Preparation of Final Accounts- Forms and contents as per Provisions of Companies Act (As Amendment up to the beginning of the relevant academic year) As per Revised Schedule- VI CO3: Discuss modes of winding up and liquidation accounting process. CO4: Summarize skills for computerized accounting like Inventory Accounting, Payroll Accounting and MIS Reports. CO5: Explain amalgamation and absorption accounting procedure. CO6: Illustrate external and internal reconstruction accounting procedure. CO7: Solve the problems of holding and subsidiary company CO8: Calculate value of shares using different methods like Net Assets Method, Yield Basis Method and Fair Value Method.
Course	Outcomes After successfully completing this course, student will be able to
Course 2113: Business Communication	CO1: Discuss the Meaning, Definition, Features, Principles, Importance, Process of Communication, Barriers to Communication & its Remedies. CO2: Identify the different methods and channels of communication. CO3: Classify the various soft-skills and its elements such as Grooming Manners and Etiquettes, Effective Speaking, Interview Skills, Listening, Group Discussion and Oral Presentation. CO4: describe the concept of business letter, its Meaning, Importance, Qualities or Essentials, Physical Appearance, and Layout of Business Letter.



	<p>CO5: Develop the writing skill of business letters on various situations in business like Enquiry letter, order letter, sales letter etc.</p> <p>CO6: Discuss the Types & Drafting of Job Application Letters.</p> <p>CO7: study the internal office correspondence like Office Memo, Office Orders, Office Circulars, and Press Releases.</p> <p>CO8: explain the application of new technology in business communication like WhatsApp, Twitter, Facebook, LinkedIn, YouTube, Cellular Phone and Video Conferencing.</p>
Course	Outcomes After successfully completing this course, student will be able to
Course 2153: Elements of Company Law	<p>CO1: Explain the Background and Salient Features of the Act of 2013, & Overview of the changes introduced by the Act of 2013 & Types of Companies based on various criteria.</p> <p>CO2: Discuss the four stages of company formation and incorporation.</p> <p>CO3: Study Documents required for Incorporation and Raising of Capital.</p> <p>CO4: Explain the various modes of raising of capital of company including private placement, public issue, rights issue, bonus shares and the procedure for forfeiture, Re-issue of forfeiture, surrender, transfer, transmission and Nomination of shares.</p> <p>CO5: Discuss Basic of MCA Portal, E-filing, DIN- Directors Identification Number and Management of Company such as Legal position of directors, Types of Directors.</p> <p>CO6: Study various Key Managerial Personnel such as Managing Director, Whole Time Director, Manager, Company Secretary and Corporate Social Responsibility.</p> <p>CO7: Discuss various Formalities of valid meeting such as agenda, notice, quorum, proxies, voting, resolutions, minutes, filing of resolutions, Virtual Meeting.</p> <p>CO8: Study the procedure of revival and rehabilitation of sick companies, Compromises, Arrangements and Amalgamation and winding of company.</p>



Course	Outcomes After successfully completing this course, student will be able to
<p>Course 2143:</p> <p>Business Management</p>	<p>CO1: Discuss the Meaning, Definition, Features, Principles, Importance, challenges before management and Brief Review of Management Thoughts of FW Taylor & Henry Fayol.</p> <p>CO2: Discuss Meaning, Definition, Nature, Importance, Forms, Types, Steps, and limitations of Planning and Decision Making.</p> <p>CO3: Describe Meaning, Process & Principles, Departmentalization of Organization and Organization Structure, Staffing and Recruitment.</p> <p>CO4: Discuss Meaning, Elements, Principles, Techniques & importance of Direction and communication and Process & Barriers of Communication</p> <p>CO5: Explain the different theories of motivation such as Maslow's Need Hierarchy Theory, Herzberg's Two Factors Theory, Douglas Mc Gregor's Theory.</p> <p>CO6: Study the leadership style for effective management and political leadership such as Mahatma Gandhi, Dr. Babasaheb Ambedkar & Pandit Jawaharlal Nehru.</p> <p>CO7: Discuss the concept Need, Techniques, difficulties, steps and techniques of coordination and control.</p> <p>CO8: Apply the recent trends in business management like Business Ethics, Corporate Social Responsibility, Corporate Governance, Disaster Management, Management of Change.</p>
Course	Outcomes After successfully completing this course, student will be able to



