



# CLUSTER UNIVERSITY SRINAGAR

## SYLLABUS (FYUP UNDER NEP 2020)

### Offered By Department Of BIO-RESOURCES

#### Semester 1<sup>st</sup> to 3<sup>rd</sup> (Multi-Disciplinary Course)

### ***Course Title: Bioindustries***

Course Code: UGBRS22D101

Credits: 3

Contact Hrs: 45

Max. Marks: 75

External: 55; Min Marks: 22

Internal (Continuous Assessment): 20 Marks, Min Marks: 08

#### **Learning objectives:**

This course is designed to acquaint the student with:

1. Concept, scope and status of bioindustries at local and regional level.
2. Different types of waste resources utilization and bio-energy sources
3. Green economy, entrepreneurship and intellectual property rights

#### **Learning outcomes:**

After successful completion of the course, the students will be able to elucidate:

1. Establishment of bioindustries and their role in economic growth.
2. Waste utilization and energy production from natural resources.
3. Marketing strategies and value addition.

#### **Unit 1:**

(15 Hrs)

##### **Introduction to Bioindustries**

- 1.1 Bioindustries—Concept and recent trends in the development of Bioindustries.
- 1.2 Scope and status of Bioindustries in India (Dairy, Aquaculture, Herbal Medicine and Cosmetics).
- 1.3 Scope and status of Bioindustries in J&K (Dairy, Aquaculture, Herbal Medicine and Cosmetics).

#### **Unit 2:**

(15 Hrs)

##### **Bio-based Waste Utilization**

- 2.1 Composting, vermicomposting- methods, materials and advantages.
- 2.2 Bio-based plastics and fibres.
- 2.3 Biomass as an energy source; Biogas production.
- 2.4 Biofuels—Concept and classification.

#### **Unit 3:**

(15 Hrs)

##### **Green Economy and Entrepreneurship**

- 3.1 Marketing strategies for Bioresource products—Product launching, evaluation and advertisements, value addition.
- 3.2 Concept of Bio-villages and Biotechnological parks
- 3.3 Intellectual property rights (Patents, Copy Rights & Trademarks)
- 3.4 Self-employment schemes in relation to bioindustries.

#### **Suggested Readings:**

1. Entrepreneurship: New Venture Creation, David H. Holt
2. Entrepreneurship and Small Business Management: C.B. Gupta, S.S. Khanka,
3. Vermiculture and Organic Farming. Sathe, T.V. (2004) Daya publishers.
4. Bio-fertilizers and Organic Farming Vayas S.C, Vayas, and Modi, H.A. (1998)
5. Principles of Intellectual Property. N.S. Gopala Krishnan & T.G. Agitha, (2009)
6. Entrepreneurial Development by S.S. Khanka (S.Chand)
7. Intellectual property rights in the WTO and developing countries. Watal J ( 2001)