Khalapur Taluka Shikshan Prasarak Mandal's

Khopoli Municipal Council College of Arts, Commerce and Science,
Khopoli, Dist: Raigad (Maharashtra) 410203

DEPARTMENT: ARTS (B.A.)

Program Outcomes
PO 1: Create an interest for the languages, social sciences and humanities amongst students. PO 2: Encourage first generation learners and impoverished class students to aspire for higher education PO 3: Information literacy about linguistic skills PO 4: Intelligence in Marathi literature PO 3: Information literacy about human and social values PO 5: Knowledge about Gender Sensitisation PO 7: Intelligence in Geographic Tourism PO 8: Knowledge about archaeology PO 9: Knowledge about rural economy PO 10: Knowledge about industrialisation PO 11: Information literacy about historic places PO 12: Information literacy about human differences
Program Specific Outcomes
PSO 1: Knowledge about specific facts of Marathi literature PSO 2: Knowledge about specific skills of reading, writing, listening and oral communication. PSO 3: Knowledge about specific facts of sociological and rural

development
PSO 4: Knowledge about English literature
PSO 5: Knowledge about Indian legislation
PSO 6: Ability to know about personality differences
PSO 7: Languages and social sciences provide a better insight to life. The Bachelor of Arts programme will create awareness about the same amongst the students

Course Outcomes

F.Y.B.A:

- ✓ To study the concepts like personality, learning, memory, forgetting, mentoring, emotions, intelligence etc.
- ✓ To make awareness about history of Indian Culture
- ✓ To understand and develop deeper understanding of the Economy.
- ✓ To know about the aspect of production, cost and revenue analysis theories of distribution and understanding about the market structure.

S.Y.B.A:

- ✓ To understand the social problems of society
- ✓ To acquire skills for Journalism
- ✓ To study the social perception, attitude.
- ✓ To understand how to change aggression attitude
- ✓ To understand general laws
- ✓ To understand the contemporary economics situation of the economy.

T.Y.B.A:

- ✓ To know specific Indian literature as well as foreign literature
- ✓ To know the detail knowledge about cognitive process, testing and assessment.
- ✓ To Study the basic concepts of historiography
- ✓ To understand the concept of growth and development
- ✓ To understand some basic principles of microeconomics, interactions of supply and demand, and characteristics of perfect and imperfect markets.
- ✓ To provide the changing phase of International Trade Policy and Practice

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DEPARTMENT OF CHEMISTRY

Program Outcomes

PO 1: The main objective of this course is to increase the employability quotient of the students by preparing them with the technical and theoretical aspects of this continuously evolving subject.

PO 2: The principles of physical chemistry and how to apply it in experimental procedures of general Chemistry will be understood after the end of the three years course.

PO 3: Special emphasis to be given to thermodynamics, electrochemistry and chemical kinetics.

PO 4: The cutting-edge field of Quantum Chemistry will be understood by the students.

PO 5: The chemistry of elements which make up all the material world will be understood from the perspective of the periodic table.

PO 6: The students will be acquainted with all the instrumental procedures used to analyse both quantitatively and qualitatively the chemical components of an unknown material. This includes basic procedures like titration, salt analysis along with pH-metry, potentiometry, conductometry, polarimetry and spectrophotometry.

PO 7: The students will have an awareness of green chemistry and ecologically sustainable chemical procedures. Students will have a

strong foundation in the fundamental and application of current organic chemistry.

PO 8: Students will have understanding of chemical and molecular processes that take place in organic chemical reactions.

PO 9: Students will be able to design and carry out synthesis of different organic compounds in pure form in a well-designed fashion, keeping the focus on principles for effective synthetic strategies, stereoselectivity, catalysis.

PO 10: Students become able to use spectroscopic methods in identification of complicated molecules.

PO 11: Students understand biomolecules like amino acid and carbohydrates.

PS 12: Students pursuing this stream of study are specially equipped with the know-how and training required to find jobs in industry and heath care sections.