<p>Course: (203)</p> <p>Business Economics (Macro)</p>	<p>CO1: Explain nature, scope, importance and limitations of Macro Economics.</p> <p>CO2: Describe concepts and measurements of National Income of India.</p> <p>CO3: Describe functions of Money and control of credit by RBI in Indian economy.</p> <p>CO4: Explain concept of value Money and theories of value of Money.</p> <p>CO5: Analyse causes and its effects of Inflation and Deflation in Indian economy.</p> <p>CO6: Explain features and phases of trade cycle of Economy.</p> <p>CO7: Describe theories of output and employment in economy.</p> <p>CO8: Describe nature and scope of public finance and concept of public finance in Indian economy.</p>
<p>Course</p>	<p>Outcomes</p> <p>After successfully completing this course, student will be able to</p>
<p>Course: (206 –B)</p> <p>Indian Banking System (Banking-I)</p>	<p>CO1: Explain the structure and role of Indian Banking system.</p> <p>CO2: Explain progress and performance of private sector banks in India.</p> <p>CO3: Describe arguments for and against nationalisation of bank.</p> <p>CO4: Describe functions of SBI. CO5: Explain reasons for establishments of regional rural banks (RRBs) and functions of NABARD.</p> <p>CO 6: Explain structure of co- operative credit system of cooperative banks.</p>



T.Y.B.COM

Course	Outcomes After successfully completing this course, student will be able to
Course 3113: Business Regulatory Framework (Mercantile Law)	<p>CO1: Define the terms Contract, Offer, Acceptance, Consideration, Consent, Free Consent, Discharged of Contract. Explain legal rules as to valid offer, acceptance, consideration, consent, free-consent, discharged of contract.</p> <p>CO 2: Define the terms Partnership, LLP, Designated partner. Explain the rights & duties of partners under Partnership Act,1932. Describe incorporation of LLP, liabilities of LLP & partners, their relations, Financial Disclosure, Conversion, Winding up and Dissolution of LLP.</p> <p>CO3: Define the terms Sell, Agreement to Sell, Conditions & Warranties, Unpaid seller. Describe implied conditions and warranties, Explain the rights of unpaid seller, explain legal provision regarding transfer by non-owners.</p> <p>CO4: Explain e-Contracts, Digital Signature, describe formation, recognition of EContracts. Discuss the functions of Digital Signature and Digital Certificate.</p> <p>CO5: Define the terms Consumer, Complaint, Services, unfair trade practices, restrictive trade practices. Explain consumer protection councils, redressal agencies, describe the procedure to file complaint and resolve the complaint, relief available to customers.</p> <p>CO6: Discuss the objectives, organs, programs, activities of WIPO. Define the terms Patent, Copyright, Trademarks, Design, Geographical Indication, Trade secrets and Traditional Knowledge.</p> <p>CO7: Define the terms Negotiable Instruments, Promissory Note, Bill of Exchange, Cheque, Explain the essentials of N.I. Discuss Holder, Holder in due .</p>
Course	Outcomes After successfully completing this course, student will be able to
	<p>CO1: Impart the knowledge of Indian accounting standards and IFRS like AS- 3, AS-7, AS-12, AS-15 AS-17 to AS-25.</p> <p>CO2: Discuss Banking Company, Legal Provisions, Non - Performing Assets (NPA), Reserve Fund, Acceptance, Endorsements & Other Obligations and Preparation of Final</p>



