

**DANTULURI NARAYA RAJU COLLEGE (AUTOMOUS):: BHIMAVARAM,  
WG.Dist.A.P**

**(A COLLEGE WITH POTENTIAL FOR EXCELLENCE)**

**P.G. DEPARTMENT OF CHEMISTRY**

**M.SC ANALYTICAL CHEMISTRY COURSE OUTCOMES**

S. NO	SEMESTER	COURSE CODE	TITLE OF THE COURSE	COURSE OUTCOMES
1	I	12201	GENERAL CHEMISTRY-I	To learn about the Hermitian operator, wave mechanics of simple systems with variable potential energy, rotational spectra of diatomic molecules and rotational and vibrational raman spectra of molecules.
		12202	INORGANIC CHEMISTRY-I	To know the structure and bonding in molecules, crystal field theory to understand the magnetic properties of coordination compounds.
		12203	ORGANIC CHEMISTRY-I	To learn concept of stereo chemistry, aliphatic nucleophilic, electrophilic substitution reactions and aromaticity.
		12204	PHYSICAL CHEMISTRY-I	To learn concept of thermodynamics, polymers, chemical kinetics of different reactions and photochemical reactions.
		12205P	INORGANIC CHEMISTRY LAB-I	To know the qualitative analysis of cations and anions.
		12206P	ORGANIC CHEMISTRY LAB-I	To learn the how to prepare the organic compounds with single step analysis.
		12207P	PHYSICAL CHEMISTRY LAB-I	To know the principle and mechanism of conductometric and potentiometric titrations, CST.
2	II	22201	GENERAL CHEMISTRY-I	To learn about concept of hartee-fock self consistent field methods, valence bond approach in hydrogen molecules, basic concepts of symmetry and group theory and computer programming.
		22202	INORGANIC CHEMISTRY-I	To learn about the structure and bonding applications of VSEPR theory, structure of metallocarboranes, crystal field theory of coordination compounds, term symbols, electronic spectra of transition metal complexes.
		22203	ORGANIC CHEMISTRY-I	To know about the aliphatic, aromatic nucleophilic substitution reactions, elimination reactions, named reactions and rearrangements, spectroscopy, protecting groups.
		22204	PHYSICAL CHEMISTRY-I	To learn physical methods of molecular structural elucidation, thermodynamics, statistical thermodynamics, electro chemistry
		22205P	INORGANIC CHEMISTRY LAB-II	To know the quantitative analysis in volumetric and gravimetric analysis.
		22206P	ORGANIC CHEMISTRY LAB-II	To learn about the distinguish between two organic compounds.
		22207P	PHYSICAL CHEMISTRY LAB-II	Know the principle and mechanism of conductometric and potentiometric titrations, PH metry, colorimetry and equilibrium constant.
		32201	SEPARATION	To learn about theory and instruments like column

3	III		METHODS-I	chromatography, GC, HPLC, GC-MS and LC-MS
		32202	QUALITY CONTROL AND TRADITIONAL METHODS OF ANALYSIS-I	To learn about of concepts of error, standard deviations, oxidants, functional group determinations and rules of quality control methods
		32203	APPLIED ANALYSIS-I	To know about the volumetric and gravimetric analysis of cations and anions in ores and alloys
		32204	INSTRUMENTAL METHODS OF ANALYSIS-I	To learn the basic theory of Beer Lambert's law - limitations of law and learn about theory and instrumentation of UV-visible, IR, RAMAN , NMR AND MASS Spectroscopy.
		32205P	CLASSICAL METHODS OF ANALYSIS-I	To know about the quantitative analysis of ions present in unknown solutions by differen volumetric titrations.
		32206P	INSTRUMENTAL METHODS OF ANALYSIS-I	To learn the concept of theory and instrumentation of paper, thinlayer , ion exchange chromatography and importance of analytical methods.
4	IV	42201	SEPARATION METHODS-II	To learn the concept of theory and instrumentation of paper, thinlayer , ion exchange chromatography and importance of analytical methods.
		42202	TRADITIONAL METHODS OF ANALYSIS-II	To learn about the precipitation methods, reductant systsems and analysis of drugs
		42203	APPLIED ANALYSIS-II	To learn the concept of determinations of ions in the raw materials, soils, fertilizers and fuels,assessment of air quality and kinetic methods of analysis.
		42204	INSTRUMENTAL METHODS OF ANALYSIS-II	To learn the concept of theory and instrumentation of AES,AAS, TGA , DTA, DSC , DME and coulometric analysis .To know about ion selective electrodes and radio chemical methods of analysis
		42205P	CLASSICAL METHODS OF ANALYSIS-II	To learn about the determination of ions by using volumetric methods.
		42206P	INSTRUMENTAL METHODS OF ANALYSIS-II	To learn the principle and mechanism of potentiometric , conductometric, colorimetric and flamephotometric methods.
		42207P	PROJECT WORK	To know about designing new experiments and carry out the experiments.To know about various characterization