1.	Title of the course	Pericyclic Reactions and Photochemistry
2.	Course number	CY605L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To CY6024/10
6.	To be offered by	Department of Chemistry
7.	To take effect from	July 2022
8.	Prerequisite	Nil
9.	**Course Objective(s):** To impart knowledge on chemical reactions that involve passage through a cyclic transition state, where a concerted shift of electrons plays a pivotal role. To introduce the concept of light-matter interaction that leads to chemical reactions, generally caused by absorption of UV-Visible and IR radiation.	
10.	**Course Content:** Pericyclic Reaction: molecular orbitals of acyclic conjugated systems, thermal and photochemical reactions, electrocyclic reactions, cycloaddition reactions and sigmatropic rearrangements; Frontier MO approach, perturbation molecular orbital method, correlation diagram; Woodward-Hoffmann selection rules; Reactivity, regioselectivity and periselectivity in cycloaddition reactions; Sommelet-Hauser, Cope and Claisen rearrangements, Ene reaction, Wittig rearrangement; Photochemistry: basic principles, Jablonski diagram, excited state of some organic molecules, cis-trans mechanism, reactions of carbonyl, olefin and conjugated carbonyl compounds, photo-induced functionalization involving Norrish type I and II, Paternobuchi reaction, Di-pi methane rearrangement; Photo chemistry of aromatic compounds.	
11.	**Textbook(s):** 1. Coyle J D, *Introduction to Organic Photochemistry*, Wiley (1986). 2. Sankararaman S, *Pericyclic Reactions - A Textbook: Reactions, Applications And Theory*, Wiley India (2015).	
12.	**Reference(s):** 1. Fleming I, *Pericyclic Reactions*, Oxford University Press (2015). 2. Kalaivani S, *Organic Photochemistry and Pericyclic Reactions*, MJP Publishers (2013). 3. Wayne R P, *Principles and Applications of Photochemistry*, Oxford Science Publications (1988). 4. Woodward R B and Hoffmann R, *The Conservation of Orbital Symmetry*, Academic Press (1971).	