

# Enhancing Skills in Chemistry

(SEC practicals for undergraduates)

## About the Book

This book is based on Skill Enhancement Course (SEC) as per the latest LOCF (CBCS) syllabus for University of Delhi. It will however be quite useful for graduate students of most Indian Universities. Being especially designed for improving chemistry skills in undergraduate students of B.Sc. (H) Chemistry, B.Sc. (Prog.) Life Sciences and B.Sc. (Prog.) Physical Sciences, the book incorporates hands on practice on several topics of SEC Chemistry course such as Analytical Chemistry, Analytical Biochemistry, Green Chemistry, Cosmetic Chemistry, Pharmaceutical Chemistry and Pesticide Chemistry at one place.

Various analytical techniques have been discussed in an elaborate way to determine quality of water and soil such as pH, hardness, alkalinity of soil and water samples, quantitative measurement of dissolved oxygen. Quantitative or qualitative analysis of biomolecules such as proteins, carbohydrates, lipids etc., and preparation of cosmetics are also included. Specially designed market survey is reported in one of the chapters to give an insight into the chemical nature, structure, chemical class, toxicity, LD50, side effects, and antidote for various commercially available pesticides as well as botanical insecticides. The book also describes various green synthetic methods which aim at minimizing the use of hazardous chemicals, at the same time encouraging their substitution with renewable energy resources and natural feedstocks as alternative routes for chemical synthesis. It is worthy to mention that none of the books so far comprises a complete and detailed compilation of these experiments listed under SEC.

As per the demand of the latest flipped classroom teaching learning methods, this book also lists some of the online tools as well as simulators using virtual labs which makes it self-explanatory.

## About the Authors

**Dr. Pooja** has been teaching Organic Chemistry to B.Sc. (H) as well as B.Sc. (Prog.) courses at Sri Venkateswara College, University of Delhi since the past 7 years. She has completed her graduation in Chemistry (Hons.) from Dyal Singh College, University of Delhi. Then she continued her post-graduation in Chemistry (Hons.) from Hindu College, University of Delhi. Thereafter She has completed her PhD from Institute of Nuclear Medicine and Allied Sciences (INMAS), DRDO in the field of Synthesis and biological evaluation of Imaging agent for tumour as well as brain imaging. She has also published various research papers in her specified field with national or international journals. She has very good knowledge of blended teaching learning. She has also developed MOOCs for B.Sc. (H) Chemistry students as part of CBCS curriculum.

**Dr. Swati Aggarwal**, Ph.D. is an Assistant Professor in Department of Chemistry, Kalindi College, University of Delhi. She has been teaching Inorganic Chemistry to undergraduate students for many years in various prestigious colleges of University of Delhi. She completed her bachelors and masters degree in chemistry from St. Stephens's College, University of Delhi. Post that she joined Institute of Nuclear Medicine and Allied Sciences, DRDO, Timarpur in 2011 as a doctoral student. She published her research findings in several prominent journals and presented her work in many conferences. She was involved in the development of Teacher's e-kit for practical paper. She actively participates in organizing seminars, workshops, webinars and academic activities to promote scientific knowledge as well as build research interest among young students.

**Ms. Laishram Saya Devi** has been teaching Physical Chemistry to B.Sc. (H) as well as B.Sc. (Prog.) courses at Sri Venkateswara College, University of Delhi and several other colleges under Delhi University since the past 12 years. She has completed her graduation in Chemistry (Hons.) from Miranda House, University of Delhi and post-graduation in Chemistry from University of Delhi with first class. Thereafter, she completed her M.Phil. from Delhi University in the field of theoretical investigation of Statistical Dynamics of Dendrimers. Along with an immense experience of teaching undergraduate students, she has in her credit numerous publications in international journals of high repute.



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