

SREE VIDYADHIRAJA N.S.S. COLLEGE

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Affiliated to Mahatma Gandhi University, Kottayam - NAAC Accredited with B Grade

Name of the Programme : B Sc Chemistry						
2009-16 Admissions						
Course Code	Course Title	Course Outcomes				
Core Courses						
		SEME	ESTER 1			
CH1B0 1		CO1	The student get to know broad outline of the methodology of science in general and Chemistry in particular.			
	Methodology of chemistry as a discipline of Science	CO2	The student learn computer based presentation and statistical analysis of data using spreadsheet software.			
		CO3	Students can apply these skills in the analysis of experimental data in chemistry practical and further for jobs.			
		SEME	CSTER 2			
CH2B0 1	Theoretical and Inorganic Chemistry	CO1	Student can understand the important features of the quantum mechanical model of the atom, periodic properties of elements and formation of different types of bonds			
		CO2	The course aims to inculcate an atomic/molecular level thinking in the minds of the students			
		CO3	It also develops an interest in various branches of inorganic chemistry.			
	Volumetric Analysis (practical)	CO1	Plan and Conduct different estimation technique.			
CH2B0 1		CO2	To study the effect of various indicators			
		CO3	To estimate and check the accuracy of the given sample			
		SEMF	ESTER 3			
CH3BO 1	Fundamentals of Organic Chemistry	CO1	Basic understanding about the classification and nomenclature of organic compounds, fundamentals of organic reaction mechanism, aromaticity and stereochemistry			
		CO2	Students capable of understanding and studying organic reactions			
		CO3	Develop skills required for the qualitative analysis of organic compounds			

		SEMF	ESTER 4
CH4B0 1	Basic Organic Chemistry-I	CO1	After studying basic ideas in semester III students are getting thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of organic compounds and their reactions.
		CO2	To understand and study Organic reaction mechanisms
		CO1	To analyse the functional group
CH4B0 1	Qualitative Organic Analysis (Practical)	CO2	To determine the physical constants of solids and liquids
		CO3	To prepare a solid derivatives of the detected organic compounds
		SEMF	ESTER 5
		CO1	Study physical and chemical properties of d and f block elements.
CH5B0 1	Chemistry of d and f block elements	CO2	Understand the role of metals in biological systems
		CO3	To understand the bonding and applications of coordination compounds
	Basic Organic Chemistry -II	CO1	To have an elementary idea of chemotherapy, organic spectroscopy and photochemistry
CH5B0 2		CO2	How to use their understanding of organic mechanisms to predict the outcome of reactions
		CO3	To develop basic skills required for crystallisation, distillation, solvent extraction, TLC and column chromatography.
CH5B0 3	States of matter	CO1	To study the intermolecular forces in gases and liquids and dynamics of the molecules in the gases and liquids.
		CO2	To learn the structure of solids and defects in crystals
CH5B0 4	Quantum Mechanics and Spectroscopy	CO1	The student will able to differentiate between classical and quantum mechanics and get to know postulates of quantum mechanics and the quantum mechanical model of the hydrogen atom.
		CO2	To understand theory of modern branches like mass spectroscopy and photochemistry
		SEMI	ESTER 6
CHEDOI	Applied Inorganic Chemistry	CO1	Students will study Chemistry of thermodynamic concepts in the extraction of metals.
		CO2	The students learn about applications of radioactivity and radioisotopes.
СЦ6002	Chemistry of Natural	CO1	This course deals with the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids

