THE MADURA COLLEGE

An Autonomous Institution affiliated to Madurai Kamaraj University
Re-accredited (3rd cycle) with 'A' grade by NAAC
Vidya Nagar, T.P.K. Road, Madurai – 625 011

DEPARTMENT OF CHEMISTRY

Course Outcomes mapped with POs

PROGRAMME : B.Sc. (Chemistry)

Course Code	Course Title	CLO	Mapping of CO with PO				
			PO1	PO2	PO3	PO4	PO5
20U1TLA1	இக்கால இலக்கியம்	கவிதைகள் வெளிப்படுத்தும் மனித அன்பு, பெண்நிலைகள், மொழியின்சிறப்பு, தொழிலாளர் நிலை போன்றவற்றை அறியச் செய்தல்.	-	1	1	2	2
		கவிதைகளின் கருத்துப் பரிமாற்றம், உயர்மனிதச் செயல்பாடுகளை ஊக்குவித்து நடைமுறையில் பின்பற்றல்.	-	2	2	3	2
		கதையின் உள்ளடக்கம்,வடிவம் -மாந்தர் எண்ணம், உணர்வு, நடத்தை, சமூகப் பண்பாட்டுச் செயல்பாட்டில்- ஈடுபடுதல்.	-	3	1	-	2
		இலக்கிய வரலாற்றை நிரல்படுத்திப் படைப்பாளிகளின் அறிவுத்திறத்தில் ஈடுபடச்செய்தல்.	3	-	1	-	2
		மொழியின் சிறப்புகளைத் தொகுத்தல். படைப்பூக்கத்துடன் பிழை நீக்கித் தனித்துவமாக எழுதத் தூண்டல்.	-	-	3	-	2
20U1HLA1	Hindi 1	Use of singular, plural, numbers	-	1	1	2	2
		Use of sentences and choosing the right answer	-	2	2	3	2
		Able to translate and correct the sentences	-	3	1	-	2
		Able to write answers questions from prose	3	-	1	-	2
		Able to identify directions and seasons	-	-	3	-	2
20U1SLA1	Sanskrit I	Gain basic knowledge about Devanagari Script and understand Male/ Female/ Neuter Gender Words	-	1	1	2	2
		Identify Person/Number/Tense	-	2	2	3	2
		Know to substitute word without affecting Number / Tense/ Grammar and to enhance students attitude towards good behaviour through Subhashitani (Good says)	-	3	1	-	2
		Understand the Sanskrit Literature like Vedas, Vedangas and Epic Literature	3	-	1	-	2
		Translate from Sanskrit to English in Present / Future Tense	-	-	3	-	2

20U1NEN1	**English-I**	Use proper Parts of Speech while framing simple sentences	-	2	3	2	-
		Express practical skills of various types of writing dialogues and comprehend content in English	-	2	3	3	-
		Use proper tense forms in sentences and Classify kinds of sentences; convert from one type to another.	-	2	2	2	-
		Fill different challans , issue cheques, fill railway form in real life contexts and prepare advertisements on their own.	-	2	2	2	-
		Appreciate a literary work for its genre and evaluating ideas. To use language skills necessary for social,academic and professional purposes	-	2	3	3	-
20U1VEN1	**Value Education and Professional Ethics**	Describe the various value system and its familiarity	3	-	2	2	3
		List forty virtues and eighty values	3	-	2	2	3
		Outline the foundations on value oriented moral values	3	-	2	2	3
		Focus on relevance of various religion values and its similarities	2	-	2	2	3
		Build a value system and ethics in Education, Business and Teaching	3	2	2	2	3
20U1MAC1	**Allied Mathematics – I**	Apply DeMoivre's theorem to solve problems on powers of trigonometric functions	3	2	-	-	1
		Use the concept of differentiation to find derivatives of inverse trigonometric functions, implicit function and logarithmic functions.	3.	2	-	-	1
		Evaluate integrals using integration by parts and apply integration to compute double and triple integrals.	3	2	-	-	1
		Use vector differentiation to evaluate gradient, divergence and curl of a vector point function and related identities and to evaluate line integrals using vector integration.	3	2	-	-	1
		Use the concept of integration to solve numerical problems.	3	2	-	-	1
20U1CMC1	**General Chemistry – I**	To explain organic compounds and its classification with various functional groups and to apply IUPAC nomenclature concept to name organic compounds	3	2	-	-	-
		To Find the hybridization and geometry of organic compounds and predict the influence of Electronic effects on the stability of the organic molecules	3	2	-	-	-
		To identify the geometry and stability of organic intermediates formed by homolytic and heterolytic cleavages	3	2	-	-	-
		To explain the acid - base concepts, classify and relate their strength and illustrate the reactions in different solvents	3	2	-	-	-
		To apply knowledge about the common themes running through ionic covalent and hydrogen bonding	3	2	-	-	-
20U1CMC2	**General Chemistry – II**	To interpret atomic models, various quantum numbers and comparing stability of various orbitals	3	2	1	-	1

