

# **SIR C R REDDY COLLEGE**

*Affiliated to Adikavi Nannaya University, Rajamahendravaram*



**2016-2017**

**14-07-2016**

**MINUTES OF BOARD OF STUDIES MEETING**

**DEPARTMENT OF CHEMISTRY**

**SIR C R REDDY COLLEGE ELURU -AP- 534007**

CO1:To gain knowledge about preparation, structure and applications of compounds formed by the P block elements.

CO2:To gain knowledge about preparation and reactivity of Grignard reagent and it's activities in reactions

CO3:To gain knowledge about basic organic chemistry definitions and types of reactions

CO4:To understand about classification and preparation of acyclic and alicyclic hydrocarbons

CO5:To gain knowledge about preparation , structure, reactivity of benzene and Aromaticity of benzene.

### **Programme specific outcomes :**

#### **PSO-1 : Chemistry of p – block elements**

To gain knowledge about the diborane , borazine, silicones, phosphonitrilic halides, oxides and oxyacids of sulphur , pseudo halogens and interhalogen compounds.

#### **PSO-2 :OrganometallicChemistry**

To gain knowledge about preparation and reactivity of Grignard reagent and it's activities in reactions

#### **PSO-3 :Structural theory in Organic Chemistry**

To gain knowledge about basic organic chemistry definitions and types of reactions

#### **PSO-4 Acyclic Hydrocarbons &Alicyclic hydrocarbons(CycloAlkanes**

To gain knowledge about basic organic chemistry definitions and types of reactions

**PSO-5 :Benzene and its reactivity::** To gain knowledge To gain knowledge about preparation , structure, reactivity of benzene and Aromaticity of benzene.

w.e.f.:2016-17admittedBatch



**SIRC.R.REDDY COLLEGE,ELURU**  
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I Year **B.Sc. - II Semester** *Syllabus*

Subject:**CHEMISTRY**

Paper II :**Physical&General chemistry**

- CO1:** To understand about properties of solids and characters of solids  
**CO2:** To understand about the properties of liquids and gases  
**CO3:** To gain knowledge about Basic definitions and azeotropic mixtures, CST systems  
**CO4:** To gain knowledge about Colloidal solutions, Emulsions and Adsorptions.  
**CO5:** To gain knowledge about formation of bonds and Bonding theories. To gain knowledge about Isomerism of Carbon compounds and stereo Chemistry of carbon compounds.

**Programme specific outcomes :**

**Recapitulation of Basics of Organic chemistry:**

**PSO-1 :solid state**

To understand about properties of solids and characters of solids

**PSO-2 :gaseous state & liquid state**

To understand about the properties of liquids and gases

**PSO-3 :solution**

To gain knowledge about Basic definitions and azeotropic mixtures, CST systems

**PSO-4 :surface chemistry:**

To gain knowledge about Colloidal solutions, Emulsions and Adsorptions.

**PSO-5 :Stereochemistry of carbon compounds:**

To gain knowledge about formation of bonds and Bonding theories. To gain knowledge about Isomerism of Carbon compounds and stereo Chemistry of carbon compounds

**SIR C R REDDY COLLEGE ,ELURU**  
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**I Year B.Sc. (II Semester) Model Paper**  
 Subject: **CHEMISTRY**  
 PAPER – II PHYSICAL & GENERAL CHEMISTRY

**Time:3Hrs**  
**Marks:75**

**Maximum**

**Pass Minimum:**  
**26**

**LABORATORY COURSE –II**  
**30 hrs (2h/ w)**  
**Practical-II Mixture Analysis**  
**(At the end of semester-II)**

**Course outcomes :**

At the end of the Course, the student will be able to ;

- CO-1 :** Understand the basic concepts of d-block and f-block elements.  
**CO-2 :** Understand the Theories of bonding in metals and Structures of Metal Carbonyls.  
**CO-3 :** Understand preparation, properties and reactions of halo alkanes, halo arenes and oxygen containing functional groups.  
**CO-4 :** Use the Synthetic chemistry learnt in this course to do functional transformations.  
**CO-5 :** To propose possible mechanism for any relevant reactions.



