Shikshan Prasarak Sanstha's

PADMABHUSHAN VASANTRAODADA PATIL MAHAVIDYALAYA,

Kavathe Mahankal, Dist.- Sangli

Department of Chemistry

(Academic Year 2019-20)

Vision

The Chemistry Department is committed to prepare competitive and professional graduates within an innovative and intellectually stimulating environment, support other academic programs by offering quality chemistry learning experiences, conduct basic and applied research of national and international impact, build proactive partnerships with industry and offer effective training and educational and technical services to the society. To achieve excellence in teaching and research.

Mission

- Enhance the basic and applied research framework in the Chemistry Department.
- To empower through knowledge and information.
- To develop, enhance, and improve the quality of human resources.
- To cultivate resolute moral and ethical values through good chemical practices.
- To meet contemporary regional and national needs and anticipate future social and economic development.
- Build partnerships with the industry to increase employability skills.

Program Outcomes (Pos)

After completion of this program student will be able to,

PO1:	Facilitate the coordination between classical academics and societal needs
PO2:	Apply practical knowledge to industrial application and for developing methods
PO3:	Cope up with the challenges and the advances in the science
PO4:	Acquire the ability of critical analysis of different issues.

Program Specific Outcomes (PSO's)

After completion of this program student will be able to,

PSO1:	Cater the needs and the challenges of chemical and metallurgical industries.
PSO2:	Handle sophisticated instruments used for different analysis.
PSO3:	Work in pharmaceutical industries
PSO4:	Cope up for higher education such as post-graduation and research

Course outcomes (CO's)

B.Sc. I (Sem I)

DSC-3A-Course I (Inorganic chemistry)

After completing the course students will able to,

CO-1.1	Foster the ability and to aquire the knowledge of terms, facts, concept principles of atomic structure and ionic bonding
CO-1.2	Develop the proper aptitude and interest towards the concepts of inorganic chemistry like VBT and MOT

DSC-4A Course II (Organic Chemistry)

CO:2.1	Learn fundamentals of chemistry stereochemical aspects and nomenclature of stereoisomers.
CO:2.2	Understood concept of aromaticity Preparation reactions of cycloalkanes cycloalkenes and alkadienes.

B.Sc. I (Sem II)

DSC- 3B: Course III (Physical Chemistry)

CO:3.1	Understand the basic concepts of thermodynamics thermochemistry and free energy change in chemical reaction.
CO:3.2	Understand different theory of gases factors affecting rate of reactions and theories of reaction rates

DSC-4B-Course IV (Analytical Chemistry)

CO:4.1	Understand the basic methods of analysis techniques of sampling basic principle of chromatography and important aspect of titrimetric analysis.
CO:4.2	Acquire the knowledge about physical methods of water analysis chemical methods of water analysis along with basic aspects of fertilizers.

Course V Laboratory course (practical)

CO:5.1	Understood the kinetics of various reaction
CO:5.2	Acquire the knowledge of analysis of organic compounds
CO:5.3	Acquire the knowledge of simple techniques such as paper chromatography, quantitative analysis
CO:5.4	Determine the strength of mineral acid

B.Sc. II (Sem III)

DSC-C3-Course VI (Physical Chemistry)

CO:6.1	Understand conductivity, transport number of the aqueous solutions with different applications surface tension viscosity refractive index and surface phenomena at heterogeneous surfaces.
CO:6.2	Learn the various nuclear phenomena techniques of measurement of nuclear radiations and third order reaction

DSC-C4-Course VII (Industrial Chemistry)

CO:7.1	Understood the basic concepts in Industrial Chemistry and electroplating
CO:7.2	Acquire the knowledge of Indian paper industry, Soaps and Detergents

B.Sc. II (Sem IV)

DSC-D3- Course VIII (Inorganic chemistry)

CO:8.1	Understood the meaning of terminologies, concepts of co ordination chemistry and chelation
CO:8.2	Understood the periodicity of P block, 3d series elements and inorganic qualitative analysis

