

MAHARAJA GANGA SINGH UNIVERSITY, BIKANER

Ph. D. COURSE WORK IN CHEMISTRY

"Course work" shall mean courses of study prescribed by the course Advisor to be undertaken by the incumbent registered for Ph. D degree. Course Advisor mean a faculty member nominated by Head of department to chalk out the programme of study of a student registered for the Ph. D degree and to advice him on the courses to be taken by him. If a supervisor has already been appointed he/she shall be the course Advisor for that student.

The pattern of course work includes state-of-art of research work, research methodology, review of literature, experimental, scope of work, computer and microprocessor based study in question, quantitative techniques for analysis of data.

The duration of course work will be six month. On completion of course work the university will conduct an examination of descriptive type of 100 marks with minimum pass marks 36.

The broad-based syllabus of course work should be from following fields of contemporary Chemistry.

1. Electrochemistry and Electroanalytical Techniques, Corrosion and Anodising industry
2. Green Chemistry - Solvent free synthesis, catalysis and industrial methods of extraction of Natural products
3. Organic synthesis
4. Lanthanide chemistry - Applications of lanthanides in medicines and catalysis, Green lanthanides
5. Industrial Biotechnology - modern bioreactors, biomaterials and tissue engineering
6. Spectroscopic techniques of identification including gamma ray spectroscopy
7. Micellar and surface chemistry
8. Organometallic chemistry and coordination chemistry
9. Environmental chemistry
10. Food and Drug analysis

Reference Book : Chemistry

1	Data Analysis for Chemistry	Brynh H
2	Micelles	Moroi Y
3	Biophysical Chemistry Part I the Conformation of Biological Macromolecules	Cantor CR
4	Biophysical Chemistry Part 2 Techniques for the Study of Biological Structure and Function	Cantor CR
5	Biophysical Chemistry Part 3 The Behaviour of Biological Macromolecules	Cantor CR
6	Computational Chemistry	Lewars
7	Modern Electrochemistry –I Ionics 2/E	Bockris/Reddy
8	Modern Electrochemistry -2 A Fundamentals of Electrodes 2/E	Bockris/Reddy
9	Modern Electrochemistry 2 B Electrodes in Chemistry, Engg. Biology & Environmental Science 2/E	Bockris/Reddy
10	Quantum Chemistry & Spectroscopy	Engel
11	Thermodynamics, Statistical Thermodynamics and Kinetics	Engel
12	Molecular Spectroscopy	McHale
13	Thermodynamics and Statistical Mechanics	Attard
14	Systematic Experiments in Chemistry	A Sethi
15	Introduction to the Chemistry of Hetero 9 Cyclic Compounds 3/E	Acheson
16	Electrochemical Methods : Fundamentals and Applications 2/E	Bard
17	Mass Spectrometry 2/E	Barker
18	Heterocyclic Chemistry 4/E	Joule

19	Polarography and other Volta Metric Methods	Riley
20	Principles of Electro analytical Methods	Riley
21	Spectrometric Identification of Organic Compounds 6/E	Silverstein
22	Reagent for Organic Synthesis 22 Vol. Set	Smith
23	Modern Infrared Spectroscopy	Stuart
24	Heterocycle Chemistry 3/E	Gilchrist
25	Modern Mass Spectrometry	Schalley
26	Name Reactions	Li, Jie Jack
27	Principles of Organometallic Chemistry	Powell
28	Supramolecular Chemistry	Ariga
29	Organic Name Reactions : A Unified Approach	G Brahmchari
30	Molecular Reaction Dynamics	Levine
31	Name Reactions in Organic Synthesis	Parikh
32	Fundamental Concepts in Environmental Studies	GD Mishra
33	Environment Problems & Solutions	Asthana/Asthana
34	Chemistry of Biomolecules	Bhutani
35	Chemistry of Natural Products : Amino Acids, Peptides, Proteins and Enzymes	Ahluwalia
36.	Principles of Fluorescence Spectroscopy	Lakowicz JR
37	Polymers : Chemistry & Physics of Modern Materials 3/E	Cowie MG
38	Polymer Science :A Text Book	Ahluwalia
39	Reaction Mechanisms of Inorganic and Organometallic system 3/E	Jordan RB
40	An Introduction to Lasers Spectroscopy 2/E	Andrews DL

41	Environmental Chemistry : Green Chemistry and Pollutants Ecosystems	Lichtfouse
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