**Programme specific outcomes :**

**PSO-1: Chemistry of d-block elements**

To gain knowledge about characteristic properties of d-block elements.

**PSO-2: Chemistry of f-block elements**

To gain knowledge about Lanthanides and Actinides.

**PSO-3: Theories of bonding in metals**

To gain knowledge about Theories of Metals like Free Electron theory, VBT, MO.

**PSO-4: Metal Carbonyls**

To gain knowledge about Preparation and structures of some metal carbonyls.

**PSO-5: Halogen Compounds**

To gain knowledge about  $SN_1$  and  $SN_2$  reactions.

**PSO-6: Hydroxy Compounds**

To gain knowledge about preparation and properties of alcohols and phenols.

**PSO-7: Carbonyl Compounds**

To gain knowledge about preparation and properties of aldehydes and ketones.

**PSO-8: Carboxylic acids and its derivatives**

To gain knowledge about acid derivatives

**PSO-9: Active Methylene Compounds**

To gain knowledge about synthesis and reactivity of acetoacetic ester and malonic ester.

**SIR C R REDDY COLLEGE, ELURU**  
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**II BSC- III Semester: subject: Chemistry**  
**Paper-III: Inorganic and Organic Chemistry**  
*w.e.f. 2015-16 Admitted batch(CBCS)Pattern*  
**SIR C R REDDY COLLEGE, ELURU**  
**II Year B.Sc. (IV Semester) Syllabus**  
Subject: **CHEMISTRY**  
**Paper-IV:SPECTROSCOPY AND PHYSICAL CHEMISTRY**  
**60 hrs (4 h / w)**

**Course outcomes :**

At the end of the Course, the student will be able to ;

**CO-1 :** Understand the basic concepts of Absorption spectroscopy, electronic spectroscopy, IR Spectroscopy, H-NMR spectroscopy.

**CO-2 :** Understand the basic concepts of Dilute solutions and Electro chemistry

**Programme specific outcomes :**

**PSO-1 :General features of absorption spectroscopy:**

To gain knowledge about Beers Lamberts Law ,Transmittance, Absorbance, single and Double Beam spectrophotometer and applications of beers lamberts law

**PSO-2 :Electronic Spectroscopy:**

To gain knowledge about energy levels of molecular orbitals and types of electronic transitions and concepts of chromophores and auxochromes

**PSO-3 : IR Spectroscopy**

To gain knowledge about Modes of vibrations in di atomic and poly atomic molecules and characteristics of absorption bands of different functional groups.

**PSO-4 : Proton Magnetic resonance spectroscopy:**

To gain knowledge about Principles of NMR, chemical shift, Spin-spin coupling and Applications of NMR.

**PSO-5 : Dilute solutions :**

Colligative Properties, Roults Law, Experimental determination methods of RLVP, elevation of boiling point ,depression in freezing point. Osmotic pressure

**PSO-6 : Electrochemistry-I**

To gain knowledge about Kohlrausch Law, Arrhenius theory, Ostwalds dilution law, Debye-Huckel-on sagars equation, Definition of Transport number and Determination of Hittorfs method.

**PSO-7 : Electrochemistry-II**

To gain knowledge about , Nernst equation, SHE, Calomel electrode, Applications of EMF Measurements

**PSO-8 : Phase rule:**

To gain knowledge about one component system, two component system, freezing mixtures

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**II B.Sc – CHMISTRY – SEMESTER-IV**

***PAPER – IV : SPECTROSCOPY & PHYSICAL CHEMISTRY***

**Course outcomes :**

At the end of the Course, the student will be able to ;

**CO-1 :** Understand the basic concepts Coordination Compounds, Spectral and Magnetic properties and Stability of Complexes.

**CO-2 :** Understand the preparation and properties of Amino acids and basic knowledge on Proteins.

**CO-3 :** Understand preparation, Structure and Conversions of Glucose and Fructose.

**CO-4 :** Understand the Laws and properties of Thermodynamics.

**Programme specific outcomes :**

**PSO -1: Co-ordination Chemistry**

To gain knowledge about theories of complex compounds.