		To organize basic concepts of quantum mechanics and the difference between classical and wave mechanics.	3	2	-	1	1
		To apply operators to solve simple eigen values problems and approximation methods used in solving molecular energy.	3	2	1	2	1
		To develop concept of trends in periodic properties and its variation to rationalize the nature of the bonding in substances.	3	2	-	2	1
		To develop the structure and types of bond in inorganic molecules using VB and MO theories.	3	2	1	1	1
20U1CMP1	**Inorganic Qualitative Analysis - I**	To demonstrate the basic laboratory techniques of qualitative analysis of an Inorganic salt containing one cation and one anion	3	2	-	-	1
		To demonstrate mastery of basic Inorganic chemistry laboratory analysis.	3	2	-	-	1
		To identify the interfering acid radical, eliminate interfering anion and to perform a systematic analysis and identify the cation.	3	2	-	1	1
		To infer analytical results	3	2	1	1	1
		To make scientific claims that is supported by their results and other observations.	3	1	1	1	2
20U2TLA2	**இடைக்கால இலக்கியமும் உரைநடையும்**	சிற்றிலக்கியங்கள் குறித்த அடிப்படைக் கருத்துகளைப் பெறுவர்.	1	-	3	-	2
		பக்தி இலக்கியங்கள் வெளிப்படுத்தும் சமயம் சார்ந்த செய்திகளைப் புரிவர்.	-	-	2	-	3
		சைவ வைணவ சித்தாந்த இறை தத்துவக் கருத்துகளைத் தெரிந்து நடைமுறைப்படுத்திக்கொள்வர்.	1	-	3	1	2
		இலக்கிய வரலாறு தரும் வாழ்வியல் கருத்துகளைப் பொருத்திப் பார்க்கும் திறன் பெறுவர்.	2	1	3	1	3
		மொழியின் நுட்பங்களின் மூலமாக ஆளுமைத் திறனை வளர்த்துக் கொள்வர்.	-	-	3	1	1
20U2HLA2	**Hindi 2**	Write stories and draft letter	1	-	3	-	2
		Use of proverbs and phrases in communication	-	-	2	-	3
		Learning morals from great Indian leaders	1	-	3	1	2
		Writing esssays with creativity	2	1	3	1	3
		Using proverbs in speech and having knowledge of days in Hindi	-	-	3	1	1
20U2SLA2	**Sanskrit II**	Gain basic knowledge about the origin of Sanskrit Kavya Literature	1	-	3	-	2
		Understand Sanskrit Poetic Literature and Style of Writing Poems	-	-	2	-	3
		Compare Poetic Literature with Modern Life and to classify and discuss the importance of early literature	1	-	3	1	2
		Practice creativity and demonstrate different aspects of life as portrayed in Sanskrit Literature	2	1	3	1	3
		Learn Sanskrit Bhakti Literature and Tamil Chemmozhi Literature at basic levels	-	-	3	1	1

