



INTRODUCTORY ORGANIC CHEMISTRY I

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IISER PUNE

TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 8 Week (23 Aug'21 -15 Oct'21)
EXAM DATE : 24 Oct 2021

PRE-REQUISITES : Any student who has done basic physical/ general chemistry courses

INTENDED AUDIENCE : First year undergraduates of B.Sc. Chemistry; M.Sc. Chemistry students and doctoral students

INDUSTRIES APPLICABLE TO : Companies in the pharmaceutical sector may recognize and value this course

COURSE OUTLINE :

This course focuses on organic chemistry, the chemistry of carbon. Carbon based compounds; the organic compounds are the building blocks of life on earth. From biological molecules such as nucleic acids to polymers in plastic, they are omnipresent. Synthetically made compounds such as pharmaceutical drugs, paints and oils find wide use in our day-to-day life. This course highlights the fundamentals of organic chemistry. Topics such as structure, physical properties, and chemical reactivity of various organic compounds will be discussed in detail. This course also builds fundamentals of organic chemistry such as resonance, conformational analysis and stereochemistry. Study of various functional groups such as alkanes, alkenes, alkyl halides, alcohols etc. will be conducted in detail. In short, welcome to a course explaining the molecular basis of chemistry around you.

ABOUT INSTRUCTOR :

Prof. Neeraja Dashaputre completed her undergraduate studies in chemical technology from Institute of Chemical Technology, Mumbai. After which, she obtained a doctoral degree in organic chemistry at University of Maryland, USA. She worked as a faculty at Claremont University post her doctoral studies. She joined IISER Pune in July 2016 and is currently Assistant Professor. Her research interests are in pedagogy development for teaching chemistry. She has over five years of teaching experience in India, and USA.

Prof. Harinath Chakrapani completed his undergraduate and post-graduate studies in Chemistry from Loyola College and Indian Institute of Technology Madras, respectively. He moved to Duke University, USA to pursue his doctoral studies and after post-doctoral research stints at Wake Forest University and the National Cancer Institute, USA, he joined IISER Pune in July 2009 and is currently Associate Professor. His research interests are in organic chemistry and chemical biology. His laboratory works on developing new tools to study effects of oxidative stress responses in cells and antibiotic resistance. He has over eight years of teaching experience at IISER Pune.

COURSE PLAN :

Week 1 :Electronic Structure and Bonding

Week 2 :Alkanes and conformational analysis

Week 3 :Stereochemistry

Week 4 :Acids and Bases

Week 5 :Alkenes: structure and reactivity (Addition reactions)

Week 6 :Alkynes : structure and reactivity (Addition reactions)

Week 7 :Alkyl halides: structure and reactivity (Substitution and elimination reactions)

Week 8 :Alcohols Ethers and Epoxides ,Aromatic hydrocarbons and aromaticity