<p>Course 3123:</p> <p>Advanced Accounting</p>	<p>Accounts in vertical form as per Banking Regulation Act 1949.</p> <p>CO3: Calculate amount of insurance claims using various methods like Claim for Loss of Stock, claim for Loss of Profit and Claim for Loss of Fixed Assets.</p> <p>CO4: Explain co-operative society and prepare financial reports as per Maharashtra State Co-operative Societies Act.</p> <p>CO5: Describe indirect tax like VAT & VAT Report, Service Tax, Central Value Added Tax and Income Tax - Tax Deducted at Source (TDS) and calculate tax liability using computer.</p> <p>CO6: Discuss the methods of maintaining accounts of different types of branches and Goods supplied at Cost & Invoice Price.</p> <p>CO7: Ascertain profit or loss by using various methods in single entry system like Preparation of Cash Book, Total Debtor Account, Total Creditor Account, and Final Accounts.</p> <p>CO8: Analysis and evaluate the financial performance using various ratios like Gross Profit Ratio, Net Profit Ratio, Operating Ratio, Stock Turnover Ratio, Debtor Turnover Ratio, Current Ratio, Liquid Ratio, Debt to Equity Ratio.</p>
<p>Course</p>	<p>Outcomes</p> <p>After successfully completing this course, student will be able to</p>



<p>Course: (363 (A))</p> <p>Indian and Global Economic Development</p>	<p>CO1: Describe comparison of Indian economy with developed economies.</p> <p>CO2: Explain agricultural development in India science independence.</p> <p>CO3: Describe industrial development in India since 1991.</p> <p>CO4: Describe infrastructural development in India since 1991</p> <p>CO5: Describe concept of Human Resource Development in world.</p> <p>CO6: Explain role of foreign capital in global economic development.</p> <p>CO7: Illustrate concept of balance of trade and balance of payment in relation with foreign trade.</p> <p>CO8: Elaborate objectives and structure of regional and international economic cooperation.</p>
<p>Course</p>	<p>Outcomes</p> <p>After successfully completing this course, student will be able to</p>



<p>Course: (365-B)</p> <p>Financial Markets and Institutions in India (Banking-II)</p>	<p>CO1: Define concepts of Financial System in India.</p> <p>CO2: Describe meaning, scope, structure, institutions, and deficiencies in Indian money market.</p> <p>CO3: Describe meaning, scope, characteristics and participants of Indian capital market.</p> <p>CO4: Explain concepts and segments of foreign exchange market in Indian economy.</p> <p>CO5: Explain meaning and functions of non- banking financial institutions. (NBFIs)</p> <p>CO6: Illustrate working and progress of development of financial institutions. (BFIs)</p> <p>CO7: Illustrate working, organizations and functions of investment institutions in India.</p> <p>CO8: Describe organizations, functions and working of regulatory institutions in India.</p>
<p>Course</p>	<p>Outcomes</p> <p>After successfully completing this course, student will be able to</p>



Course: (366-B)

**Banking Law and
Practices of India
(Banking-III)**

CO1: Explain provisions of Act, 1949 with respect to definition, liquid Assets, Profit and loss accounts, balance sheets, powers of the RBI, Compulsory ambulation and liquidation.

CO2: Describe Banking Regulation Act as Applicable to Cooperative Bank -1966.

CO3: Describe types of Negotiable Instrument Act – 1881.

CO4: Illustrate duties and rights of paying bankers and Return of cheque.

CO5: Describe precautions in collecting customer's cheque and duties and rights of collecting bankers. CO6: Explain the relationship between banker and customer.

CO7: Describe precautions to be taken by the bankers while advancing against customer.

CO8: Explain mortgages and types of the mortgages in loan system of bank.

CO9: Explain step in project appraisal and loan recovery of the customer.


IQAC Co-ordinator
Jijamata Mahavidyalaya Sarati
Tal.Indapur, Dist.Pune - 413103




Principal
Jijamata Mahavidyalaya Sarati
Tal.Indapur, Dist.Pune - 413103