**PSO -2: Spectral and Magnetic properties of Metal Complexes**

To gain knowledge about magnetic behaviour of complexes.

**PSO-3: Stability of Metal Complexes**

To gain knowledge about stability of complexes.

**PSO-4: Carbohydrates** To gain knowledge about preparation, structure, conversions of Glucose and Fructose.

**PSO-5: Amino acids and Proteins**

To gain knowledge about preparation and properties of Amino acids.

**PSO-6: Thermodynamics**

To gain knowledge about Thermodynamic properties



# SIR C R REDDY COLLEGE, ELURU

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III BSC - V Semester: subject: Chemistry

Paper: V:Inorganic, Organic & Physical Chemistry

Blue print

1.

## Course outcomes :

At the end of the Course, the student will be able to ;

**CO-1** :Understand the preparation and properties of Nitro Hydro Carbons and Amines.

**CO-2** :Understand the preparation , properties and reactivity of Hetero Cyclic Compounds.

**CO-3** :Understand the Laws of Absorption of Light energy by molecules and the subsequent photo chemical reactions. And also understand the concept of Quantum efficiency and mechanism of Photo chemical reactions.

**CO-4** :Understand the Rate of reactions .

**CO-5** :Understand the Biological significance of some elements.

## Programme specific outcomes :

### PSO -1: Nitro Hydro Carbons

To gain knowledge about preparation and properties of Nitro compounds.

### PSO -2: Nitrogen Compounds

To gain knowledge about preparation and properties of amines.

### PSO-3: Heterocyclic Compounds

To gain knowledge about preparation and properties of Heterocyclic Compounds.

### PSO-4: Reactivity of Metal Complexes

To gain knowledge about  $SN_1$  and  $SN_2$  reactions of metal complexes.

### PSO-5: Bio-inorganic Chemistry

To gain knowledge about biological significance of some elements.

### PSO-6: Chemical Kinetics

To gain knowledge about rate of the reaction, zero, first, second order reactions.

### PSO-6: Photochemistry

To gain knowledge about the photochemical laws.

**SIR C R REDDY COLLEGE, ELURU**  
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**IIIBSC- V Semester: subject: Chemistry**

**Paper: VI:Inorganic, Organic & Physical Chemistry**

**Blue print**

**Course Outcomes:**

At the end of the course, the students will be able to;

**CO-1 :** Understand the basic concepts of environmental chemistry, scope and importance of environment in now a days .

**CO-2 :** Understand the basic concepts of air pollution-sources of air pollution -controlling methods of air pollution.

**CO-3 :** Understand the basic concepts of water quality and criteria for finding of water quality-methods to convert temporary hard water into soft water, methods to convert permanent hard water into soft water.

**CO-4 :** Understand the basic concepts of toxic chemicals in the environment –effects of toxic chemicals.

**CO-5 :** Understand the basic concepts of Eco system functions and types of Eco system.

**Programme specific Outcomes:**

**PSO-1 : INTRODUCTION-CONCEPT OF ENVIRONMENT CHEMISTRY:**

To gain knowledge about scope and importance of environment in now a days

**PSO-2 : AIR POLLUTION:**

To gain knowledge about air pollution-sources of air pollution –controlling methods of air pollution.

**PSO-3 : WATER POLLUTION:**

To gain knowledge about water quality and criteria for finding of water quality-methods to convert temporary hard water into soft water, methods to convert permanent hard water into soft water.

**PSO-4 : CHEMICAL TOXICOLOGY:**

To gain knowledge about toxic chemicals in the environment –effects of toxic chemicals.

**PSO-5 : ECO SYSTEM,SOLID WASTE MANAGEMENT& DISASTER MANAGEMENT:**

To gain knowledge about functions and types of Eco system, solid waste management, Disaster management.

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**Course Outcomes:**

At the end of the course, the students will be able to;

**CO-1 :** Understand the basic concepts of various industrial applications, compositions and uses of coal tar in metallurgy.

