

Subject Code: 1SC2030421	Subject Title: Research Methodology
COURSE TYPE: CORE COURSE	

Course Objective: To impart knowledge and training in chemistry at advanced level, make aware with recent analytical technique, use of reagents and reactions in laboratory, synthesis and study of materials, the exploration of their properties and development of ways to use the mineral life.

Teaching scheme (hours) per week		Credit		Theory Marks		Practical Marks		Total
Theory	Practical	Theory	Practical	University Assessment	Cont. Assessment	University Assessment	Cont. Assessment	
4	-	4	-	60	40	-	-	100

UNIT	DISCRIPTION IN DETAIL	WEIGHTAGE
I	<u>Introduction:</u> Objective of research, motivation in research, types of research, interdisciplinary research, scientific methods of research, criteria of good research, and characteristics of a good researcher.	25%
II	<u>Defining Research Problem:</u> Art of literature review, user of ICT in effective literature review, formulation of problem, formulation of hypothesis, developing research plan, meaning of research design, types of research design, basic principles of experimental design, selection of relevant variables, validity of experiments.	25%
III	<u>Computer Application:</u> Role of computer in research, data organization, software selection and its applications, solving problems by using scientific software & tools, sample programmes for analysis of data.	25%
IV	<u>Thesis Writing and Presentation:</u> Significance of writing thesis, different types of research writing; conference paper, journal paper, patents, thesis etc., different steps in writing thesis, layout of thesis, guidelines for writing good thesis, precautions in writing thesis, presentations skills, defending the thesis.	25%

Learning Outcomes

Students can understand the atomic and molecular basis of organic chemistry. They can know the impact of organic chemistry on the fields of medicine, pharmacy and its impact on the global economy. They can understand the fundamental principles of molecular structure and shape as they relate to organic molecules and their properties. They can identify organic molecules by functional group: alkane, alkene, alkyne, haloalkane, alcohol, thiol, ether, sulfide, amine, aldehyde, ketone, carboxylic acid and carboxylic acid derivatives.

BOOKS

1. Research Methodology: Methods & Techniques by C R Kothari, 2e, Wishwa Publication, New Delhi
2. Research Methodology by D K Bhattacharyya, 1 e, Excel Books, New Delhi, 2003
3. How to Research by Loraine Blaxter, Christina Hughes and Molcolm Tight, Viva Books Pvt.Ltd., New Delhi
4. Writing Your Thesis by Paul Oliver, VistaarPulication, New Delhi, 2006
5. The Research Student's Guide to Success by Pat Cryer, Viva Books Pvt Ltd., New Delhi