



BASICS OF FLUORESCENCE SPECTROSCOPY

PROF. PRATIK SEN

Department of Chemistry
IIT Kanpur

TYPE OF COURSE : Rerun | Elective | UG

COURSE DURATION : 8 Weeks (24 Jan' 22 - 18 Mar' 22)

EXAM DATE : 27 Mar 2022

PRE-REQUISITES : Knowledge of basic quantum mechanics

INDUSTRIES APPLICABLE TO : Systronics India Ltd, Premier Colorscan Instruments Pvt. Ltd.

COURSE OUTLINE :

Fluorescence refers to light emission by substance after the absorption of electromagnetic radiation. Due to its environmental sensitivity and time resolved capability, fluorescence spectroscopy is now been widely applied to chemistry, biochemistry, biophysics, material science, forensic science, medicinal science, etc. Although fluorescence spectroscopy is used in many disciplines, this particular course is intended for the individuals willing to receive an in-depth introduction to the principles of fluorescence spectroscopy and its applications to chemistry and biology.

ABOUT INSTRUCTOR :

Prof. Pratik Sen earned Ph.D. degree from Indian Association for the Cultivation of Science, Kolkata, India in 2006. Then he moved to RIKEN, Japan for his post-doctoral research work as a JSPS fellow. Presently he holds the position of associate professor in Department of Chemistry, IIT Kanpur, India. His current research interests include fluorescence spectroscopy, ultrafast laser spectroscopy, nonlinear spectroscopy and single molecule spectroscopy.

COURSE PLAN :

Week 1: Introduction to Fluorescence

Week 2: Instrumentation for Fluorescence Spectroscopy

Week 3: Time-Domain Lifetime Measurements

Week 4: Solvent and Environmental Effects

Week 5: Fluorescence Quenching

Week 6: Fluorescence Anisotropy

Week 7: Energy Transfer

Week 8: Single-Molecule Fluorescence