GENERIC ELECTIVES (BOT-GE-7)

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course
		Lecture	Tutorial	Practical/ Practice		
Viewing and Capturing Diversity in Nature BOT-GE-7	4	2	0	2	Nil	Nil

Learning Objectives

- A comprehensive introduction to photography, including aesthetics and technique.
- An opportunity to rethink the environment in which they live through the medium of pictures.
- Build familiarity with digital camera and smartphone photography.
- A working knowledge of digital image processing
- An opportunity to use nature photography in your business and career prospects.
- To enhance appreciation for the tremendous beauty inherent in plants and gardens/ nature.

Learning Outcomes

On successful completion of this course, a student will be able to:

- understand the digital camera or smartphone camera functions.
- use different photographic equipment to enhance their photographic skills.
- know about the photographic variables with weather and season.
- exploit their photographic work in various professions and for entrepreneurship development.

SYLLABUS OF BOT-GE-7

Unit 1: Basics of Photography and Videography **Weeks: 05**

History and development of digital photography; Introduction to lenses and camera; Definitions (Megapixel, Magnification, Resolving Power, Zoom feature, contrast and brightness of image); Types of lenses, analog camera, Digital camera, SLR camera, imaging system in camera; Role of lighting, depth of field, focal length, colour and contrast in photography; types of photography and techniques; working of camera: exposure, shutter speed and aperture; Understanding Image: Types of shots: distance, angle and movement; Digital

image basics: image format, resolution, aspect ratio, Pixels, DPI and PPI, composition and aesthetics; rules and guidelines.

Unit 2: Diversity of Nature: Colours and Landscape **Weeks: 05**

Importance of plants as natural products; General characteristic features of various plant life forms (Single celled, colonial forms, filamentous forms and multicellular and complex forms); General account of diverse landscaping patterns based on different geographical locations, plant adaptations and ecological interactions; role of plant pigments (diverse forms of alga, leaf coloration, floral pigments) in aesthetic appeal.

Unit 3: Diversity around us - A magnified view **Weeks: 2.5**

Principles of Microscopy: Dissection and compound microscope, scanning electron microscope. importance of sample preparation for microscopy, staining techniques, micrometry.

Unit 4: Photographic visualisation of Nature **Weeks: 2.5**

Sensitization of Biodiversity conservation; Thematic depiction of nature in Art galleries; Eco-tourism: a general account; role of photography in Eco-tourism and ecological discourse.

Practicals:

1. To study the parts of a digital camera. **(Week: 01)**
2. To study the principle and working of digital camera/ smartphone camera. **(Week: 01)**
3. Working and handling of light microscopes (Dissection and Compound). **(Week: 01)**
4. Study of plant forms through microscopic lens (Single celled, colonial forms, filamentous forms, multicellular and complex forms). **(Week: 01)**
5. To study techniques of capturing shots (using light and lenses effectively, macro and micro photography, wide angle and close-ups). **(Week: 01)**
6. Study of plant adaptations through photographs (Aquatic and desert plants). **(Week: 01)**
7. To capture and understand the Ecological Interactions. **(Week: 01)**
8. Identification of different plant life forms through online available tools/ search engines. **(Week: 01)**
9. Outdoor/ Campus Photography: Plants, Environment, Landscapes and cityscape, Mushrooms. **(Week: 01)**
10. Project Work: To make a portfolio of diverse landscaping patterns/ selected theme through outdoor visits. **(Weeks: 06)**

Suggested Readings:

1. Ang., T. (2008). Fundamentals of modern Photography. London, Mitchell.
2. Patterson, F. (1999). The Art of Seeing. Key Porter Books.

3. Fitzharris, T. (2011). Landscape Photography. Firefly Books.
4. Kelby, S. (2012). The digital photography book. Peachpit Press.
5. Langford, M., Fox, A., Smith, R.S. (2013). Langford basic photography: the guide for serious photographers. Amsterdam: Focal Press/Elsevier.
6. Peterson, B. (2016). Understanding exposure: how to shoot great photographs with any camera. AmPhoto Books.
7. Karp, G. (2010). Cell Biology, 6th edition. New Jersey, U.S.A.: John Wiley & Sons.

Additional Resources:

1. Sharma, P.D. (2010.) Ecology and Environment. Meerut, UP. Rastogi Publications.
2. Wilson, K., Walker, J. (2018). Principles and Techniques of Biochemistry and Molecular Biology, Cambridge University Press.