20U2NENE2	**English-II**	Use linkers to compose a coherent paragraph and to examine language skills through core subjects	-	2	3	2	-
		Use singular, plural, present and past tenses.'will' and 'going to' to engage in meaningful conversations and writing tasks	-	2	3	3	-
		Classify appropriate pronunciation for "c" as "s","k" and "ch"and classify letters / sound "p, b, th, v, w, tion" appropriately.	-	2	2	2	-
		Demonstrate practical skills of various types of media writing and reports Use appropriate expressions, ask for favor, offer suggestions and engage in meaningful telephonic conversations	-	2	2	2	-
		Appreciate a literary work for its genre and evaluating ideas.	-	2	3	3	-
20U2EVS1	**Environmental Science & Gender studies**	Able to list out various ecosystems and their interactions	2	-	-	1	3
		To appreciate the nuances behind food webs and food chains	2	-	2	1	3
		Able to differentiate the importance of Hotspots and mega diversity centres.	2	3	-	1	3
		Able to identify different types of pollutions and provide solutions	2	-	-	3	3
		To analyze and identify the behavioral problems among student community with reference to gender.	2	3	-	3	3
20U2MAC2	**Allied Mathematics - II**	Solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous and non-homogeneous differential equation.	3	2	-	-	1
		Solve 2nd and higher order differential equations with constant coefficients	3	2	-	-	1
		Construct partial differential equations and to solve first order partial differential equations	3	2	-	-	1
		Solve Laplace transform and inverse transform of simple functions and application to differential equations with constant coefficients	3	2	-	-	1
		Apply various interpolation methods and finite difference concepts	3	2	-	-	1
20U2CMC3	**General Chemistry – III**	To prepare and study the properties and reactions of aliphatic Compounds.	3	2	-	-	-
		To apply aliphatic compounds for the synthesis of various molecules	3	2	-	-	-
		To organize the knowledge on synthesis, reactions, and importance of alicyclic compounds.	3	2	-	-	-
		To explain the behavior of gases	3	2	-	-	-
		To solve the problems regarding molecular velocities.	3	2	-	-	-
20U2CMC4	**General Chemistry – IV**	To outline the behavior of liquids and to classify types of liquid crystals	3	2	-	-	-
		To find the applications of Be and Mg	3	2	-	-	-
		To organize knowledge about compounds and biological importance of some s block elements	3	2	-	-	-

		To apply the theory behind the volumetric analysis, which gives the information about the concentration, and primary & secondary standards; To solve problems based on titrimetric analysis	3	2	-	-	-
		To describe the basics of metallurgy and the principles of extraction and refining of metals.	3	2	-	-	-
20U2CMP2	**Inorganic Qualitative Analysis - II**	To demonstrate the basic laboratory techniques of qualitative analysis of Inorganic salts containing two cations and two anions	3	2	1	-	1
		To demonstrate mastery of basic Inorganic chemistry laboratory analysis.	3	2	-	1	-
		To identify the interfering acid radicals, eliminate interfering anion and to perform a systematic analysis and identify the cations	3	2	1	2	1
		To infer analytical results	3	2	1	1	2
		To make scientific claims that is supported by their results and other observations.	3	2	2	1	-
20U2NCC1	**Introduction to NCC**	Understand the structure, organization of NCC and armed forces.	2	1	1	2	2
		Develop leadership qualities and general knowledge from current affairs.	2	1	1	1	2
		Involve in social service activities and act in the emergency situation.	2	1	1	2	1
		Develop qualities like character, comradeship and discipline through regular training and field work.	2	1	1	1	2
		Improve secular outlook, spirit of adventure, ethics and ideals of selfless service.	2	1	1	1	2
20U2NPN	**Introduction to National Service Scheme**	To understand the aims and principles of NSS , the duties and responsibilities of an NSS volunteer to the society.	2	1	2	3	3
		To know the administrative structure of NSS, its plans and its execution.	2	1	2	3	3
		To acquire leadership qualities and democratic attitudes through the participation in various social activities	2	1	2	3	3
		To aid in character building and develop qualities like comradeship and discipline through regular training and field work.	2	1	2	3	3
		To develop the spirit of humanity and ideals of selfless service.	2	1	2	3	3
20U2YRC1	**Introduction to Youth Red Cross**	Equip to conduct social and health awareness programmes.	2	1	1	2	3
		Making awareness regarding red cross service and social activities	2	1	1	2	3
		Encourage and to youth members and other students to contribute in red cross activities.	2	1	1	2	3
		Develop qualities like compassion, kindness and caring sense through regular training and field work.	2	1	1	2	3
		Improve kind heartedness, spirit of humanity and ideals of selfless red cross service	2	1	1	2	3
20U2PED1	**History of Physical Education**	Know physical education in national and international level.	2	1	1	2	2
		Understand ancient Olympics, modern Olympics, first aid and yoga	2	1	1	1	2

