SRI VENKATESWARA UNIVERSITY:: TIRUPATI

CENTRE FOR DISTANCE AND ONLINE EDUCATION

PPR for M.Sc. CHEMISTRY

Choice Based Credit System (CBCS)

Amended as per NEP-2020

(w.e.f. the Academic Year 2024-2025)

DIRECTOR
Centre for Distance and
Online Education (CDOE)
Sri Venkateswara University
TIRUPATI - 517 502.

Centre for Distance and Online Education
S.V. University
Tirupati

REGISTRAR
S.V. UNIVERSITY
TIRUPATI

Vision

Impart quality education & training in the field of chemistry to enable successful careers for the post graduate students in the field of research, education & industry applications of chemical sciences.

Mission

The Department of Chemistry strives:

- To get an ideal balance between knowledge creation and knowledge dissemination in the chemical sciences with a focus to train and mentor students to become responsible scientists and scientifically literate professionals to attain National and International impact.
- To contribute to the improvement of scientific and technological literacy, and the development of critical-thinking and problem-solving skills of all students in order to compete for the world of work and responsible citizenship

PROGRAM EDUCATIONAL OBJECTIVES:

At the end of the program, the student wills be able to:

PEO1	To demonstrate broad knowledge of descriptive chemistry.
PEO2	To impart basic analytical and technical skills to work effectively in various fields of chemistry.
PEO3	To motivate critical thinking and analysis skills to solve complex problems viz., analysis of data, synthetic logistics, spectroscopy, structure and modeling, team based problem solving etc.
PEO4	To demonstrate an ability to conduct experiments in the above sub disciplines with mastery of appropriate techniques and proficiency using core chemical instrumentation and modeling method
PEO5	To develop laboratory competence in relating chemical structure to spectroscopic phenomena.
PEO6	To demonstrate the ability to synthesize, separate and characterize compounds using published reactions, protocols, standard laboratory equipment and modern instrumentation.

PROGRAM OUTCOMES: On completion of M.Sc. Chemistry programme, graduates will be able to –

PO1	Have a firm foundation in the fundamentals and application of current chemical and scientific theories in different areas of chemistry *viz*., Analytical, Environmental, Inorganic, Organic and Physical.
PO2	Understands the background of organic reaction mechanisms, complex chemical structures, and instrumental methods of chemical analysis, molecular rearrangements and separation techniques.
PO3	Familiarize with the importance of various elements present in the periodic table, coordination chemistry and structure of molecules, properties of compounds, structural determination of complexes using theories and instruments.
PO4	Understand about the physical aspects of atomic structure, dual behavior, reaction pathways with respect to time, various energy transformations, molecular assembly in nano-level, significance of electrochemistry, molecular segregation using their symmetry.

PO5	Create awareness and sense of responsibilities towards environment and apply knowledge to solve the issues related to Environmental pollution.
PO6	Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in the subject concerned. Ability to identify unethical behavior such as fabrication, falsification or misrepresentation of data and adoptive objective, unbiased and truthful actions in all aspects.
PO7	Be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
PO8	Clearly communicate the results of scientific work in oral, written and electronic formats.
PO9	Explore new areas of research in both chemistry and allied fields of science and technology.
PO10	Design, analyze and carry out scientific experiments and interpret data to provide solutions to different industrial problems.
PO11	Independently carry out research to solve practical problems and present a substantial technical report.
PO12	Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning throughout life, through self- paced and self-directed learning aimed at personal development, and adapting to change academic demands of work place through knowledge/ skill development/ reskilling.

PROGRAM SPECIFIC OUTCOMES: At the end of the program, the student will be able to:

PSO1	**Scientific Problem solving skills**: Deep knowledge of the topic which can develop the problem solving skills using chemical principles.
PSO2	**Analytical skills**: Develop analytical skills such as synthesizing, separating, characterizing chemical compounds and chemical reactions with the help of sophisticated instruments
PSO3	**Research skills**: Develop research skills through dissertation/project work in different fields of chemistry such as organic, inorganic, analytical, physical and environmental.
PSO4	**Learning skills on life processes**: Acquire advanced level of knowledge in natural products as well as biological systems from the chemistry point of view.

