GOVERNMENT DEGREE COLLEGE ,KODUR

Department of Chemistry

Course Outcomes-2018-2019

Semester 1 Inorganic & Organic Chemistry

On completion this course students will be able to

CO1: Understand the basics of general characteristics of P block elements
CO2: have Special emphasis on preparation and properties of Diborane,Silicones,Ammonia.
CO3: familiarize carbo cations,carbo anions,free radicals
CO4: understand preparation and stability of ali cyclic hydrocarbons and benzene.

Semester 2 Physical & General Chemistry

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

CO1: learn modern concepts like deviation from ideal gas equation,vander waal equation
CO2: understand liquid crystals and their applications
CO3: have knowledge on adsorption,colloids,emulsions.

Semester 3 Inorganic and Organic Chemistry

The objective of the course is to create general understanding on basic concepts in transition elements and halogen, hydroxyl and carbonyl compounds. At the end of the course, students

CO1: learn metallic bonds, metal carbonyls and their stability
CO2: have a clear picture on alcohols,chloroform, aldehydes and ketones.

Semester 4 Spectroscopy and Physical chemistry

At the end of the course, students will be able to understand basics of spectroscopy and electrochemistry

CO1: In spectroscopy fundamentals of Infra red and NMR spectroscopy will be explained

CO2.: In electrochemistry, conductance, equivalent conductance and transport number will be enlightened

Semester 5 Inorganic, Organic and Physical chemistry

In this semester students will be enlightened three basic concepts, complexes in inorganic, nitrogen compounds of organic chemistry and thermo dynamics of physical chemistry. Students will be able to

CO1: understand theories on complexes and their stability and magnetic properties.
CO2: learn preparation and properties of aliphatic and aromatic nitrogen compounds.
CO3:acquaint 1^{st} 2^{nd} and 3^{rd} laws of thermodynamics.

Semester 5 Inorganic, Organic and Physical chemistry

The objectives of this course is to enlighten the students on chemical kinetics, photo chemistry,and carbohydrates,amino acids,proteins. Upon successful completion of the course, students will

CO1: know molecular collision theory and order, molecularity.
.
CO2: Acquaint photochemical reactions,luminescence,phosphorescence.
.
CO3: Know inter conversion of different carbohydrates and preparation of proteins

Semester 6 Analytical Methods (Elective)

On completion of this course, students will be able to

CO1: learn quantitative techniques like iodimetry and complexometry
CO2: study paper chromatography, thin layer chromatography and column chromatography.

Semester 6 Polymer chemistry (Elective Cluster)

The objective of the course is to create complete understanding of polymerization..On completion of this course, Students will be able to

CO1.learn types of polymers, techniques of polymerizations.
CO2:understand fillers,plastcisers, softners and lubricants.
CO3:aquiant the applications of polymers,

Semester 6 Instrumental methods of Analysis (Elective Cluster)

The objective of this course is to create awareness in students about the operation of different instruments used in analysis. This course enables the students to

CO1: operate instruments used in infrared, NMR and mass spectroscopy.
CO2: understand separation techniques in gas and liquid chromatography.

Semester 6 Analysis of Drugs, Foods, and Dairy Products (Elective Cluster)

The goal of the course is to feed understand in students about analysis of analgesics, anti pyretics, epilecptics and milk and blood. The students will be able to

CO 1: analyze aspirine and paracetamol, anti histamines like allegra,and cardiovasculars like atenlol
C**O** 2: analyze fat and casein in milk
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GOVT. DEGREE COLLEGE, KODUR

DEPARTMENT OF CHEMISTRY

Course outcomes of chemistry---2018-19

The list of course learning outcomes are

- Course-1...Inorganic & Organic Chemistry---P-Block,organo metallic compounds,Structural theory in Organic chemistry,alicyclic compounds, and aromatic compounds.
- **Course Outcome-I**—These concepts enlighten the students, about preparation of compounds of the elements present in p-block of periodic table. In organo metallic compounds student learns applications of Grignard reagent, and types of bond fissions, electronic displacement effects and preparation, stability of aliphatic cyclic compounds in organic chemistry.
- Course-II..Physical Chemistry—Solid ,liquid, gaseous states, Solutions—Organic chemistry—Stereo chemistry--
- **Course Outcome-II** –This course throws light the properties of solids, liquids, gasas and stereo chemistry deals molecular representation like Wedge,Fischer,Newman,Saw –horse formulae and Chiral centres D,L configurations
- Course—III—Inorganic and Organic chemistry—d-block,f-block,metals and metal carbonyls.Organic chemistry—Halogen compounds,Alcohols,carbonyl compounds.
- **Course Outcome-III-**This course gives knowledge on properties of d, f, block elements like lanthanide contraction and types of halogen compounds, alcohols their properties. An elaborative explanation was given on the properties of aldehydes,ketones.

- Course—IV--Spectroscopy and Physical chemistry- Electronic,IR,NMR spectroscopy, and dilue solutions,phase rule, Electrochemistry-I & IICourse Outcome-IV---Students will be enlightened the characteristics of electronic spectra,Infra red spectra, Nuclear Magnetic Spectra which is useful in spectral data analysis. In electro chemistry, students will be enlightened on the types of electrochemical cells ,designing of cells.
- **Course-V—**Inorganic, Organic and Physical chemistry-coordination compounds, their stability, magnetic properties. Nitro compounds and thermodynamics.Course outcome-V—This course illuminates on theories of complexes, the factors influence their stability, and magnetic properties and in thermodynamics 1^{st} .2^{nd} laws , Kirchoff equation and carnot cycle.
- Course-VI—Inorganic,Organic, and Physical chemistry—Bio inorganics,Hetero cuclics,carbohydrates,Photochemistr and kinetics.Course outcomes—VI—This course acquaints the students on why some reactions are fast and some reactions are slow,metals in haemoglobin,chlorophyll, structural analysis of glucose and fructose and types photo chemical reactions.
- **Course-VII—ELECTIVE-Analytical methods in chemistry—Qualitative analysis--Separation techniques and chromatography Course outcome—VII—**The course uplifts the students **in solvent extraction and quantitative techniques like TLC,Gas chromatography,HPLC.**
- **Course-VIII—ELECTIVE-- Environmental chemistry—water pollution—air pollution—eco system-bio diversity.Course outcome—**VIII—This civilises the students about the different types of air, water pollutants and how to free from them.

