

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

Course Code	Course Title	Contact hrs. / wk.				Credits
		Lect.	Lab	Tut	Total	
CHE 5292	Organic Chemistry Laboratory - II		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:

- Separation and purification of organic compounds by employing chromatographic techniques/other standard methods.
- [Acquire skills to perform organic synthesis, separation and purification of products, followed by characterization using instrumental spectroscopic methods, which will be helpful to pursue research career in organic chemistry/organic synthesis.](#)

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:

One step or multistep organic synthesis, estimation and characterization of the synthesized compounds by various analytical methods. These include:

1. Preparative chromatographic separation of organic compounds
2. Elemental analysis of organic compounds
3. Isolation of natural products- Plant extracts
4. Extraction of oils- Peanut oil, Castor oil, Neem oil etc.
5. Estimation of amino acids by chemical methods
6. Estimation of nitrogen by Kjeldahl method
7. Radical reactions – Free radical addition (polystyrene, polymethylmethacrylate, PVA etc.)

8. Oxidation of primary and secondary alcohols
9. Cycloaddition – Diels Alder Reactions
10. Synthesis of pharmacologically active compounds – Aspirin, Acetaminophen etc.
11. Esterification of alcohols (example: n-butyl alcohol)
12. Rearrangement reaction – Beckman rearrangement of acetophenone oxime
13. Electrophilic, nucleophilic reactions
14. Photochemical Reactions
15. Enzymatic reactions
16. Multistep synthetic reactions
17. Quantitative determination of organic compounds, amino acids, and proteins using spectrophotometric methods.
18. GC Analysis of organic compounds
19. HPLC Analysis of organic compounds and biomolecules

Selection can be made from the above specified or any other experiments for which references are available in the literature.

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.