



सीएसआईआर - राष्ट्रीय अंतर्विषयी विज्ञान
तथा प्रौद्योगिकी संस्थान

CSIR - NATIONAL INSTITUTE FOR INTERDISCIPLINARY
SCIENCE AND TECHNOLOGY (NIIST)



CSIR Integrated
Skill Initiative

SYNTHETIC ORGANIC CHEMISTRY – HANDS-ON TRAINING ON FUNDAMENTALS AND SPECIALIZED REACTIONS

OBJECTIVES

- **Theory classes:** Basic organic reactions, Characterization techniques, Safety protocols in wet lab etc.
- **Practical's:** Organic reactions mentioned in the syllabus.

TOPICS TO BE COVERED

- **Training on common practices and equipment's:** Classes will be given on common lab practices and safety measures. Hands-on training will be given on common lab equipment's.
- **Chromatographic techniques:** Training will be given on TLC, column chromatography, flash chromatography and HPLC.
- **Peptide and carbohydrate chemistry:** Training on peptide coupling and synthetic transformations of carbohydrates into useful intermediate/products.
- **Transition metal catalyzed coupling reactions:** Hand-on experience mainly on metal catalyzed coupling reactions.
- **Multicomponent reactions:** Training on Multicomponent reactions will be provided.
- **Heterocycle and heteroacene synthesis:** Synthesis of substituted pyridine, indole and heteroacenes.
- **Synthesis of organic dyes:** Training on the synthesis of organic dye molecules.
- **Low temperature reactions involving sensitive organometallic reagents:** Setting-up of reactions at low temperature (-30 to -78 °C).
- **Setting up of reactions under inert atmosphere:** Training on setting up inert reactions in Schlenck flasks with nitrogen/argon.
- **General characterization of organic compounds:** Through NMR, HR-MS and other spectroscopic techniques.

COURSE BENEFITS

Over the past century, innovations in synthetic methods have changed the way scientists think about designing and building molecules, enabling access to more expansive chemical space. Organic synthesis in general, have led to an impressive host of benefits to society, including useful products ranging from pharmaceuticals, dyes, cosmetics and agricultural chemicals to diagnostics and high-technology materials used in computers, mobile phones and spaceships. This branch of chemistry forms the backbone of several important industries dealing with pharmaceuticals, agrochemicals, speciality chemicals etc. In our country, there is a huge demand for manpower trained in techniques of synthetic organic chemistry. This skill development program is planned in such a way to give training on not only the fundamental techniques but also in performing complex organic reactions. For example: training will be provided in setting up reactions sensitive organometallic reagents at low temperature and also in setting up reactions under inert conditions. This skill development programme will enable the participants to find jobs in speciality chemicals industries or will be helpful during future research endeavours.

MODE

Offline

CONTACT

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E-mail:
sdp@niist.res.in

ACCOUNT DETAILS

The Director, CSIR-NIIST
(Regional Research
Laboratory (RRL)

Account No: 67047723825

IFSC Code: SBIN0070030

Bank: State Bank of India (SBI)

Address: Pappanamcode,
Industrial Estate

COURSE DATE AND DURATION

24th July 2024
2 Months

APPLY ONLINE

<http://sdp.niist.res.in>

COURSE COORDINATORS

Dr. K. V. Radhakrishnan, Dr. K. K. Maiti and
Dr. Jubi John

COURSE FEE

Rs. 20,000/-

NO. OF SEATS

10