UTIOD 02 Trouvers and Dr. studying the details of Netural and dusts				
	Biomolecules	COD	By studying the details of Natural products	
		002	Students can understand the structure and	
			functions of enzymes, proteins and nucleic acids.	
			Student can learn Thermodynamics, Equilibrium	
		CO1	and Kinetics, three important topics in chemistry,	
	Equilibrium and		which will help students to get foundation for	
CH6B03	Kinetics		further studies	
		CO2	The students are getting enough information	
			about elementary idea of catalysis including	
			enzyme catalsis.	
		CO1	To study the behaviour of binary liquid mixtures,	
			CST, azeotropes, colligative properties.	
CH6B04	Solution Chemistry		The student can study solubility of gases in	
		CO2	liquids, ionic equilibria and electrical properties of	
			ions in solution.	
		CO1	Plan and Conduct experiments for identifying	
	Oualitative Inorganic		inorganic acid and basic radical	
CH6B01	Analysis	CO2	To Eliminate the interfering acid radicals	
	, ,	CO3	Qualitatively analyse the inorganic mixture	
			containing two acid and basic radicals	
		CO1	To conduct basic laboratory techniques such as	
CIICDOO	Preparaion and Basic laboratory Skills		crystallisation, distillation and solvent extraction	
CH6B02		CO2	To quantitatively separate organic compounds	
		CO3	To separate and identify the organic compounds	
			using chromatographic techniques.	
CH6B03	Physical Chemistry Practicals	CO1	Explain the principle behind the experiments	
			Plan and Darfarm annaria and Internate	
		CO2	experimental results	
			To analyse quantitatively compounds using	
CH6B05	Gravimetric analysis	CO1	arayimetric method	
			Students demonstrate their own work and	
CH6B07	Project/Dissertation	CO1	investigate their awareness in relation to the wider	
CHOBOT	Project/ Dissertation	001	research field	
	Complementary (OURSOS	for Physics and Chemistry	
	Comprementary	SEME	NOTED 1	
		SIMUL		
		CO1	to study atomic structure, basics of	
			thermodynamics and the concept of equilibrium	
	Desis the excting 1 and	COD	Students are getting more ideas about principles	
CH1C01	Basic theoretical and	02	of analytical chemistry and chromatographic	
	anarytical chemistry			
		602	Students can apply these skills in the analysis of	
		003	further for jobs	
		GIRL / F		
		SEMI		
		001	By studying this part of the syllabus students are	
		COI	getting basic ideas of organic chemistry, which	
			enables them to build a better foundation	

CH2C01	Basic Organic Chemistry	CO2	Students learn about Stereochemistry of organic compounds, Mechanisms of some basic organic reactions
		CO3	The course aim to give knoledge about classification of polymers, polymerization reactions, and the structure and uses of some commercial and natural polymers.
		CO1	Plan and Conduct different estimation technique.
CH2C02	Volumetric Analysis	CO2	To study the effect of various indicators
0112002	v olumetrie 7 marysis	CO3	To estimate and check the accuracy of the given sample
		SEME	ESTER 3
CH3C01.1 Advanced Physical Chemistry - 1	Advanced Physical	CO1	To enable the students to get a clear idea about the molecular structure and make students capable of understanding and studying electrical and nuclear properties of molecules
	Chemistry - 1	CO2	The underlying theory of chemical phenomena is completed, and so it is a challenge to make the most important concepts and methods understandable to undergraduate students
CH3C01.2	Advanced Inorganic and	CO1	To give the students a basic understanding of nuclear chemistry and heterocyclic compounds.
	Organic Chemistry	CO2	To learn about various types of food additives
		SEMI	ESTER 4
CH4C01.1			
CH4C01.1	Advanced Physical	CO1	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy
CH4C01.1	Advanced Physical Chemistry - II	CO1 CO2	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them.
CH4C01.1	Advanced Physical Chemistry - II Physical Chemistry	CO1 CO2 CO1	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory
CH4C01.1 CH4C02.1	Advanced Physical Chemistry - II Physical Chemistry Practical	CO1 CO2 CO1 CO2	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results.
CH4C01.1 CH4C02.1	Advanced Physical Chemistry - II Physical Chemistry Practical	CO1 CO2 CO1 CO2 CO1	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results. The students learn the classification and properties of amino acids, structure and functions of proteins, nucleic acids, ADP, ATP and AMP.
CH4C01.1 CH4C02.1 CH4C01.2	Advanced Physical Chemistry - II Physical Chemistry Practical Advanced Bio-organic Chemistry	CO1 CO2 CO1 CO2 CO1	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results. The students learn the classification and properties of amino acids, structure and functions of proteins, nucleic acids, ADP, ATP and AMP. Classification, properties and structure of carbohydrates
CH4C01.1 CH4C02.1 CH4C01.2	Advanced Physical Chemistry - II Physical Chemistry Practical Advanced Bio-organic Chemistry	CO1 CO2 CO1 CO2 CO1	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results. The students learn the classification and properties of amino acids, structure and functions of proteins, nucleic acids, ADP, ATP and AMP. Classification, properties and structure of carbohydrates Classification and characteristics of enzymes and mechanism of enzyme action.
CH4C01.1 CH4C02.1 CH4C01.2	Advanced Physical Chemistry - II Physical Chemistry Practical Advanced Bio-organic Chemistry	CO1 CO2 CO1 CO2 CO2 CO2	The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results. The students learn the classification and properties of amino acids, structure and functions of proteins, nucleic acids, ADP, ATP and AMP. Classification, properties and structure of carbohydrates Classification and characteristics of enzymes and mechanism of enzyme action. To analyse the functional group
CH4C01.1 CH4C02.1 CH4C01.2 CH4C02.2	Advanced Physical Chemistry - II Physical Chemistry Practical Advanced Bio-organic Chemistry	CO1 CO2 CO1 CO1 CO2 CO1 CO1 CO2	 The objective of this academic plan is to make the concepts and methods to help the students to get a basic idea about spectroscopy The students get to study the rules governing chemical reactions and factors influencing them. Explain the principle behind the experiments performed in the laboratory Plan and Perform experiments and Interpret experimental results. The students learn the classification and properties of amino acids, structure and functions of proteins, nucleic acids, ADP, ATP and AMP. Classification, properties and structure of carbohydrates Classification and characteristics of enzymes and mechanism of enzyme action. To analyse the functional group To determine the physical constants of solids and liquids

