

## Objectives and Course out come

B. Sc. Chemistry  
First Year (Semester-I)

In force from June - 2013

### Paper-I Organic + Inorganic Chemistry (CH-101)

**Objective:-** To acquire basic knowledge of organic chemistry such as alkanes, alkenes and dienes, alcohols etc. and nomenclature of these. The periodic table and periodic properties are also to be studied along with the chemical and physical properties of noble gases.

#### Course Outcome(s)

1. Learn how to give name for an organic compound according to IUPAC rules.
2. Know some basic concepts in organic chemistry.
3. Know the various applications of organometallics compounds.
4. Study the classification, preparation and properties of alkanes, cycloalkanes, alkenes, dienes, alkynes, alcohols and epoxides.
5. Understand the periodic table and periodic properties.
6. Study the noble gases and their compounds.

### Paper-II : CH-102 Physical + Inorganic Chemistry

**Objective:-** To understand the mathematical concepts in chemistry and SI units like logarithm, graph etc. To study the surface chemistry and states of matter as well as 's-block' element from periodic table, oxidation and reduction.

#### Course Outcome(s)

1. Learn rules of logarithm, Graphical representation of equations, derivatives and integration.
2. Know about surface chemistry.
3. Study the states of matter, gaseous and solid states, their characteristics and theories.
4. Know the general characteristics of 's-block' elements and oxidation & reduction.



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## Course Objectives and Outcomes

**B.Sc. III Year: Semester – V**

**Effective from JUNE – 2013**

**Paper – XII (A+B) (CH-301)**

**(Organic + Inorganic Chemistry)**

**Objective:-** To acquire basic knowledge about Heterocyclic Compounds, Synthetic Drugs and Dyes, Alkaloids, Vitamins, Pesticides, Co-ordination Chemistry and HSAB concept.

### Course Outcome(s)

1. Learn the mechanism of Electrophilic Substitution reaction of Heterocyclic Compounds
2. Know the characteristics, Classification and synthesis of Drugs and Dyes
3. Explaining theories of Color and chemical constitution of Dyes
4. Gathering basic knowledge of Alkaloids, Vitamins and Pesticides
5. Understand the basic principle and application of coordination complexes
6. Know the principle and applications of hard and soft acids and bases (HSAB).

**Paper – XIII (A+B) (CH-302)**

**Physical & Inorganic Chemistry**

**Objective:-** To enable the students to acquire basic knowledge in Spectroscopy, Chemical Kinetics, Distribution law, Organometallic Compounds and Metal Carbonyls.

### Course Outcome(s)

1. Understand the concepts of molecular Spectroscopy and its applications
2. Analyze Rotational, Vibrational and Raman, Spectra
3. Interpret the theoretical and experimental methods of chemical kinetics
4. Know the theory and application of Distribution law
5. Explain the Nomenclature, classification and application of Organometallic Compounds
6. Illustrate the classification and application of Metal Carbonyls



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## Course Objectives and Outcome

### B. Sc. Second Year: Semester-III

Effective from June 2014

#### Paper-VI, (Section A + B) [CH-201]

#### Organic & Inorganic Chemistry

**Objective:-** To acquire basic knowledge about different name reactions with their mechanism, various aromatic acids, soaps and detergents. Also to get familiar with organometallics compounds, some non aqueous solvents and inorganic qualitative analysis

#### Course Outcome(s)

1. Learn the mechanism of different name reactions in organic synthesis.
2. Know the characteristics, Classification and synthesis and properties of various aromatic acids.
3. Know the various applications of organometallics compounds.
4. Gathering basic knowledge of oils, fats, soaps and detergents.
5. Understand the basic principle inorganic qualitative analysis.
6. Gets knowledge about the non aqueous solvents.

#### Paper-VII, (Section A + B) [CH-202]

#### Physical & Inorganic Chemistry

**Objective:-** To acquire basic knowledge of atomic structure, wave mechanics, thermodynamic & entropy. Also to get familiar with the phase equilibrium, nuclear chemistry and gravimetric analysis.

#### Course Outcome(s)

1. Understand the atomic structure and wave mechanics.
2. Gets familiar with first law of thermodynamics, carnot's cycle and concept of entropy.
3. Know the various phase equilibrium and phase diagrams and critical solution temperatures.
4. Gathering basic knowledge of nuclear chemistry, the composition of nucleus and the nuclear reactions.
5. Understand in detail the theory behind gravimetric analysis.

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## Objectives and Course out come

**B. Sc. Chemistry**  
**First Year (Semester-I) CBCS**

**In force from June - 2016**

### **Paper-I Organic + Inorganic Chemistry (CCC-I, Section –A)**

**Objective:-** To acquire basic knowledge basic knowledge of organic chemistry such as alkanes, alkenes and dienes, alcohols etc. and nomenclature of these. The periodic table and periodic properties are also to be studied.

#### **Course Outcome(s)**


1. Learn how to give name for an organic compound according to IUPAC rules.
2. Know some basic concepts in organic chemistry.
3. Know the various applications of organometallics compounds.
4. Study the classification, preparation and properties of alkanes, cycloalkanes, alkenes, dienes, alkynes, alcohols and epoxides.
5. Understand the periodic table and periodic properties.

