

## BACHELOR OF SCIENCE

### 1<sup>st</sup> SEMESTER

### MAJOR / MINOR

## BRS122M: BIORESOURCES-I (FUNDAMENTALS OF BIORESOURCES)

CREDITS: THEORY: 4; PRACTICAL: 2

### THEORY (LECTURES: 60)

#### Unit: I

(15 Lectures)

**Bioresources:** Bioresources— Plant, animal and microbial diversity (brief concept); Concept and levels of Biodiversity; Mega-biodiversity countries; Biodiversity hotspots (concept and distribution); Biodiversity and climate change— concerns and challenges; Valuing biodiversity— direct- and indirect use values.

#### Unit: II

(16 Lectures)

**Biodiversity conservation:** Species extinction, ultimate and proximate causes of Biodiversity loss; IUCN threat categories; Red data Book; Biodiversity surrogates; *In situ* conservation strategies— National parks, Wildlife sanctuaries and Biosphere reserves; *Ex situ* conservation strategies— Botanical gardens, Zoos, Aquaria, Cryo-banks.

#### Unit: III

(14 Lectures)

**Bioresources and Livelihood:** Livelihood and its relation with bioresources management; Threats to traditional livelihood, food insecurity; Impact of globalization and urbanization on livelihood; Sustainable development; Energy crisis and need for green energy; Concept of green Building, vertical gardens; Green washing, eco-labelling (concept and examples).

#### Unit: IV

(15 Lectures)

**Bioresources Management policies:** Indian Bioresources Information Network— organization and role; Convention on Biological Diversity (CBD)- Aims and objectives; Ramsar Convention; Biological Diversity Act (2002); Environment Impact Assessment (EIA)- Concept and stages of EIA; Biodiversity conservation and public participation.

### PRACTICAL WORK: 2 CREDITS

- Collection, description and herbarium preparation of various types of leaves, inflorescences and fruits.
- Determination of minimum size and number of quadrats for phytosociological studies.
- Computation of frequency, density and abundance of constituent species of different communities.
- Field demonstration of Global Positioning System (GPS) and its utility in biodiversity studies.
- Constituents of aquarium and construction of aquarium.
- Role of Herbarium and its significance in biodiversity studies.
- Prepare well labelled herbarium sheets of economically important plants.
- Prepare an inventory of important threatened wild animal species of Kashmir Himalayas with special reference to the causes of their population decline.
- Field study of various threatened endemic plants of Kashmir Himalaya.
- Prepare a list of in-situ conservation sites of Kashmir Himalayas.

### Suggested Readings:

- An Advanced Textbook on Biodiversity: Principles and Practice, 2004, Krishnamurthy, Oxford and IBH Publishing ISBN, 8120416066, 9788120416062
- Principles of conservation biology, Gary K. Meffe, Conservation Biology for All, 2010, Navjot S. Sodhi and Paul R. Ehrlich, ISBN: 9780199554249
- Essentials of Conservation Biology 6th Edition, Richard B. Primack, SBN-13: 978-1605352893, ISBN-10: 1605352896
- Biodiversity: An Introduction, Kevin J. Gaston, John I. Spicer,
- Biodiversity, E.O. Wilson, National Academies Press, ISBN, 030956736X, 9780309567367