Open Course				
SEMESTER 5				
CH5D01 2	Food Science	CO1	To understand the chemistry of food adulteration and adulterants	
0113201.2		CO 2	To know the methods of analyzing the adulterants	
	Cl	hoice Ba	used Course	
		SEME	CSTER 6	
	Environmental	CO1	The Student Learn Environmental management and impact assessment	
C110D00.4	Chemistry	CO2	The student get to know the Toxic effects of pollutants	
	2017	Admis	sion Onwards	
		Core	Courses	
		SEME	STER 1	
		CO1	To have a broad outline of the methodology of science in general and Chemistry in particular.	
CH1CR T01	General and Analytical Chemistry	CO2	To restore the knowledge about periodic table and periodic properties.	
		CO3	Students can apply these skills in the analysis of experimental data in chemistry practical and further for jobs.	
		SEME	CSTER 2	
CH2CR T02	Theoretical and Inorganic Chemistry	CO1	To impart essential theoretical knowledge on atomic structure, periodic properties, chemical bonding	
		CO2	To study the periodic properties of elements in s,p,d, and f blocks	
		CO3	To explain the formation of different types of bonds	
	Volumetric Analysis- Practical	CO1	To practice and analyses different types of acidimetric and alkalimetric titrations	
CH2CRP01		CO2	To achieve the skills in complexometry, dichrometry, and permanganaometry.	
		CO3	To acquire the ability to carry out volumetric experiments more precisely and interpreting data's.	
		SEME	STER 3	
		CO1	To promote understanding of basic facts and concepts and to inculcate interest in Organic chemistry.	
CH3CR T03	Organic Chemistry-1	CO2	To have a basic understanding about the classification and nomenclature of organic compounds, fundamentals of organic reaction mechanism, aromaticity and stereochemistry	