**CO-2 :** Understand the basic concepts of types of petroleum products and refining techniques.

**CO-3 :** Understand the basic concepts of LPC, CNG, LNG biogas fuels derived from biomass

**CO-4 :** Understand the basic concepts of solid and semi solid lubricants, viscosity index ,cloud point, pour point and their determinations.

**CO-5 :** Understand the basic concepts of battery components and their rolls, characteristics of batteries.

**Programme specific Outcomes:**

**PSO' -1 :Review of energy sources(renewable and non-renewable):**

To gain knowledge about the basic concepts of various industrial applications, composition and uses of coal tar in metallurgy.

**PSO' -2 :Petroleum and petro chemical industry:**

To gain knowledge about Understand the basic concepts of types of petroleum products and refining techniques

**PSO' -3 :Fractional distillation, Petroleum and Non-Petroleum Fuels:**

To gain knowledge about the LPC,CNG, LNG biogas fuels derived from biomass

**PSO' -4 :Lubricants:**

To gain knowledge about the solid and semi solid lubricants, viscosity index ,cloud point, pour point and their determinations.

**PSO' -5 :Batteries:**

To gain knowledge about the battery components and their rolls, characteristics of batteries

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### **III B.Sc – CHMISTRY – SEMESTER-VI**

#### **Paper-VIII-B-1: Fuel Chemistry and Batteries**

#### **Course Outcomes:**

At the end of the course, the students will be able to;

**CO-1** : Understand the basic concepts of Electronic configuration, atomic size , ionisation enthalpy ,diagonal relationship

**CO-2** : Understand the basic concepts of composition and properties of glasses and manufacture of cement.

**CO-3** : Understand the basic concepts of super phosphate of lime, compound and mixed fertilizers

**CO-4** : Understand the basic concepts of polymer application, industrial applications and preparation, uses of PVC, nylon

**CO-5** : Understand the basic concepts of composition of different types of alloys ,stainless steels, tool steel uses. Rocket

#### **Programme specific Outcomes:**

##### **PSO-1 : Recapitulation of s- and p-Block Elements:**

To gain knowledge on Electronic configuration, atomic size, ionisation enthalpy ,diagonal relationship

##### **PSO-2 : Silicate industries:**

To gain knowledge about the composition and properties of glasses and manufacture of cement.

##### **PSO-3 :Fertilizers:**

To gain knowledge on of composition of different types of alloys ,stainless steels, tool steel uses. rocket

##### **PSO-4 :Surface Coatings:**

To gain knowledge on of polymer application, industrial applications and preparation, uses of PVC, nylon

##### **PSO-5 : Alloys:**

To gain knowledge on composition and properties of glasses and manufacture of copellents.

**III B.Sc – CHMISTRY – SEMESTER-VI**

***PAPER – VIII-B-2 : INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE***

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**Course Outcomes:**

At the end of the course, the students will be able to;

**CO-1** :Understand the basic concepts of constituents of soaps and paints and analysis of soaps and paints

**CO-2** :Understand the basic concepts of constituents oils and fertilizers and analysis of oils and fertilizers.

**CO-3** :Understand the basic concepts of mixture of gases present in fuel gases and coal gas and their analysis

**CO-4** :Understand the basic concepts of different separation techniques of solvent extraction

**CO-5** :Understand the basic concepts of separation techniques of column and chromatography ,Thin layer chromatography, And HPLC ,Applications of these techniques in different industries.

**Programme specific Outcomes:**

**PSO-1 :Analysis of soaps :**

To gain knowledge about the constituents of soaps and paints and analysis of soaps and paints

**PSO- 2 :Analysis of oils :**

To gain knowledge about the constituents oils and fertilizers and analysis of oils and fertilizers.

**PSO- 3 :Analysis of Fertilizers:**

To gain knowledge about the mixture of gases present in fuel gases and coal gas and their analysis

**PSO-4 :Gas analysis :**

To gain knowledge about the different separation techniques of solvent extraction

**PSO-5 :Separation techniques:**

To gain knowledge about separation techniques of column and chromatography, Thin layer chromatography, And HPLC. Applications of these techniques in different industries