Program Specific Outcomes

PSO 1: Knowledge about specific facts kinetics, thermodynamics.
PSO 2: Knowledge about specific terms of stereochemistry
PSO 3: Knowledge about specific concepts of co-ordination chemistry.
PSO 4: Knowledge about specific ideas of spectroscopy.
PSO 5: Knowledge about specific green chemistry principles and practices
PSO 6: Knowledge about specific terms in solid state chemistry.
PSO 7: Knowledge about specific terms in heterocyclic compounds.

Course Outcomes

F.Y.B. Sc.:

- ✓ To understand reaction kinetics, rate constant, order of reaction.
- ✓ To identify stereochemistry of various chemicals.
- ✓ To define specific terms ofstates of matter, oxidation and reduction.
- ✓ To provide best practices of semi-micro qualitative analysis.

S.Y.B. Sc.:

- ✓ To become proficient in analysing the various observations and chemical phenomena presented to him during the course.
- ✓ To understand &solve problems related to thermodynamics and kinetics.
- ✓ To understand the preparation and reactions of alcohol, phenols,

carboxylic acid, diazonium compounds, sulphonic acids, amines and carbonyl compounds.

- ✓ To know specific principles of analytical chemistry.
- ✓ To know specific facts about instrumental methods of analysis.
- ✓ To know specific trends of transition metals, catalysis and electrochemistry.

T.Y.B. Sc.:

- ✓ To understand details about spectroscopic techniques, stereochemistry.
- ✓ To know specific terms involved in organic and inorganic reaction mechanisms.
- ✓ To know about natural products, heterocycles, photochemistry, pericyclic reactions.
- ✓ To know specific terms of symmetry, molecular orbital theory, solid state chemistry, inner transition metals.
- ✓ To know the various types of methods for analysis of compounds.
- ✓ To know about various chemotherapeutic agents, dyes and dye-stuff intermediates.

M. Sc.:

- ✓ To know specific techniques disconnection of molecules, synthesis of target molecules.
- ✓ To solve critical problems spectroscopy and two-dimensional spectroscopy.
- ✓ To know new name reactions, reagents and rearrangements.
- ✓ To know more specific terms involved in asymmetric synthesis, pericyclic reactions and photochemistry.
- ✓ To know in detail about natural products, group theory and solid-state chemistry.
- ✓ To know about drug discovery, green chemistry, biomolecules.
- ✓ To study the behaviour of inorganic solids, their bonding, preparation and reactions including mechanisms.
- ✓ To understand thermal and magnetic properties of inorganic materials.

Head
Department of Chemistry

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DEPARTMENT OF COMMERCE

Program Outcomes

PO 1: Information literacy about trade and commerce
PO 2: Intelligence in Direct and Indirect taxes
PO 3: Intelligence in Accounting Principles and Standards
PO 4: Improvement in communication skill
PO 5: Information literacy about new trends business management
PO 6: Development of professional skill through marketing and advertising
PO 7: Knowledge about business law
PO 8: Knowledge about company accounts
PO 9: Managing of Financial Issues
PO 10: Information literacy about export marketing
PO 11: Technical expertise for purchase and sale of shares
PO 12: Entrepreneurship development

Program Specific Outcomes

PSO 1: Knowledge about specific facts of trade and commerce
PSO 2: Knowledge about specific terms in business communication
PSO 3: Knowledge about specific facts of accounting standards
PSO 4: Knowledge about specific concepts about accounting
PSO 5: Knowledge about specific managerial principles and practices
PSO 6: Knowledge about specific terms in stock market

PSO 7: Knowledge about specific terms in Direct and Indirect Taxes

Course Outcomes

F.Y.B.Com:

- ✓ To solve critical problems in accounting
- ✓ To identify solutions in maths and stat
- ✓ To define specific terms of revenue and capital
- ✓ To provide best practices in environmental studies

S.Y.B.Com:

- ✓ To solve critical problems of partnership
- ✓ To solve critical problems of shares and debentures
- ✓ To know specific principles and functions of management
- ✓ To know specific facts about financial and stock market
- ✓ To know specific trends in management and finance

T.Y.B.Com:

- ✓ To know specific terms in Direct and Indirect taxes
- ✓ To know specific terms of accounting
- ✓ To know specific terms of export marketing
- ✓ To know specific terms of business economic
- ✓ To solve critical problems of company accounts
- ✓ To provide best practices of Human Resource
- ✓ To provide best practices of Marketing Management

