

BS Chemistry Semester-V					
Programme	BS Chemistry	Course Code	CHEM-332	Credit Hour	1
Course Title	Organic Chemistry (Lab)		Course Type	Major	
Course Introduction					
The course is organized to provide an adequate knowledge about basic concepts of single step organic synthesis and estimation of different reducing sugars in different solutions. Organic synthesis: Benzoic acid from benzaldehyde (Cannizzaro) and from toluene (KMnO₄); ethyl benzene from acetophenone; benzilic acid from benzyl and benzyl from benzoin, Iodoform reaction. preparation of benzanilide from benzoyl chloride, Succinic anhydride from succinic acid, Phthalimide from phthalic anhydride, Oximes and hydrazones from carbonyl compounds and an ester from a carboxylic acid and alcohol. Estimation of reducing sugars in different solutions.					
Learning Outcomes					
On the completion of the course, the students will: 1. Understand the key concepts of organic synthesis 2. Familiarize with organic preparations and quantitative analysis. 3. Student will be able to estimate the amount of reducing sugar in different samples.					
Course Content			Assignments/Readings		
Week 1	Synthesis of benzoic acid from benzaldehyde		Literature survey		
Week 2	Synthesis of benzoic acid from toluene		Write complete mechanism		
Week 3	Prepare ethyl benzene from acetophenone				
Week 4	Synthesis of dibenzalacetone using acetone and benzaldehyde				
Week 5	Synthesis of benzil from benzoin		Literature survey		
Week 6	Prepare benzilic acid from benzil				
Week 7	Preparation of iodoform		Write complete mechanism		
Week 8	Mid Term Examinations				
Week 9	Preparation of benzoic acid using benzamide		Write complete mechanism		
Week 10	Synthesis of Umbelliferone from resorcinol				
Week 11	Synthesis of aspirin from salicylic acid				
Week 12	Quantitative and Qualitative Analysis of Organic compounds		Search out importance of estimation of glucose in medical field.		
	Estimation of glucose				
	Estimation of sucrose				
Week 13	Estimation of fructose		Search out importance of estimation of glucose in medical field		
Week 14	Estimation of lactose				
Week 15	Estimation of maltose				
Week 16	Final Term Examinations				

Textbooks and Reading Material	
1. Vogel's Textbook of Practical Organic Chemistry (5th Ed.) by A.I. Vogel et al. Longman, UK, 1989. 2. Advanced Practical Organic Chemistry, by J. Leonard, B. Lygo, G. Procter, CRC. 1994. 3. Advanced Practical Organic Chemistry (2nd Ed.) by N.K. Vishnoi, Vikas Publishing House Pvt. Ltd. India, 1996. 4. K.N. Williamson and K.M. Masters, <i>Macroscale and Microscale Organic Experiments</i>, published by Cengage learning, 2011. 5. J.J. Li, C. Limberakis and D.A. Pflum, <i>Modern Organic Synthesis in Laboratory</i>, Oxford University Press, 2007. 6. J. Leonard, B. Lygo and G. Procter Nelson, <i>Advanced Practical Organic Chemistry</i>, Thomes Ltd. UK, 2001.	
Teaching Learning Strategies	
1Lectures 2Group Discussion 3Laboratory work 4Seminar/ Workshop	
Assignments: Types and Number with Calendar	
1. Lab activities and practical performance from week 1 to week 16. 2. Literature review based assignment relevant to the course will also be given during the course. 3. Maintain record of all Practicals in note book under the following headings: Theory, Procedure, Chemicals, Observations and Results, Precautions	