Samarth Mahavidylaya, lakhani

DEPARTMENT OF CHEMISTRY

(SESSION 2018-2019)

Program Specific Outcomes (PSOs) and Course Outcomes (COs) of Undergraduate department (Part of B.Sc. Program, offered in combination with three different subjects) Program Outcomes (POs) After completion of BSc programme, the students will be able to –

1. Understand the core fundamentals of basic sciences.

2. Understand the diverse day to day applications of various fields.

3. Demonstrate, solve and an understanding of major concepts in all disciplines of science.

4. Analyse any data in a scientific manner, interpret the data and come to a logical conclusion.

5. Apply the acquired knowledge and the applications of basic sciences to community.

6. Apply ethical principles and commit to professional ethics and responsibilities and norms of the scientific practice.

7. Have sustainable development.

8. Develop skills in handling scientific instruments, planning and performing in laboratory experiments.

9. Go for higher studies i.e. MSc and then do some research for the welfare of mankind. 10. Look for professional job-oriented courses, Indian Army, Indian Navy, Indian Air Force as officers, Indian Civil Services.

Statement of Course Outcomes (COs)

B.Sc. Sem-I Paper-CH 101: (Inorganic Chemistry)

By the end of this course, Students will be able to:

- Understand the basic structure of atom.
- Understand the concept nature of chemical bond.
- Overview of periodic table and S,P block elements.

Paper-CH 102: Physical Chemistry

By the end of this course, Students will be able to:

- Understand the various states of matter.
- Overview of solid, liquid and gaseous state of matter.
- Understand the concept of different types of surface phenomenon and catalytic property.

B.Sc.I Sem-I Paper- CH-103: Laboratory Course

By the end of this course, Students will be able to:

- Students will be able to investigate different metal salts by using inorganic qualitative analysis.
- Students are able to understand various properties of liquids i.e. surface tension, refractive index, viscosity

B.Sc. Sem-II CH – 201: Paper- I (Organic Chemistry)

By the end of this course, Students will be able to:

- Understand the concept structure and bonding in organic compounds.
- Understand the concept of stereochemistry.
- Understand different types of reaction mechanism.
- Understand alkanes, alkenes.
- Understand the aromaticity of organic compounds.

B.Sc. Sem-II CH – 202: Paper- II (Physical Chemistry)

By the end of this course, Students will be able to:

- Understand the thermodynamics of chemical reactions.
- Understand the concept of chemical kinetics.
- Understand the concept of phase equilibria.

B.Sc. Sem-II CH-203: Laboratory Course

By the end of this course, Students will be able to:

- Students will able to analyse organic compounds by organic qualitative analysis method.
- Students will able to synthesize simple molecule like benzamide and benzaldehyde.
- Students will able to use various techniques useful for analysis such as calorimetry, conductometry.

B.Sc. Sem-III CH – 301:Paper- I (Inorganic Chemistry)

By the end of this course, Students will be able to:

- Understand the concepts of molecular orbital theory.
- Understand the properties of d and f block elements.
- Understand the role of non aqueous solvents.
- Understand concepts of errors and evaluation in chemical analysis.

B.Sc. Sem-III CH-302 : Paper- II (Organic Chemistry)

By the end of this course, Students will be able to:

- Understand the structure and chemical bonding in aryl ,alkyl halides,aldehydes.
- Understand the structure and chemical bonding in alcohols and phenols..
- Understand chemical reactions of acids, alcohols, phenols etc.

B.Sc. Sem-III CH- 303: Laboratory Course

By the end of this course, Students will be able to:

- Perform volumetric analysis for the estimation of Zn, Fe and alkali content in given sample.
- Identify given organic compound by organic qualitative analysis.

B.Sc. Sem-IV CH – 401:Paper- I (Inorganic Chemistry)

By the end of this course, Students will be able to:

- Understand the properties of coordination compounds.
- Overview of orgnometallic chemistry.
- Understand the importance of essential elements in living organism.
- To understand the Concept of hard and soft acid base theory.

B.Sc. Sem-IV CH – 402:Paper- II (Physical Chemistry)

By the end of this course, Students will be able to:

- Understand second law of thermodynamics.
- Use spectroscopy for chemical analysis.
- Understand electrochemistry of reversible and irreversible cells.
- Understand the nuclear properties of atom.

B.Sc. Sem-IV CH-403: Laboratory Course

By the end of this course, Students will be able to:

- Perform gravimetric analysis of Ni, Ba.
- To estimate amount of constituents present in given solution by conductometer, potentiometer.

B.Sc. Sem-V CH- 501:Paper- I (Organic Chemistry)

By the end of this course, Students will be able to:

- Understand heterocyclic chemistry.
- Understand the theory behind the organic qualitative analysis.
- Understand the chemistry of organomagnesium and organozinc compound.

B.Sc. Sem-V CH- 502:Paper- II (Physical Chemistry)

By the end of this course, Students will be able to:

- Understand electrochemistry and its application.
- Understand molecular orbital theory.
- Understand photochemistry and Raman spectroscopy

B.Sc. Sem-V CH- 503: Laboratory Course

By the end of this course, Students will be able to:

- Perform estimation of different functional groups present in organic compound.
- Perform analysis based on viscosity, colorimetry, refractometry.

B.Sc. Sem-VI CH – 601: Paper- I (Inorganic Chemistry)

By the end of this course, Students will be able to:

- Understand metal-ligand bonding in co-ordination compounds.
- Understand electronic spectra of transition metal complexes.
- Understand separation techniques used in analysis and purification.
- Understand the importance of inorganic polymers.

B.Sc. Sem-VI CH- 602: Paper- II (Organic Chemistry)

By the end of this course, Students will be able to:

- Understand the theory behind Nuclear magnetic resonance spectroscopy.
- Understand structure and properties of biomolecules.
- Understand the importance of synthetic dyes, synthetic drugs and synthetic polymers.

B.Sc. Sem-VI CH- 603: Laboratory course

By the end of this course students will be able to

- Preparation of different inorganic complex.
- Perform organic separation of mixture.

Off. Principal
Samartha Mahavidyalaya,
Lakhani, Distt. Bhandara