FATIMACOLLEGE (AUTONOMOUS), MADURAI–625018
COURSE OUTCOMES

NAME OF THE PROGRAMME: B.Sc CHEMISTRY PROGRAMME CODE:UACH

COURSE CODE	COURSE TITLE	COURSE OUTCOMES
19C1CC1	Inorganic Chemistry –I (Atomic Structure, Periodic Table, Acid and Bases, Non-Aqueous Solvents and s-Block Elements)	CO1 To comprehend the fundamental properties of atoms, molecules, and the various states of matte CO2 To classify the electronic structure of atoms and its influence on chemical properties CO3 To describe the periodic table as a list of elements arranged so as to demonstrate trends in their physical and chemical properties. CO4 To describe the difference(s) between strong acids/bases and weak acids/bases. CO5 To illustrate the factors affecting the strength of acid and bases CO6 To acquire the knowledge of properties, characteristics and application of non-aqueous solvents CO7 To explain the atomic, physical and chemical properties of alkali metals CO8 To recognize the anomalous properties of Li and compares the properties Li with those other alkali metals
19C1CC2	Organic Chemistry –I (Reaction mechanism, alkanes, cycloalkanes and alkyl halides)	CO1 Gain a thorough knowledge about the chemistry of aliphatic saturated compounds CO2 Analyze the behaviour of an organic compound through electron displacement effects. CO3 Describe the structure and stability of different types of intermediates involved in reaction mechanism. CO4 Know the nomenclature ,classification of alkanes, alkyl halides. CO5 To derive and familiarise the mechanisms of nucleophilic substitution reactions of organic compounds.
19C1CC3	Volumetric analysis-I	CO1 To prepare solutions of desired concentrations . CO2 To apply the principles of volumetric analysis in acid base, permanganometry, and CO3 iodometric titrations. CO4 To compare the principles behind all types of titrations CO5 To identify suitable indicators for a particular reaction.

19N1ACC1/ **19Z1ACC1**	Allied Chemistry –I (Chemical bonding - VB and MO Theory, Types of Organic Reactions, Carbohydrates and Theory behind volumetric Analysis)	CO1 To predict the geometry of any molecule with the help of VB and VSEPRtheory CO2 To construct M.O diagram for homonuclear diatomicmolecule CO3 To categorize the types of organicreactions. CO4 To describe the chemistry ofcarbohydrates. CO5 To classify reactions involved in volumetricanalysis
19N1ACC2/ **19Z1ACC2**	Allied Chemistry Practicals -I	CO1 Describe the principles and procedures of various titrimetric methods CO2 Identify suitable indicators for a particular reaction CO3 Know the various terms such as standard solution, normality, molality, molarity, equivalent weight and molecular weight. CO4 Select the specific titric method to estimate the amount of analyte present in the given solution. CO5 Apply the expressions and equations to calculate the strength of solutions
19C1NME1	Profitable home Industries	CO1 Gain knowledge about the fundamental chemistry involved in dairy products, factors affecting quality, quantity of milk and metals and non-metals used in dairy industries CO2 Recognize the important nutrients present in food CO3 Learn the ingredients required for the preparation of various types of shampoos, skin powder, nail polish etc. CO4 Demonstrate the preparation of some home products like candle. Detergent powder, soap oil, ink, phenoyl and computer sambirani
19C2CC4	Inorganic Chemistry –II (theories of hard and soft acids – bases, chemical bonding and chemistry of group iii, iv, v & vi elements)	CO1 To categorize the soft, hard and border line acids and bases. CO2 To predict the structure of an ionic crystal through radius – ratio rule. CO3 To understand the synthetic importance of organo metallic compounds of Al, B and Si CO4 To criticize the chemistry of hydrazine and hydroxyl amine CO5 To list out the allotropic modifications of oxygen and sulphur CO6 To draw the structure of oxoacids and oxy halides of sulphur
19C2CC5	Organic Chemistry –II (Alkenes,alkynes,alkadienes, organo metallic compounds, alcohols and ethers)	CO1 Gain a basic knowledge about the chemistry of aliphatic unsaturated compounds like alkenes,alkynes and alkadienes ,organometallics,alcohols and ethers CO2 Recognise different types of chemical reactions such as addition, elimination,substitution,oxidation and reduction CO3 Enlighten the relationship between the structure and acidity and basicity of the organic compounds CO4 Use IUPAC nomenclature to name and draw a range of organic compounds withnumber more than 8 carbon atoms CO5 Describe and give reasons for the following physical properties of organiccompounds: melting and boiling point and solubility