### **Paper-II: (CCC-I, Section-B)** **Physical + Inorganic Chemistry**

**Objective:-** To understand the mathematical concepts in chemistry and SI units like logarithm, graph etc. To study the surface chemistry and states of matter.

#### **Course Outcome(s)**

1. Learn rules of logarithm, Graphical representation of equations, derivatives and integration.
2. Know about surface chemistry.
3. Study the states of matter, gaseous and solid states, their characteristics and theories.
4. Know the general characteristics of 's-block' elements and oxidation & reduction.

  
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**Semester-II**  
**Paper-III [CCC-II, Section-A]**  
**Organic + Inorganic Chemistry**

**Objective:** - To study the preparation, classification and reactions of aromatic hydrocarbons, phenols, haloalkanes & haloarenes organic acids, anhydrides, ester, amides etc. To study the inorganic acids and bases and 'p-block' element.

**Course Outcome(s)**

1. Understand in details the preparation, classification and reactions of aromatic hydrocarbons, phenols, haloalkanes & haloarenes organic acids, anhydrides, ester, amides etc.
2. Know about the periodic properties of 'p-block' elements.
3. Study the theories of acids and bases and applications of these theories.

**Paper-IV; (CCC-II, Section B)**  
**Physical + Inorganic Chemistry**

**Objective:** - To study the basic of atomic structure, the liquid states of matter and colloidal state and introduce the catalysis. To study in detail about the chemical bonding.

**Course Outcome(s)**

1. Understand in details the structure of atom along with bohr's theory and electronic configuration of atom.
2. Study in detail the properties of liquid like surface tension, viscosity etc.
3. Understand the colloidal systems, preparation and properties of sols, emulsions and gels.
4. Get knowledge of catalysis, their types and applications in industry as well as in biological systems.
5. Acquire knowledge of chemical bonding in detail with theories of bonding



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## Course Objectives and Outcome

### B. Sc. Second Year: Semester-III

Effective from June 2017

#### Paper-VI, (CCC-III, Section A)

#### Organic & Inorganic Chemistry

**Objective:-** To acquire basic knowledge about different name reactions with their mechanism, various aromatic acids, soaps and detergents. Also to get familiar with organometallics compounds, some non aqueous solvents and inorganic qualitative analysis

#### Course Outcome(s)

1. Learn the mechanism of different name reactions in organic synthesis.
2. Know the characteristics, Classification and synthesis and properties of various aromatic acids.
3. Know the various applications of organometallics compounds.
4. Gathering basic knowledge of oils, fats, soaps and detergents.
5. Understand the basic principle inorganic qualitative analysis.
6. Gets knowledge about the non aqueous solvents.

#### Paper-VII, (CCC III, Section B)

#### Physical & Inorganic Chemistry

**Objective:-** To acquire basic knowledge of atomic structure, wave mechanics, thermodynamic & entropy. Also to get familiar with the phase equilibrium, nuclear chemistry and gravimetric analysis.

#### Course Outcome(s)

1. Understand the atomic structure and wave mechanics.
2. Gets familiar with first law of thermodynamics, carnot's cycle and concept of entropy.
3. Know the various phase equilibrium and phase diagrams and critical solution temperatures.
4. Gathering basic knowledge of nuclear chemistry, the composition of nucleus and the nuclear reactions.
5. Understand in detail the theory behind gravimetric analysis.



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**B. Sc. Second Year: Semester-IV**  
**Paper-VIII, (CCC IV, Section A)**  
**Organic & Inorganic Chemistry**

**Objective:-** To understand the stereochemistry, of organic compounds. To study all details about carbohydrates and nitrogen containing organic compounds. To study the applications of some reagents in organic synthesis. Also to study transition and inner transition elements in details.

**Course Outcome(s)**

1. Understand the stereochemistry of organic compounds
2. Know the process of synthesis, structure and chemical properties of carbohydrates.
3. Know the various organic compounds which contain nitrogen
4. Get idea about the organic synthesis and some common reagents used in organic synthesis.
5. Understand in detail transition and inner transition elements of the periodic table.

**Paper-IX, (CCC IV, SectionB)**  
**Physical & Inorganic Chemistry**

**Objective:-** To study the kinetics of chemical reactions. To study the theory and various applications of electrochemistry and photochemistry. To study the chemical and physical properties of non transition elements from periodic table.

**Course Outcome(s)**

1. Understand the rate of reaction and order of reaction.
2. Know the process photochemical reactions.
3. Know the various applications of electrochemistry.
4. Get idea about the physical and chemical properties of non transition elements.

  
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### **Skill Enhancement Course SECC-I (A)**

**Objective:-** To understand the methods of food processing and detection of adulterations in food

#### **Course Outcome(s)**


1. Get familiar with some common methods of food processing.
2. Understand the basic principle and methods of food preservation.
3. Learn the methods for testing food adulterations?

### **Skill Enhancement Course SECC-II (B)**

**Objective:-** To study in details about the volumetric analysis.

#### **Course Outcome(s)**

1. Know how to express the concentration of solution.
2. Acquire skill of dilution technique, preparation of solutions etc.

  
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