		CO3	The philosophy adapted in choosing the topics is to provide sufficient Chemistry for the reactions and also to minimize the unnecessary repetition of materials found in higher secondary classes.
		SEMF	STER 4
		CO1	To give the students a thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of organic compounds and their preparations and reactions.
CH4CR T04	Organic Chemistry-II	CO2	To enable the students- To learn the chemistry of alcohols, phenols, ethers, aldehydes, ketones, carboxylic acids, derivatives of Carboxylic acids, Sulphonic acids.
		CO3	To understand and study Organic reaction mechanisms.
CHACEDOO	CH4CRP02 Qualitative Organic Analysis (Practical)	CO1	To learn the systematic analysis and preparation of derivatives of organic compounds
CH4CRP02		CO2	To practice and analyses the test for elements, unsaturation, and reactions of functional groups.
		SEME	CSTER 5
		CO1	Students will possess the intellectual flexibility necessary to view environmental questions from multiple perspectives, prepared to alter their understanding as they learn new ways of understanding
CH5CR T05	Environment, Ecology and Human rights		under Standing.
	and Human rights	CO2	Students will solve problems systematically, creatively, and reflexively, ready to assemble knowledge and formulate strategy
	and Human rights	CO2 CO3	Students will solve problems systematically, creatively, and reflexively, ready to assemble knowledge and formulate strategy When encountering environmental problems students will assess necessary scientific concepts and data, consider likely social dynamics, and establish integral cultural contexts.
	and Human rights	CO2 CO3 CO1	Students will solve problems systematically, creatively, and reflexively, ready to assemble knowledge and formulate strategy When encountering environmental problems students will assess necessary scientific concepts and data, consider likely social dynamics, and establish integral cultural contexts. This part of the syllabus gives the idea of prediction of mechanisms for organic reactions
CH5CR TO6	Organic Chemistry -III	CO2 CO3 CO1 CO2	Students will solve problems systematically, creatively, and reflexively, ready to assemble knowledge and formulate strategy When encountering environmental problems students will assess necessary scientific concepts and data, consider likely social dynamics, and establish integral cultural contexts. This part of the syllabus gives the idea of prediction of mechanisms for organic reactions How to use their understanding of organic mechanisms to predict the outcome of reactions
CH5CR T06	Organic Chemistry -III	CO2 CO3 CO1 CO2 CO3	Students will solve problems systematically, creatively, and reflexively, ready to assemble knowledge and formulate strategy When encountering environmental problems students will assess necessary scientific concepts and data, consider likely social dynamics, and establish integral cultural contexts. This part of the syllabus gives the idea of prediction of mechanisms for organic reactions How to use their understanding of organic mechanisms to predict the outcome of reactions How to design syntheses of organic molecules and how to determine the structure of organic molecules using IR and NMR spectroscopic techniques

	i nysicai Chennistry -i	CO2	The underlying theory of chemical phenomena is completed, and so it is a challenge to make the most important concepts and methods understandable to undergraduate students.
CH5CR T08	Physical Chemistry -II	CO1	The objective of this academic plan is to make the concepts and methods of physical chemistry clear and interesting to students, who have basic ideas in mathematics and physics
		CO2	The underlying theory of chemical phenomena is completed, and so it is a challenge to make the most important concepts and methods understandable to undergraduate students.
		SEME	STER 6
CH6CR T09	Inorganic Chemistry	CO1	By considering the rapid development in the field of inorganic chemistry since the late 1950's it has become necessary that an undergraduate chemistry student should gain perspective on the past, without compromising the modern developments.
		CO2	An inorganic chemistry student is expected to be conversant with the chemistry of all the elements and has been closely allied with analytical chemistry, with physical chemistry and even with organic chemistry
CH6CR T10	Organic Chemistry-IV	CO1	This part of the curriculum deals with biological aspects of chemistry, which help students to understand medicinal chemistry, useful in daily life
		CO2	By studying the details of Natural products students can get the job of chemist in medicinal companies
CH6CR T11	Physical Chemistry-III	CO1	This part of the syllabus covers Thermodynamics, Equilibrium and Kinetics, three important topics in chemistry, which will help students to get foundation for further studies
		CO2	The main advantage of the syllabus is that students are getting enough information about the speed and energy requirements for chemical reactions.
CH6CR T12	Physical Chemistry -IV	CO1	Physical chemistry is one of interesting area for many students, in this part of the syllabus students are gathering information about Solution Chemistry
		CO2	What makes it interesting is that students have an idea about the reactions that takes place in solutions, which are beyond their imagination.
		COI	Emination of interfering amons