19C2CC6	Volumetric analysis-II	CO1 To apply the principles of volumetric analysis in variousestimations. CO2 To estimate the amount of calcium using permanganometricmethod CO3 To estimate the amount of calcium and magnesium using EDTAmethod. CO4 To apply the principle of Argentimetry in the estimation of chlorideions. CO5 To understand the principles behindthe estimations of phenol & Aniline iodometrically.
19Z2ACC3/19N2ACC3	*Allied Chemistry –II (Theory behind chemical bonding, and organic qualitative analysis, kinetics of chemical reactions and catalysis)	CO1 To apply the rules for naming the metal complexes / coordinationcompounds. CO2 To recognize the applications of metal complexes in biologicalsystems. CO3 To analyze the various organic compoundsqualitatively CO4 To understand the procedure involved in detection ofelements. CO5 To understand the kinetics of a chemical reaction and to predict the order of a particular reaction. CO6 To evaluate the types of catalysis and theories of catalysis
19Z2ACC4/ 19N2ACC4	Allied chemistry Practicals	CO1 Gain the knowledge of appearance, colour, physical state,and odour of organic substances. CO2 Distinguish whether the given compound is Aliphatic or Aromatic,and Saturated or Unsaturated. CO3 Perform the confirmatory test for various functional groups present inthe given organic compound. CO4 Recognize the usage of apparatus and laboratory reagents. CO5 Relate the experimental observations with theory behind practicals.
19C2NME2	Profitable home Industries	CO1 Gain knowledge about the fundamental chemistry involved in dairy products, factors affecting quality, quantity of milk and metals and non-metals used in dairy industries CO2 Recognize the important nutrients present in food CO3 Learn the ingredients required for the preparation of various types of shampoos, skin powder, nail polish etc. CO4 Demonstrate the preparation of some home products like candle.detergentpowder,soapoil,ink ,phenoyl and computer sambirani
19C3CC7	Organic &Inorganic Chemistry	CO1 To interpret the concept of aromaticity and the main properties of aromatic compounds. CO2 To explore reactivity patterns of conjugated, aromatic molecules and to evaluate the CO3 kinetics and thermodynamics controlled reactions. CO4 Explain types of oxides and oxyacids, their structure and reactivity in halogens CO5 Discuss the properties d block elements & triads of transition elements. CO6 Recognize the role of oxidizing agents, reducing agents, group reagents and complexing agents, and inferences with theory behind practicals.