M.Com:

- ✓ To know specific techniques of strategic management
- ✓ To solve critical problems of Direct and Indirect taxes
- ✓ To know new trends of research in commerce
- ✓ To know specific terms in accounting and finance

Head
Department of Commerce

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DEPARTMENT OF COMPUTER SCIRNCE

Program: B. Sc (Computer Science)

Program Outcomes

PO 1: Comprehensive study of the C programming language, stressing upon the strengths of C, which provide the students with the means of writing modular, efficient, maintainable, and portable code.
PO 2: Understand the commonly used data structures and various forms of its implementation for different applications using Python.
PO3:Understanding the strategies, frameworks, processes and management of green IT
PO 4: Student shall be able to progress as a Developer or Linux System Administrator using the acquired skill set
PO 5: Study about recurrence relations, generating function and operations on them
PO 6: Understanding important aspect in IT Field like Web designing, Java, Networking, creation and management of database and many others.
PO 7: Clear understanding of AI and different search algorithms used for solving problems
PO 8: Knowledge of basic concepts of computer security including network security and cryptography.
PO 9: Discovering the interconnection and integration of the physical world

PO 10: Understanding computer Graphics programming using Directx or Opengl

Program Specific Outcomes

PSO 1: Ability to appreciate real world applications which uses these concepts
PSO 2: Skill to formulate a problem through Mathematical modelling and simulation
PSO 3: Understanding the concepts of object oriented analysis and design and its application in developing software for real world applications
PSO 4: Understanding of Mathematical concepts like limit, continuity, derivative, integration of functions
PSO 5: Sound understanding of Computer operating system, its structures, functioning and algorithms.
PSO 6: Knowledge of input, its processing and getting suitable output
PSO 7: Knowledge in Software Testing techniques
PSO 8: Awareness of the evolving world of M2M Communications and IoT analytics.

Course Outcomes

F.Y.B.Sc (CS):

- ✓ To study of probability concept required for Computer learners
- ✓ To develop skill to formulate a problem through Mathematical modelling and simulation.
- ✓ To make students able to connect to the database to move the data to/from the application
- ✓ To study different data types in a computer program

S.Y.B.Sc (CS):

- ✓ To provide basic knowledge about models of automata theory and the corresponding formal languages.
- ✓ To develop the logic for implementing data structures amongst students
- ✓ To study about process management, process scheduling, threads, synchronization, memory management, virtual memory concepts,

cause and effect of deadlocks, and file system

- ✓ To understand, design, implement and evaluate classes and applets
- ✓ To understand and implement the Client side validations using Scripting language

T.Y.B. Sc (CS):

- ✓ To demonstrate the ability to troubleshoot challenging technical problems typically encountered when operating and administering Linux systems
- ✓ To understand various software testing methods and strategies
- ✓ To understand the principles and practices of cryptographic techniques

Head
Department of Computer Science

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DEPARTMENT OF PHYSICS

Program Outcomes

PO1: Students having an academic background of science at 10+2 level can pursue B.Sc programme in various branches.

PO2: After the completion of the Bachelor of Science degree there are various options available for the science students.

PO3: The student is also eligible for the job of a Medical Representative and other Scientific Laboratory as a technician.

PO4: Students can pursue their master degree in Science i.e. M.Sc., work in research related fields and can even look for professional job oriented courses.

PO4: M.Sc. in some reputed universities or colleges the students are recruited directly by big MNC's after the completion of the course.

PO5: The student after graduating will be eligible for various government exams conducted by UPSC, SSC etc

Program Specific Outcomes

PSO 1: After successful completion of B.Sc. (Hons.) Physics Course student will be able to: Understand the depth knowledge of various subjects of Physics.

PSO 2: Demonstrate skills and competencies to conduct wide range of scientific experiments.

PSO 3: Identify their area of interest in academic and R&D.

PSO 4: Perform job in various fields' viz. science, engineering, education, banking, business and public service, etc. with precision, analytical mind, innovative thinking, clarity of thought

and expression, systematic approach.