- **Course—IX--Elective—Green Chemistry—selection of solvents and green synthesis—green catalysis**
- **Course outcome-IX—**This course guides about the 12 laws of green chemistry, and minimum use of chemicals and bio catalysts in reactions.
- **Course-X-CLUSTER**—Elactive---Polymer Chemistry—preparation of different polymers like polythene,bakelite etc—polymerisation techniques--
- **Course Outcome--X**—Students will be apprised on types of polymers, methods of preparations, and applications of polymers

- **Course-XI—Analysis of Drugs, analysis of foods and dairy products.**
- **Course outcome-XI—The** Student understands different analytical techniques **of** cardiovascular drugs ,milk and milk products, clinical analysis of blood.
- **Course-XII—CLUSTER Elective—II----- Fuel chemistry and batteries**
- **Course outcome-XII—**This course catechizes different energy sources**,**perto chemicals, non petroleum fuels like LPG,CNG
- Course XIII—Inorganic materials of industrial importance—Silicates—fertilisers- surface coatings---explosives--
- **Course outcome—XIII---**This course brightens the student by explaining preparations of industrial products like glass, ceramics and cement.
- **Course-XIV-**Analysis applied industrial products—Analysis of soaps-fertilisers-gas analysis-
- **Course outcome-XIV-** This course emphasises on the knowledge of quality of soaps,analysis of gases like CO_2 etc—fertilizers like urea
- **Course-XV--CLUSTER-ELECTIVE—III –Organic spectroscopic techniques—**NMR spectroscopy—UV/Visible spectroscopy—Electron spin resonance spectroscopy—
- Course outcome-XV—The outcome of this course is to increase the brain power of student in analysing NMR data, UV,Visible spectroscopy data to identify the unknown compound.
- **Course-XVI--CLUSTER-ELECTIVE –III-Advanced Organic Reactions—** organic photochemistry—New Synthetic reactions—
- Course outcome—XVI—This concept will switch on the innovative modern methods of preparation of different organic substances.
- **Course-XVII--CLUSTER-ELECTIVE –III—Pharmaceutical and medicinal chemistry—**chemotherapeutic drugs—anti biotics—HIV—AIDS

- **Course outcome—XVII-**This medicinal chemistry educates the students about different chemotherapeutic drugs, their effects and side effects and cautions HIV which leads to AIDS, and the treatment.

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DEPARTMENT OF CHEMISTRY

Programme Specific Outcomes of U G Chemistry----2018-2019

All of these programs are designed to introduce the students to modern laboratory methods and principles using state-of-the-art scientific equipment. These undergraduate students are exposed to applied laboratory techniques, critical thinking, independent and team learning, and are provided with research opportunities. The faculty is committed to providing an environment that addresses the individual needs of each student and encourages them to develop their potential.

PLO1. **Theory and Knowledge**: Upon completion of the organic chemistry sequence, chemistry majors are able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity.

PLO2. **Laboratory Skills**: Upon completion of a degree, chemistry majors are able to employ critical thinking and scientific inquiry in the performance, design, interpretation and documentation of laboratory experiments, at a level suitable to succeed at an entry-level position in chemical industry or a chemistry graduate program.

PLO3**. Quantitative Skills**: Upon completion of a chemistry degree, chemistry majors are able to interpret and analyze quantitative data.

PLO4. Instrumentation: Upon completion of a BS in Chemistry degree, students are able to understand theoretical concepts of instruments that are commonly used in most chemistry fields as well as interpret and use data generated in instrumental chemical analyses.

PLO5. Biochemistry: Upon completion of a chemistry degree with a biochemistry concentration, students will recognize and apply key principles of biochemistry.

program outcomes of chemistry

The list of course learning outcomes are

- Inorganic chemistry---a. Periodic table b. Groups from I_A to O and d block and f-block elements.complexes,soft and hard acids and bases.
- Outcome- The student will acquaint with the preparation of Industrial important chemicals.
- Organic Chemistry—a. Structural analysis. Types of reactions- Electronic displacement effects. b. Alkanes, Alkenes, Alkynes, cyclo alkanes. C.Aromatic hydrocarbons. D. Alcohols,Phenols,Aldehydes,Ketones,Carboxylic acids and their derivatives, e. Compounds with active methylene group.f.spectral analysis of IR,NMR,Raman.
- Outcome--Students can be accommodated in jobs related to ANALYTICAL LABS.
- Drugs.—a.classification. b. Anti malarials c. Anti biotics d. Analgesics and anti pyretics.
- Outcome—Students can get placement in pharmaceuticals and R&D centres.
- Macro molecules—preparation of different polymers like POLYTHENE,BAKELITE etc—
- Outcome—Students will have added advantage IN GETTING PLACEMENT IN POLYMER INDUSTRIES.

- Physical Chemistry---a.Gaseous state.liquid state, solid state. B. Colloids,emulsions c. solutions. d. phase rule, e. kinetics, f. Thermodynamics g. Photo chemistry.
- General chemistry—a.Atomic structure b. Chemical bond. C. Qualitative and Quantitative analysis.
- Outcome--Students can understand the basic principles and can explain to others.