DSC-D4-Course IX (Organic Chemistry)

CO:9.1	To impart knowledge about Preparation synthesis reactivity and applications of carboxylic acids carbohydrates Amines and Diazonium Salts
CO:9.2	Understood the basic knowledge conformational analysis of organic compounds nomenclature and reactivity of aldehydes and ketones

Course X Laboratory course (practical)

CO:10.1	Understood the kinetics of various reaction and use of instruments for different analytical application
CO:10.2	Acquire the knowledge of Preparation, analysis of organic compounds and mixture.
CO:10.3	Foster the knowledge of extraction, purification of various metals and the analysis of inorganic compounds and mixture.
CO:10.4	Perform the quantitative analysis of various analytes

B.Sc. III (Sem V)

DSE-ES-Course XI (Inorganic Chemistry)

CO:11.1	Acquire the knowledge of Acids bases and bonding in transition metal complexes
CO:11.2	Understood the metals, semiconductor, superconductors, organometallic compounds and catalysis

DSE-E6-Course XII (Organic Chemistry)

CO:12.1	Understand the energy associated parameters chromophore, auxo chrome, calculation of Amax, vibrational transitions, regions of IR spectrum and functional group recognition.
CO:12.2	Get the knowledge of magnetic non-magnetic nuclei, shielding-deshelling, chemical shift, splitting pattern molecular ion, fragmentation pattern and different types of ions produced. Also, able to solve problems based on UV-Vis, IR, NMR, Mass Spectral data and predict the structure of organic compound with the help of provided spectral data

DSE-E7-Course XIII (Physical Chemistry)

CO:13.1	Understand elementary quantum mechanics quantum Chemistry and spectroscopy Knowledge
CO:13.2	Learn different aspects of Photochemistry solutions and electrochemistry

DSC-E8-Course XIV (Analytical Chemistry)

CO:14.1	Learn the techniques of gravimetric analysis potentiometric titrations and acquire the knowledge of instrumental analysis of alkali and alkaline earth elements by using flame photometry
CO:14.2	Understand working applications of optical methods as an analytical tool and Quality control practices in analytical industries/laboratories

B.Sc. III (Sem VI)

DSC-F-5-Course XV (Inorganic Chemistry)

CO.15.1	Impart the advances in coordination Chemistry, Nuclear chemistry and its societal applications
CO:15.2	Understood the Chemistry of f block Elements, extraction of iron and steel and Role of various metals in Bio inorganic chemistry

DSE-F6-Course-XVI (Organic Chemistry)

CO:16.1	Knowledge of different organic reactions reagents used in organic transformations and retrosynthesis of some organic compounds.
CO:16.2	Learn electrophilic addition to >C-C<CC bond and get knowledge of alkaloids and terpenoids understand chemistry of some pharmaceutical drugs

DSE-F7-Course XVII (Physical Chemistry)

CO:17.1	Know Phase equilibria, phase rule, Thermodynamics and solid-state chemistry
CO:17.2	Learn Chemical kinetics and understanding the knowledge of distribution law

DSC-F-8-Course XVIII (Industrial chemistry)

CO:18.1	Understand the process of manufacture of sugar industrial heavy chemicals and synthesis of various polymers
CO:18.2	Understand the petroleum Industry need of use of eco-friendly fuels and Understanding

Course XIX Laboratory course (practical)

CO:19.1	Apply practical knowledge to industrial application and for developing methods
CO 19.2	Understood the kinetics of various reaction
CO 19.3	Handle instruments for different analytical application.
CO:19.4	Foster the knowledge of extraction, purification of various metals the analysis of inorganic compounds and mixture
CO 19.5	Analyze the commercial samples such as talcum powder, milk sample etc
CO:19.6	Acquire the knowledge of preparation of organic compounds though green chemistry approach
CO 19.7	Carry out qualitative analysis of organic mixture
CO:19.8	Work in chemistry related industries.