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CENTRE FOR ONLINE AND DISTANCE EDUCATION

ORGANIC CHEMISTRY

TWO YEAR M.Sc. COURSE IN CHEMISTRY

(2021-2022)SCHEME

Semester -I

Sl. No.	Course Code	Components of Study	Title of the Course	Credit Hrs/ Week	No. of Credits	IA Marks	SEM End Exam Marks	Total
1	CHE-101	Core-Theory	Inorganic Chemistry- I	6	4	20	80	100
2	CHE-102	Core-Theory	Organic Chemistry I	6	4	20	80	100
3	CHE-103	* Compulsory Foundation	a) Physical Chemistry- I b) Chemistry of Nanomaterials	6	4	20	80	100
4	CHE-104	* Elective Foundation	a) General Chemistry- I b) Green Chemistry	6	4	20	80	100
5	CHE-105	Practicals (Core & Comp.)	a) Inorganic Practical-I b) Physical Chemistry-I	3 3	2 2	- -	- -	50 50
6	CHE-106	Practicals (Core & Elective)	a) Organic Chemistry- I b) General Chemistry-I	3 3	2 2	- -	- -	50 50
7	CHE-107	Audit Course	Values and Professional Ethics – I	0	0	100	-	
		Total		**36**	**24**			**600**

***Among the Compulsory and Elective Foundation a student shall choose anyone.**

SEMESTER-II

Sl. No.	Course Code	Components of Study	Title of the Course	Credit Hrs/ Week	No. of Credits	IA Marks	SEM End Exam Marks	Total
1	CHE-201	Core-Theory	Inorganic Chemistry- II	6	4	20	80	100
2	CHE-202	Core-Theory	Organic Chemistry -II	6	4	20	80	100
3	CHE-203	* Compulsory Foundation	(a)Physical Chemistry- II (b) Advanced Thermodynamics and Biophysical chemistry	6	4	20	80	100
4	CHE-204	* Elective Foundation	a)General Chemistry- II b)Chemistry of contemporary society	6	4	20	80	100
5	CHE-205	Practicals (Core & Comp.)	a)Inorganic Practical-II b)Physical Chemistry-II	3 3	2 2	- -	- -	50 50
6	CHE-206	Practicals (Core & Elective)	a)OrganicChemistry- II b)General Chemistry-II	3 3	2 2	- -	- -	50 50
7	CHE-207	Audit Course	Human Values and Professional Ethics – I	0	0	100	-	
		Total		**36**	**24**			**600**

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M.Sc. (ORGANIC CHEMISTRY)

SEMESTER-III

Sl. No	Course Code	Components of Study	Title of the Course	Credit Hrs/ Week	No. of Credits	IA Marks	SEM End Exam Marks	Total
1	CHE-OC-301	Core-Theory	Organic Chemistry-III	6	4	20	80	100
2	CHE-OC - 302	Core-Theory	Organic Spectroscopy	6	4	20	80	100
3	CHE-OC-303	*Generic Elective	(a) Inorganic Spectroscopy & Thermal Methods of analysis (b) Physical Chemistry III	6	4	20	80	100
4	CHE-OC-304	Core& Gen. Practical	Organic Estimations	6	4	-	-	100
5	CHE –OC-305 A	Skill Oriented Course (theory)	Chemotherapy and drug analysis	3	2	10	40	50
	CHE –OC-305 B	Skill Oriented Course (Practicals)	Multistep preparations	3	2	-	-	50
6	CHE- 306	Open Elective **(For other departments)**	(a) Spectral Techniques (b) Chromatographic Techniques	6	4	20	80	100
		Total		**36**	**24**			**600**

***Among the Generic Elective a student shall choose any one.**

SEMESTER-IV

Sl. No	Course Code	Components of Study	Title of the Course	Credit Hrs/ Week	No. of Credits	IA Marks	SEM End Exam Marks	Total
1	CHE-OC-401	Core-Theory	Organic Synthesis - I	6	4	20	80	100
2	CHE-OC-402	Core-Theory	Organic Synthesis - II	6	4	20	80	100
3	CHE-OC-403	Generic Elective* **(Related to subject)**	(a) Heterocycles and natural Products (b) Bioinorganic, Bioorganic & Biophysical Chemistry	6	4	20	80	100
4	CHE-OC-404	Core& Gen. Practical	Spectral Identification	6	4	-	-	100
5	CHE-OC-405	Core-Practicals/ Project work	Project work	6	4	-	-	100
6	CHE-406	Open Elective **(For other departments)**	(a) Drug Chemistry or (b) Electroanalytical Techniques	6	4	20	80	100
		Total		**36**	**24**			**600**

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