CH6CRP03	Qualitative Inorganic	CO2	Systematic qualitative analysis of mixtures containing two acid and two basic radicals from the following with one interfering radical by semi- micro method only
CH6CRP04	Organic Preparations and Basic Laboratory Techniques	CO1	Basic Laboratory Skills like Solvent extraction and Crystallisation Preparations of organic compound
CUCCDD05	Physical Chemistry	CO1	Viscosity, Transition temperature of salt hydrates, Determination of partition coefficient,
	Practical	CO2	Determination of equivalent conductance of an electrolyte
CIICODDOC	Gravimetric Analysis	CO1	Estimation of Barium as BaSO ₄
	Gravinieure Analysis	CO2	Estimation of sulphate as BaSO ₄
	Project & Industrial visit and	CO1	To understand the requirements to start an industry - different fuels used and the industrial catalysts used.
CH6PRP01	comprehensive viva-voce	CO2	To know about different petrochemical industries
		CO3	To acquire knowledge about oils, soaps, detergents, sugar industry, leather and pesticide industries.
	Complementary (Courses	for Physics and Chemistry
		SEMF	STER 1
		CO1	To study atomic structure, basics of thermodynamics and the concept of equilibrium
CH1CMT01	Basic Theoretical and Analytical Chemistry	CO2	To understand principles of analytical chemistry and chromatographic techniques
		_CO3	Students can apply these skills in the analysis of experimental data in chemistry practicals and further for jobs.
		SEME	CSTER 2
	Basic Organic Chemistry	CO1	By studying this part of the syllabus students are getting basic ideas of organic chemistry, which enables them to build a better foundation
CH2CM T02		CO2	The course aims to study the mechanism of organic reactions
		CO3	It also develops an interest in various branches of organic chemistry.
		CO1	Plan and Conduct different estimation technique.
CH2CM P01	Volumetric Analysis-	CO1 CO2	Plan and Conduct different estimation technique. To study the effect of various indicators
CH2CM P01	Volumetric Analysis- Practical	CO1 CO2 CO3	Plan and Conduct different estimation technique. To study the effect of various indicators To estimate and check the accuracy of the given sample
CH2CM P01	Volumetric Analysis- Practical	CO1 CO2 CO3	Plan and Conduct different estimation technique. To study the effect of various indicators To estimate and check the accuracy of the given sample STER 3

CH3CM T03	Physical Chemistry - 1		To make students capable of understanding and	
		CO2	studying electrical and nuclear properties of molecules	
		C01	Develops an interest in various branches of inorganic and organic chemistry.	
CH3CM T04	Inorganic and Organic Chemistry	C02	An inorganic chemistry student is expected to be conversant with the chemistry of all the elements and has been closely allied with analytical chemistry, with physical chemistry and even with organic chemistry.	
		SEME	ESTER 4	
CH4CM T05	Physical Chemistry - 11	CO1	The objective of this academic plan is to make the concepts and methods of physical chemistry clear and interesting to students, who have basic ideas in mathematics and physics	
		CO2	The understand theory of modern branches like spectroscopy	
CHACM DO2	Physical Chemistry Practical	CO1	Explain the principle behind the experiments performed in the laboratory	
CH4CM P02		CO2	Plan and Perform experiments and Interpret experimental results.	
CH4CM T06	Advanced Bioorganic Chemistry	C01	This part of the curriculum deals with biological aspects of chemistry, which help students to understand medicinal chemistry, useful in daily life	
		C02	To study the details of Natural products	
	Organic Chemistry Practical	CO1	To analyse the functional group	
CH4CM P03		CO2	To determine the physical constants of solids and liquids	
		CO3	To prepare a solid derivatives of the detected organic compounds	
Open Cour	se			
		SEMF	ESTER 1	
	Chemistry in Everyday Life	CO1	The student can enlightened about the pros and cons of using processed food stuff.	
CHJUPIUI		CO2	Student learn difference between the various types of soaps, their mode of cleaning action	
Choice Based Course				
		SEME	CSTER 1	
CH6CBT02	Nanochemistry and	CO1	Synthesis and characterisation of nano systems	
CHOCB102	Nanotechnology	CO2	Electrical and optical properties of nano systems	