Course Outcomes

F.Y. B. Sc:

SEMESTER I :

USPH101 : Classical Physics:

Students will have understanding of:

- ✓ Understand Newton's laws and apply them in calculations of the motion of simple systems, free body diagrams to analyze the forces on the object.
- ✓ Understand the concepts of friction and the concepts of elasticity, fluid mechanics and be able to perform calculations using them, concepts of lens system and interference.
- ✓ Apply the laws of thermodynamics to formulate the relations necessary to analyze thermodynamic process.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered

USPH102 : Modern Physics:

- ✓ Understand nuclear properties and nuclear behaviour, type isotopes and their applications.
- ✓ Demonstrate and understand the quantum mechanical concepts.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPHP1 : A. Regular experiments:
B. Skill Experiments:

SEMESTER II

USPH201 : Mathematical Physics

On successful completion of this course students will be able to:

- ✓ Understand the basic mathematical concepts and applications of them in physical situations.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPH202: Electricity and Electronics.

- ✓ Understand the basic electricity and electronics concepts and applications of them in physical situations.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPHP2: A. Regular experiments.
B. Skill Experiments.

S.Y. B. Sc : SEMESTER III:

USPH301 : Mechanics and thermodynamics:

On successful completion of this course, students will be able to :

- ✓ Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ✓ Comprehend the basic concepts of thermodynamics & its applications in physical situation. Learn about situations in low temperature.
- ✓ Demonstrate tentative problem solving skills in all above areas.

USPH302 : Vector calculus, Analog Electronics

- ✓ Understand the basic concepts of mathematical physics and their applications in physical situations.
- ✓ Understand the basic laws of electrodynamics and be able to perform calculations using them.
- ✓ Understand the basics of transistor biasing, operational amplifiers, their applications
- ✓ Understand the basic concepts of oscillators and be able to perform calculations using them.
- ✓ Demonstrate quantitative problem solving skill in all the topics covered.

USPH303 : Applied Physics –I

- ✓ Students will be exposed to contextual real life situations.
- ✓ Students will appreciate the role of Physics in 'interdisciplinary areas related to materials, Bio Physics, Acoustics etc.
- ✓ The learner will understand the scope of the subject in Industry & Research.
- ✓ Experimental learning opportunities will faster creative thinking & a spirit of inquiry.

USPHP3 : Practical course -3 (Group A, B, C and Skill)

SEMESTER IV:

USPH401 : Optics and Digital Electronics

- ✓ Understand the diffraction and polarization processes and applications of them in physical situations.
- ✓ Understand the applications of interference in design and working of interferometers.
- ✓ Understand the resolving power of different optical instruments.

- ✓ Understand the working of digital circuits
- ✓ Use IC 555 time for various timing applications.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPH402: Quantum Mechanics

- ✓ Understand the postulates of quantum mechanics and to understand its importance in explaining significant phenomena in Physics.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPH403: Applied Physics-II

- ✓ Understand the concepts of mechanics & properties of matter & to apply them to problems.
- ✓ Comprehend the basic concepts of thermodynamics & its applications in physical situation.
- ✓ Learn about situations in low temperature.
- ✓ Demonstrate tentative problem solving skills in all above areas.

USPHP4: Practical course -4 (Group A,B,C and Demo)

T.Y.B. Sc.:

SEMESTER V:

USPH501 : Mathematical Methods in Physics

- ✓ The students are expected to be able to solve simple problems in probability, understand the concept of independent events and work with standard continuous distributions.
- ✓ The students will have idea of the functions of complex variables; solve nonhomogeneous differential equations and partial differential equations using simple methods.
- ✓ The units on statistical mechanics would introduce the students to the concept of microstates, Boltzmann distribution and statistical origins of entropy.
- ✓ It is also expected that the student will understand the difference between different statistics, classical as well as quantum.

USPH502 : Solid State Physics

- ✓ Understand the basics of crystallography, Electrical properties of metals, Band Theory of solids, demarcation among the types of materials, Semiconductor Physics and Superconductivity.
- ✓ Understand the basic concepts of Fermi probability distribution function, Density of states, conduction in semiconductors and BCS theory of superconductivity.
- ✓ Demonstrate quantitative problem solving skills in all the topics covered.

