CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF CHEMISTRY
M.Sc. CHEMISTRY

Course Code	Course Title	Contact hrs. / wk.				Credits
		Lect.	Lab	Tut	Total	
CHE 5192	Organic Chemistry Laboratory - I		5			2

Lec = Lecture, Tut = Tutorial, Lab = Practical

This is a participatory, experimental, and employability based skill development course.

Course objective:

Objective of the course is to develop practical and laboratory skills of the student in organic chemistry.

By completing this course, students will obtain the following course/learning outcomes:

- Learn how to separate and purify products in organic reactions.
- Students will demonstrate safe laboratory practices through the use of appropriate personal protective equipment and appropriate handling of all chemicals, including proper disposal of waste.
- Students will be trained to develop experimental and analytical skills to perform basic organic chemistry experiments useful for organic chemistry research.

Grading:

Laboratory Experiments – 20%
Record of observations and reporting – 10%
Viva evaluation – 10%
End Semester Assessment – 60%

CHE 5192 Organic Chemistry Laboratory- I

Syllabus Modules:

1. Purification of liquids: Simple & fractional distillation methods
2. Purification of solids: Sublimation& recrystallization (benzoic acid, salicylic acid etc.)
3. Thin layer chromatography: Identification of known, unknown compounds and natural products and calculation of R_F and R_T values.
4. Paper Chromatography for separation of natural products – spinach, neem, etc.

5. Polarimetry- Determination of the concentration of lactose, glucose, sugar etc.

6. Refractometry - Identification of pure organic liquids and oils. Determination of molar refractions of pure liquids. Determination of concentration of solutions.

7. Separation of a mixture of two components by solvent extraction.

8. Separation of organic compounds by column chromatography.

9. Determination of melting points of known and unknown compounds and the effect of impurities.
10. Single step organic synthesis – Nitration, bromination, amination etc.

11. Organic Synthesis- new reagents

12. Organic Synthesis - new methodology (macro, microscale etc.)

13. Characterization of organic compounds by UV and IR Spectroscopy.

References

1. A. I. Vogel, Practical Organic Chemistry, 5th Ed, 1989.
2. C. E. Bell, D. F. Taber, A. K. Clark, Organic Chemistry Laboratory, Thomson, 2000.
3. C. E. Bell, D. F. Taber, A. K. Clark, Organic Chemistry Laboratory with Qualitative Analysis, 3rd Ed., Brooks/Cole-Thomson Learning, 2001.
4. D. J. Pasto, C. R. Johnson, M. J. Miller, Experiments and Techniques in Organic Chemistry, Prentice Hall, 1991.
5. V. K. Ahluwalia, R. Aggarwal, Comprehensive Practical Organic Chemistry Vol. 1 & 2, Univ. Press, 2001.