		Comprehend games rules and ground measurements	2	1	1	2	1
		Develop their physique in good shape through regular work outs and exercises.	2	1	1	1	2
		Realize the need of physical education.	2	1	1	1	2
20U3TLA3	**காப்பிய இலக்கியமும் நாவலும்**	மனித அறம், அன்பு, செய்ந்நன்றி போன்றவற்றை அறியச் செய்தல்.	-	1	1	2	2
		அற மனப்பாங்கினை ஊக்குவித்துப் பின்பற்றல்.	-	2	2	3	2
		மனித அறம், பத்தி, உதவி செய்யும் மனப்பான்மை போன்றவற்றில் ஈடுபடுதல்.	-	3	1	-	2
		காவிய ஆசிரியர்களின் படைப்புதிறனை வெளிப்படுத்த வடிவ அமைப்பினை விளக்கி ஈடுபடச் செய்தல்.	3	-	1	-	2
		படைப்பின் பல் வடிவங்களை விளக்கிப் படைப்பாக்கத்தினை வெளிக் கொணரல்.	-	-	3	-	2
20U3HLA3	**Hindi 3**	Identify noun, pronoun and adjective in sentences	-	1	1	2	2
		Examine how a text interacts with a reader in the reading process for meaning and interpretation	-	2	2	3	2
		Classify rhymes, beats, sound pattern in a poem	-	3	1	-	2
		Explain various aspects of storytelling in terms of plot, character and form in One Act play	3	-	1	-	2
		Write simple sentences without committing errors of spelling and grammar	-	-	3	-	2
20U3SLA3	**Sanskrit - III**	Gain knowledge of Indian Tradition through the origin of Popular Sanskrit Tales and Fables	-	1	1	2	2
		Achieve Moral Values through Sanskrit Fables – Pancatantra	-	2	2	3	2
		Comprehend Sanskrit Poetic Literature, Style of Writing Poems and Know the deepness of Indian Sanskrit Prose Literature	-	3	1	-	2
		Understand the Sanskrit Prosody through Alankaras	3	-	1	-	2
		Learn Sanskrit Prose Literature and Style of Writing Prose	-	-	3	-	2
20U3NENE3	**English - III**	Discover the deviant use of English both in written and spoken forms	-	2	3	2	-
		Explain the need for reference/study skills Make/take notes systematically in an organized manner	-	2	3	3	-
		Choose language for speaking with confidence in an intelligible and acceptable manner	-	2	2	2	-
		Develop an interest for reading and read independently unfamiliar texts with comprehension	-	2	2	2	-
		Examine and analyze a genre on their own	-	2	3	3	-
20U3CSM1	**Industrial Chemistry**	Learning classification of fuels and calorific value	1	2	2	2	3
		Know cracking of petrol and synthetic petrol preparation	1	1	1	2	3

		Know cracking of petrol and synthetic petrol preparation	1	1	1	2	3
		Understand the basic principle fireworks, explosive and propellants	1	1	1	2	3
		Gain the knowledge of various coating methods	1	2	1	2	3
20U3PAC1	**Allied Physics - I**	Connect the principles of elasticity of a body such as tension, compression and shear in construction and allied fields	3	2	-	2	2
		Use the dynamics of fluid motion to solve the practical applications problems.	3	2	2	2	-
		Compare the conduction, convection and radiation process to solve the real life problems.	3	2	2	2	-
		Use the laws of thermodynamics to heat engines.	3	2	2	2	2
		Apply the wave nature of light to real life situations.	3	1	-	1	-
20U3PAP1	**Practical - I**	Apply the basic laws of physics to determine the various properties of the given materials.	1	3	-	-	-
		Apply knowledge of physics and mathematics to derive solution for various problems.	1	3	2	-	-
		Use the basic laws to study the elastic properties of solids and thermal properties of liquids and solids.	1	3	1	-	-
		Applies logic gates to form simple circuits.	1	3	2	-	-
		Analyse the property of the material by experimenting in different methods.	-	3	2	-	-
20U3CMC5	**General Chemistry - V**	Analyze the knowledge of aromaticity, its orientation, reactivity towards electrophilic substitution reactions.	1	3	2	2	2
		Apply chemistry of colloids, properties and its application on emulsion material	1	3	2	2	2
		Describe concepts in thermodynamics, different thermodynamic quantities such as heat and work and how they are measured, related or transformed from one to the other	1	3	1	2	2
		Organize outline the chemistry of p-block elements, specifically Boron and Carbon family its extraction, properties and importance of silicate in glass industries	1	3	2	1	2
		Organize chemistry of p-block elements- Nitrogen , phosphorous Oxygen and sulphur family.	1	3	2	1	2
20U3CMP3	**Volumetric analysis-I**	To get domain knowledge in estimation of inorganic compounds	3	2	1	1	-
		To design the basic laboratory techniques of volumetric analysis	3	2	1	1	2
		To develop the skills for doing any titrations and recording data	3	2	1	1	2
		To make scientific claims that is supported by their data and other observations	3	2	1	1	2
		To communicate the finding	3	-	1	1	2
20U4TLA4		பண்டையகால மக்களின் அகம் மற்றும் புறம் சார்ந்த வாழ்வியல் நிலைகளை அறியச்செய்தல்.	-	1	1	2	2