USPH503 : Atomic Physics

- ✓ The application of quantum mechanics in atomic physics.♣
- ✓ The importance of electron spin, symmetric and antisymmetric wave
- ✓ Functions and vector atom model Effect of magnetic field on atoms and its application.
- ✓ Learn Molecular physics and its applications.
- ✓ This course will be useful to get an insight into spectroscopy.

USPH504 I Electrodynamics

- ✓ Understand the laws of electrodynamics and be able to perform calculations using them.
- ✓ Understand Maxwell's electrodynamics and its relation to relativity
- ✓ Understand how optical laws can be derived from electromagnetic principles.
- ✓ Envelop quantitative problem solving skills.

USPHP05 : Practicals of Course USPH501 + Course USPH502

USPHP06 : Practicals of Course USPH503 + Course USPH504

SEMESTER VI:

USPH601: Classical Mechanics

- ✓ This course will introduce the students to different aspects of classical mechanics. They would understand the kinds of motions that can occur under a central potential and their applications to planetary orbits.
- ✓ The students should also appreciate the effect of moving coordinate system, rectilinear as well as rotating.
- ✓ The students are expected to learn the concepts needed for the important formalism of Lagrange's equations and derive the equations using D'Alembert's principle. They

should also be able to solve simple examples using this formalism. The introduction to simple concepts from fluid mechanics and understanding of the dynamics of rigid bodies is also expected.

- ✓ Finally, they should appreciate the drastic effect of adding nonlinear corrections to usual problems of mechanics and nonlinear mechanics can help understand the irregularity we observe around us in nature.

USPH602: Electronics

- ✓ Understand the basics of semiconductor devices and their applications.
- ✓ Understand the basic concepts of operational amplifier: its prototype and applications as instrumentation amplifier, active filters, comparators and waveform generation.
- ✓ Understand the basic concepts of timing pulse generation and regulated power supplies
- ✓ Understand the basic electronic circuits for universal logic building blocks and basic concepts of digital communication.
- ✓ Develop quantitative problem solving skills in all the topics covered.

USPH603 : Nuclear Physics

The course is built on exploring the fundamentals of nuclear matter as well as considering some of the important applications of nuclear physics. Topics include decay modes – (alpha, beta & gamma decay), nuclear models (liquid drop model, introduction to shell model), Applications of Nuclear Physics in the field of particle accelerators and energy generation, nuclear forces and elementary particles. The lecture course will be integrated with problem solving.

USPH604 : Special Theory of Relativity

- ✓ Understand the significance of Michelson Morley experiment and failure of the existing theories to explain the null result
- ✓ Understand the importance of postulates of special relativity, Lorentz transformation equations and how it changed the way we look at space and time, Absolutism and relativity, Common sense versus Einstein concept of Space and time.
- ✓ Understand the transformation equations for: Space and time, velocity, frequency, mass, momentum, force, Energy, Charge and current density, electric and magnetic fields.
- ✓ Solve problems based on length contraction, time dilation, velocity addition, Doppler effect, mass energy relation and resolve paradoxes in relativity like twin paradox etc.

USPH605 Practicals of Course USPH601 + Course USPH602

USPH606 Practicals of Course USPH603 + Course USPH604

USACEI501 Analog Circuits, Instruments and Consumer Appliances. THeory

- ✓ Understand the difference between a transducer and a sensor.
- ✓ Understand the construction, working and uses of different types of transducers.
- ✓ Understand the concept of signal conditioning, devices used and their operations.
- ✓ Get acquainted with the measuring instruments used in laboratory.
- ✓ Get the insight of the modern medical instruments in principle, which are used in day to day life.

USACEI5P1 Analog Circuits, Instruments and Consumer Appliances. Practical

USACEI601 Digital Electronics, Microprocessor, Microcontroller and OOP.

- ✓ Analyze/design and implement combinational logic circuits. Develop assembly language programing skills and real time applications of microprocessor.
- ✓ Illustrate how to interface the I/O peripheral (PPI) with 8085 microprocessor
- ✓ Understand architecture, silent features, instruction set, programming and interfacing of 8051 microcontroller.
- ✓ Develop the programming skills in programming Language C++.
- ✓ Train their practical knowledge through lab experiments.
- ✓ Get practical training to interface different programmable peripherals and
- ✓ I/O devices to microprocessor and microcontroller.

Head
Department of Physics