Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Shri Vaishnav Institute of Science
Department of Life Science
Generic Electives (GE) Under Graduate Courses

SEMESTER IV

COURSE CODE	Category	COURSE NAME	TEACHING & EVALUATION SCHEME								
			THEORY			-		Th	T	P	CREDITS
			END SEM University Exam	Two Term Exam	Teachers Assessment*	-	-				
GUBT104	**GE**	**Photobiology**	60	20	20	-	-	3	-		3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **P** – Practical; **C** - Credit;
***Teacher Assessment shall be based following components: Quiz / Assignment / Project / Participation in Class, given that no component shall exceed more than 10 marks.**

Course Objectives:

1. To give a general idea about Photobiology to students of all disciplines.
2. To give an idea about the role of light in life.

Course Outcomes:

1. Students will understand the role of light in basic biological functions.
2. Students will understand about radiation as a component of environment.

Unit -I

Solar Radiation – Terrestrial and Extra-terrestrial; Photoreceptors and Photo-biological responses in Plants and Animals; Absorption and Action Spectra

Unit – II

Photosynthesis – Primary Light Reactions; Photosystem I and II; Electron Transport Chain and Photophosphorylation; Calvin Cycle and Carbon Fixation in C3, C4 and CAM Plants; Photorespiration

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GUBT104 Photobiology

Unit – III

Photomorphogenesis and discovery of Phytochrome; Properties and Mechanism of Phytochrome; Cryptochrome – blue light photoreceptors.

Unit – IV

Photoperiodism and Physiology of Flowering; Circadian Rhythms and Vernalization

Vision cycle; Photoperiodism in Animals

Unit – V

Ozone hole and UV – B Radiation; Biological effects of UV – B; UV – B and Plant Metabolism; UV – B Environmental and Agricultural Importance.

BOOKS:

1. Concepts in Photobiology: Photosynthesis and Photomonogenetis.
2. Photobiology – the Science of Light and Life – Lars Olof Bjom, Springer2012.
3. Photobiology – Elli Kohe – 1995, Rene Santos, Joseph Hirschberg.
4. Textbook of Photobiology, S.R. Mishra, 2010, Discovery Publishing Pvt. Ltd.