	பண்டைய இலக்கியமும் நாடகமும்	தனிமனித அறம், பொது அறம் ஆகியவற்றை நீதிநூல்களின் வாயிலாக அறியச்செய்தல்.	-	2	2	3	2
		நாடகம் தொடர்புடைய சிந்தனைகள், உணர்வுகள், உள்ளடக்கம், நடை போன்றவற்றைப் புரியவைத்தல். நாடகம் நடிக்கப் பழக்குதல்.	-	3	1	-	2
		தமிழ் இலக்கிய வரலாற்றையும் பண்பாட்டையும் அறியச்செய்தல்.	3	-	1	-	2
		மொழியின் சிறப்புகளுடன், அகப்பொருள் மற்றும் புறப்பொருள்களின் திணை, துறைகளை அறியச்செய்தல்.	-	-	3	-	2
20U4HLA4	**Hindi 4**	Apply speak, read and write Hindi at the basic level.	-	1	1	2	2
		Identify rhyme, beats, sound pattern in a poem.	-	2	2	3	2
		Analyse novel closely, paying attention to linguistic and stylistic variations.	-	3	1	-	2
		Use language for speaking with confidence in an Acceptable manner	3	-	1	-	2
		Write simple sentences without committing errors of grammar	-	-	3	-	2
20U4SLA4	**Sanskrit IV**	Learn about the Origin of Indian Sanskrit Drama Literature	-	1	1	2	2
		Achieve Moral Values through Indian Sanskrit Drama Literature – Karnabharam	-	2	2	3	2
		Realize Sanskrit drama Literature, method of Writing Dramas and the depth of Indian Sanskrit Drama Literature	-	3	1	-	2
		Understand the importance and role of Sanskrit drama Literature and know great Dramatists	3	-	1	-	2
		Learn Ethical Values of Human Life through Various Authors and their Dramas	-	-	3	-	2
20U4NEN4	**English - IV**	Examine their own ability to improve their own competence in using the language and Show their learnt useful interpersonal soft skills.	-	2	3	2	-
		Re-state a piece of text either orally or in writing with learnt soft skills	-	2	3	3	-
		Apply their useful creative skill in writing like CVs, drafting and reading	-	2	2	2	-
		Investigate the importance of writing in academic life, analyze graphs,charts,grids and other visual supports to understand a text.	-	2	2	2	-
		Apply connecting ideas to continue discussions and apply diagrammatic information – interpretations maps, graphs, pie- charts and note-taking. Communicate with others effectively.	-	2	3	3	-
20U4CSM2	**Nano & Green Chemistry**	To outline the concept of nanomaterials, types and its properties	3	2	-	1	1
		Know the various synthetic methods of nanomaterials	3	2	1	2	1
		Plan the preparation, properties and applications ofcarbon nanotube	3	2	2	1	1
		Inspect the basic principle of green chemistry and atom economy	3	2	-	1	1
		To apply ionic liquids, green catalysis and phase transfer catalysis in green synthesis	3	2	-	1	-
20U4PAC2	**Allied Physics - II**	Use Laws of electromagnetic induction to day to day life appliances like induction stove, transformer, choke etc.,	3	2	-	2	-

