

Code	MSME 679
Name	Molecular Photochemistry
Hour per week	3 (3 + 0)
Credit	3
ECTS	10
Level/Year	Graduate
Semester	Fall, Spring
Type	Elective
Prerequisites	One of the following Courses: General Chemistry, Organic Chemistry, Polymer Chemistry, Materials Science etc. (undergraduate level courses)
Content	This course focuses on the fundamentals and working principles of photochemical and photophysical processes at the molecular level and detailed study of these processes in materials science and nanotechnology fields. The topics covered in this course include Molecular Orbital Theory, pi-conjugated systems and orbital symmetry, UV-vis Absorption Spectroscopy, Molecular Photochemical Processes and Electromagnetic Spectrum, Photon and Wave Properties of Light, Photoelectric Effect Experiment, Quantum Concepts, Electronic Energy Levels and Fluorescence/Phosphorescence Processes, Franck-Condon Principle and Kasha's Rule in Absorption and Radiation Processes, Born-Oppenheimer Approximation in Photochemistry, Schrödinger Equation and Wave Functions in Molecules, Vibrational Wave Function and Molecular Vibrations, Organic Chromophoric Structures and Light Interactions, Organic Aromatic Compounds and Dye Materials.