19C3CC8	Physical chemistry-I (Gaseous state, Solutions,dilute solutions,radio activity & Nuclear transformations and nuclear chemistry)	CO1 Gain a basic knowledge about the kinetic theory of gases, gaseous laws,types of velocities and properties of gases CO2 Distinguish between ideal and non-ideal solutions CO3 Derive the relation between molar mass of a non-volatile solute and colligative properties CO4 calculate mass defect, packing fraction and binding energy for any nuclei CO5 Predict the growing rate,mechanism and age of plants using radioactive elements
19C3SB1	Agricultural chemistry	CO1 Define the term soil CO2 Describe the various types of fertilizers and their uses CO3 Realise the requirements of manures and fertilizers for better production of various types of crops CO4 Examine the adverse effect of pesticides CO5 Calculate the amount of calcium and magnesium present in various types of soils
19P3ACC1	Allied Chemistry –I (Theory behind chemical bonding, quantitative and qualitative analysis, kinetics of chemical reactions and thermodynamics)	CO1 To comprehend the fundamental theories of Valence Bond, types of overlapping and VSEPR. CO2 To categorize the reactions involved in volumetric analysis CO3 To analyze the various organic compounds qualitatively CO4 To recognize the theories of chemical kinetics. CO5 To highlight the importance of thermodynamics and its related functions.
19C3CC9	Inorganic Qualitative Analysis	CO1 To identify acid radicals and basic radicals present in the mixture CO2 To detect interfering and non-interfering acid radicals CO3 To find out the group of cations CO4 To confirm the given acid radicals by doing confirmatory test CO5 To confirm the given basic radicals by doing group analysis.
19P3ACC2	Allied Chemistry Practicals-I	CO1 Describe the principles and procedures of various titrimetricmethods CO2 Identify suitable indicators for a particularreaction CO3 Know the various terms such as standard solution, normality, molality, molarity, equivalent weight and molecularweight. CO4 Select the specific titric method to estimate the amount of analyte present in the given solution. CO5 Apply the expressions and equations to calculate the strength of solutions
19C4CC10	Inorganic Chemistry-III (Coordination chemistry)	CO1 Know the structure and bonding of important coordination compounds CO2 Apply the rules to calculate the magnetic properties of complexes and how magnetic moments can be employed for the interpretation of their structure CO3 Get an overview about the reaction mechanism of metal complexes CO4 Import the skills to elucidate the structure and mode of bonding in organometallic compounds CO5 Gain knowledge about the chemistry of Lanthanides and Actinides

19C4CC11	Physical chemistry-II (Chemical kinetics, solid state and distribution law)	CO1 CO2 CO3 CO4 CO5	To determine integrated rate expression for zero order, first order, second order reactions and their respective half-life period expressions with examples To study te various factors which affect the rate of a chemical reaction such as concentration, temperature, and solvent To learn the crystal diffraction and experimental techniques used to characterize the solid crystals To recognize and give the lattice parameter relationships for the seven crystal systems To value the Nernst distribution law - its thermodynamic derivation, modification of law when solute undergoes association, dissociation and chemical combination with one of the solvents
19C4SB2	Natural & Synthetic dyes	CO1 CO2 CO3 CO4 CO5	Know and comprehend the principle and theories of dyes Identify the chromophoric groups and auxochromes in dyes Classify the of dyes whether natural or synthetic Predict the structure of dyes Recognise the applications of dyes in various industries
19C4CC12	Organic Qualitative analysis	CO1 CO2 CO3 CO4 CO5	Gain the knowledge of appearance, colour, physical state, and odour of organic substances Distinguish whether the given compound is Aliphatic or Aromatic,and Saturated or Unsaturated. Perform the confirmatory test for various functional groups present in the given organic compound. Recognize the usage of apparatus and laboratory reagents. Avoiding hazardous experiments by doing microlevel eco friendly experiments.
19P4ACC3	Allied Chemistry –I (Periodic table and atomic properties, electro chemistry–I, II, Catalysis and photochemistry)	CO1 CO2 CO3 CO4 CO5	Understand the periodicity in periodic table Understand the different types of conductance and their relations and the effect of dilution. Use Nernst equation to calculate the electrode potential and emf of electrochemical cells. Study the applications of electrochemical measurements Understand the basics of photochemistry using laws of photochemistry and Jablonsky diagram Derive the rate constants o certain photochemical reactions
19P4ACC4	Allied Chemistry practicals	CO1 CO2 CO3 CO4 CO5	Gain the knowledge of appearance, colour, physical state,and odour of organic substances. Distinguish whether the given compound is Aliphatic or Aromatic, and Saturated or Unsaturated. Perform the confirmatory test for various functional groups present in the given organic compound. Recognize the usage of apparatus and laboratory reagents. Relate the experimental observations with theory behind practicals.