		Analyse the Physics of particles at the atomic and nuclear scale and appreciate the implications of the Bohr model of the atom, X–ray diffraction, nuclear stability and radioactivity	3	-	2	2	2
		Understand the principle working and operation of rectifiers, regulators, oscillators and amplifiers along with characteristic parameters of operation and their construction from basic active semiconductor devices like diodes and transistors.	3	2	2	2	2
		Apply principle of Boolean algebra for simplification and realization of digital circuits using logic gates.	3	2	2	2	2
20U4PAP2	**Allied Physics Practical - II**	Apply the basic laws of physics to determine the various properties of the given materials.	1	3	-	-	-
		Apply knowledge of physics and mathematics to derive solution for various problems.	1	3	2	-	-
		Use the basic laws to study the elastic properties of solids and thermal properties of liquids and solids.	1	3	1	-	-
		Applies logic gates to form simple circuits.	1	3	2	-	-
		Analyse the property of the material by experimenting in different methods.	-	3	2	-	-
20U4CMC6	**General Chemistry - VI**	To collect various reactions with mechanism involved in both the preparations and properties of alkyl and aryl halides	3	-	-	-	-
		To identify the reactions of Alcohols, Phenols Ethers and Epoxides with mechanisms and applied in the synthesis of industrial and medicinal important compounds	3	2	-	-	-
		To describe a clear knowledge about halogen family, noble gases and its uses	3	2	-	-	-
		To utilize the laws of thermodynamics, the concept of entropy, concept of Gibbs Free energy and their applications.	3	2	-	-	-
		To illustrate kinetics and its theories of chemical reactions and solve the problems related to kinetics	3	2	-	-	-
20U4CMP4	**Volumetric analysis - II**	To get domain knowledge in estimation of inorganic compounds	3	2	-	-	-
		To design the basic laboratory techniques of volumetric analysis	3	2	-	-	2
		To develop the skills for doing any titrations and recording data	3	2	-	-	2
		To make scientific claims that is supported by their data and other observations	3	2	-	-	2
		To communicate the finding	3	-	-	-	2
20U4NCC2	**Field Training in NCC**	Understand the geography, important world organizations and will do various drills with & without arms.	2	2	1	2	2
		Read maps and related sign systems.	2	1	1	2	1
		Comprehend the types of weapons, field crafts and battle crafts.	2	1	1	2	2
		Develop qualities like character, comradeship and discipline through regular training and field work.	2	1	1	1	2

		Improve secular outlook, spirit of adventure, ethics and ideals of selfless service.	2	1	1	1	2
20U4NPN	**Community Services**	To provide an opportunity to become responsible members of the society by taking part in community service.	2	2	1	3	2
		To enable students acquire life skills and knowledge, through the involvement in environmental awareness activities	2	2	1	3	2
		To understand gender difference and learn to give equal respect to members of the opposite gender, develop service spirit and participate collectively in community programmes.	2	2	1	3	2
		To develop qualities like compassion, kindness and caring sense through regular training and field work in health awareness programmes.	2	2	1	3	2
		To become responsible citizens with a sound knowledge of the Indian Constitution and Fundamental Rights and be prepared for selfless service to the community.	2	2	1	3	2
20U4YRC4	**Introduction to Youth Red Cross**	Equip to conduct social and health awareness programmes.	2	1	1	2	3
		Making awareness regarding red cross service and social activities	2	1	1	2	3
		Encourage and to youth members and other students to contribute in red cross activities.	2	1	1	2	3
		Develop qualities like compassion, kindness and caring sense through regular training and field work.	2	1	1	2	3
		Improve kind heartedness, spirit of humanity and ideals of selfless red cross service	2	1	1	2	3
20U4PED2	**Physical Education and Games**	Understand the meaning, benefits and essentials of yoga and meditation.	2	1	1	2	2
		Maintain good physical and mental health by doing exercises, yoga and by taking nutritive foods.	2	1	1	1	2
		Know the rules and regulations of games like boxing, fencing, judo, basketball, cricket, hockey.	2	1	1	2	1
		Develop their physique in good shape through regular work outs and exercises.	2	1	1	1	2
		Realize the need of physical education.	2	1	1	1	2
20U5CSM3	**Biomolecules and Dyes**	To describe the structure of various vitamins and their physiological applications	3	2	3	2	1
		To identify the hormone and its functions	3	2	3	2	1
		To determine the enzymes classifications and their mechanism of action	3	2	3	2	1
		To analyse the structure of proteins and reactions of amino acids	3	2	3	2	1
		To apply the synthesis of dyes and apply in various textiles	3	2	3	2	1
20U5CMC7	**Organic chemistry - I**	Indicate the role of Nitrogen containing compounds in synthetic transformation to other molecules.	2	2	1	2	1
		Identify the stereo chemical aspects of organic molecules	2	2	1	2	2

		Apply the knowledge on conformational analysis of acyclic and cyclic compounds.	2	2	1	2	2
		Analyze the carbonyl compounds for derivatization into new functionalities under various reaction conditions and reagents.	2	2	1	2	2
		Make use of carbonyl compounds derivatives for synthetic transformation into other organic molecules. And to correlate the reactivity by changing the substituents.	2	2	1	2	2
20U5CMC8	**Inorganic Chemistry - I**	Understand the chemistry of d block elements	3	2	1	-	-
		Infer the character and separation of f block elements	3	2	1	-	-
		Analyse the theories to calculate CFSE, distortion and magnetism	3	2	1	-	-
		Apply the theories to predict the stability and reactivity of coordination compounds	3	2	1	-	-
		Apply the organometallics in catalysis	3	2	1	-	-
20U5CMC9	**Physical Chemistry I**	Understand on electro chemical conductance and the applications of conductance measurements	2	2	1	2	1
		Analyze the principle of galvanic cells and its applications	2	2	1	2	2
		Gain knowledge on the determination of pH, storage cells and fuel cells.	2	2	1	2	2
		Apply and built the knowledge of theories of strong electrolytes	2	2	1	2	2
		Identify point group of molecules	2	2	1	2	2
20U5CME1(A)	**Spectroscopy and its applications**	Gain knowledge on general basic principles of spectroscopy and acquire knowledge on rotational spectroscopy and its applications.	2	2	1	2	1
		Classify various region in the electromagnetic spectrum. Students can summarize the Instrumentation techniques of various spectroscopy	2	2	1	2	2
		Identify the Structure, of simple molecules from their spectral pattern and data	2	2	1	2	2
		Interpret spectral data using principles of IR and Raman spectra to evaluate the vibrational frequency,, Energy and force constant of bond	2	2	1	2	2
		Predict simple molecules from their Fragmentation pattern of mass Spectra	2	2	1	2	2
20U5CME1(B)	**Polymer Chemistry**	To Demonstrate the basic concept of polymer chemistry and molecular weight determination	3	2	-	-	-
		To illustrate the kinetics and mechanism of polymerization	3	2	-	-	-
		Build the techniques of polymerization and polymer degradation	3	2	-	-	-
		Develop industrial polymers and understand its uses	3	2	-	-	-
		Organize the polymer processing and understand its importance	3	2	-	-	-
20U5CIDC	**Solid State Chemistry**	Classify the crystal systems.	2	2	1	2	1
		Express the knowledge on crystal defects to identify the nature of crystal	2	2	1	2	1
		Summarize crystal structure and lattice energy	2	2	1	2	1
		Discuss the X- ray pattern for crystal systems.	2	2	1	2	2

		Illustrate the electrical properties of solids.	2	2	1	2	2
20U5CMP5	**Physical Chemistry Practical - I**	To get domain knowledge in the analysis of physical chemistry experiments	3	2	-	-	-
		To design the basic laboratory techniques in the physical chemistry experiments	3	2	-	-	-
		To develop skills for doing experiments and recording data	3	2	-	-	-
		To make scientific claims that is supported by the experimental data and other observations	3	2	-	-	-
		To communicate their finding through the proper result reporting format	3	2	-	-	-
20U5CMP6	**Organic Qualitative Analysis**	demonstrate the basic laboratory techniques of qualitative analysis	3	2	-	-	-
		demonstrate mastery of basic qualitative analysis of organic sample containing various functional groups	3	2	-	-	-
		identify the presence of elements to perform a systematic analysis	3	2	-	-	-
		systematically analyse the sample to find functional group	3	2	-	-	-
		infer analytical data and make scientific claims that is supported by their results and other observations	3	2	2	2	1
20U6CSM4	**Battery and fuel cells**	Compare and classify the various energy storage systems	2	2	1	2	1
		Analyze concepts of thermodynamics and kinetics involved in electrochemical reactions	2	2	1	2	1
		Develop components and processes of various battery systems	2	2	1	2	1
		Identify the recent developments in battery systems including electrode and electrolyte materials	2	2	1	2	2
		Utilize fuel cells and E-vehicle system	2	2	1	2	2
20U6CMC10	**Organic Chemistry - II**	Identify different types of carbohydrates and its structural properties	2	3	3	3	1
		Analyse the synthetic strategies and terminologies involved in organic synthesis	2	3	3	3	1
		Apply the idea of synthesis, reactions of heterocyclic compounds in organic synthesis	2	3	3	3	1
		Explain the classification, properties and methods for determination of structure of Alkaloids, Terpenoids, and Steroids	2	3	3	3	1
		Apply different types of rearrangements and reagents in organic synthesis	2	3	3	3	1
20U6CMC11	**Inorganic Chemistry - II**	To explain the concepts of nuclear chemistry and isotopes	3	2	-	-	-
		To illustrate the nature of radioactivity, detection and measurement of radioactivity half-life of period and applications of radioisotopes in agriculture and medicine, and atomic power projects in India.	3	2	-	-	-
		To identify the theoretical background of the applications of superconducting materials, composite materials, high energy battery and lithium cells.	3	2	-	-	-
		To identify the structure and functions of Metallo proteins hemoglobin and myoglobin – Vitamin B12.	3	2	-	-	-

		To identify the structure of hemoglobin, myoglobin, vitamin B12 and role of metal ions in biological systems.	3	2	-	-	-
20U6CMC12	**Physical Chemistry - II**	Clarify the topic of catalysis and its applications, and the also the concept of adsorption and its significance.	3	-	-	-	-
		Gain knowledge about the theory of phase rule and its applications to various systems; and to study the clausius - clapeyron equations.	-	1	-	2	3
		Differentiate about ideal and non-ideal solutions	1	-	1	-	-
		Interprets the relationship between thermal and photochemical reactions	-	-	-	-	3
		Relate colligative properties and molecular weight	2	-	2	-	-
20U6CME2(A)	**Pharmaceutical Chemistry**	Outline the important terminologies of pharma chemistry and brings about the knowledge towards Indian medicinal plants.	2	2	1	2	1
		Identify the drugs used for analgesics and antipyretics.	2	2	1	2	1
		Categorize the type of sulpha drugs, antibiotics and their important features and to identify the clinical uses of antiseptics and disinfectants	2	2	1	2	1
		Develop the knowledge on CNS stimulants and blood related studies.	2	2	1	2	2
		Identify the drugs used for anaesthetics and chronic diseases like cancer and AIDS	2	2	1	2	2
20U6CME2(B)	**Perfumes Chemistry**	Gain knowledge about natural perfumes and their extraction	2	2	1	2	1
		Familiarize with preparation and properties of some important artificial Perfumes and Flavours	2	2	1	2	2
		Expose the techniques of extraction of some common Flavours	2	2	1	2	2
		Understand the theory behind cleansing action of soaps and Detergents	2	2	1	2	2
		Predict the important composition of Cosmetics	2	2	1	2	2
20U6CME3(A)	**Analytical Chemistry**	Provide the basic idea on handling of laboratory instrument, reagents and safety procedures	2	2	1	2	1
		Examine error analysis, source of error and reporting analytical data	2	2	1	2	1
		Apply the concepts of theories of volumetric analysis and complexoetric titration	2	2	1	2	1
		Make use of gravimetric and various precipitation methods	2	2	1	2	2
		Develop the concepts of semiconductors, superconductors and solid state lasers.	2	2	1	2	2
20U6CME3(B)	**Chemistry of Sugar and Paper industry**	Outline the important terminologies of sugar industry and processing	2	2	1	2	1
		Categorize the sugar and estimated	2	2	1	2	1
		Type of alcohol and develop the knowledge to preparation	2	2	1	2	1
		Develop the techniques and rules are used in paper process in industry	2	2	1	2	2
		Analyse the various process of paper making	2	2	1	2	2
20U6CMP7	**Physical Chemistry Practicals - II**	understand the basic laboratory techniques of Physical Chemistry Experiments.	3	2	-	-	-
		Calculate strength using conductometry and Potentiometry	3	2	-	-	-

		Compute the result with graphical data	3	2	-	-	-
		Compare theoretical and graphical data	3	2	-	-	-
		Correlate theory and with Physical Chemistry experiments	3	2	-	-	-
20U6CMP8	**Organic Preparation and Gravimetric Estimation**	Maintain a detailed scientific notebook	3	2	1	-	-
		Analyze the possible error occurring in gravimetric estimation	3	2	1	-	2
		Estimate amount Pb, Ca, Ba and Ag by gravimetric method	1	2	2	-	2
		Illustrate the preparation of simple organic compounds	2	2	1	-	2
		Make use of apparatus and tools for gravimetric estimation	3	2	2	-	2

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