

Paper Code	NBOT-120	Cr. Hrs	03 (Class Credits: 02; Lab Credits: 01)
Paper Title	FORESTRY		
Domain	Natural Sciences		

THEORY:

Introduction of Course:

The course is organized to provide adequate knowledge of Forests, Forestry and its role in the Ecology, Economic and Social conditions of the country. It is generally aimed at teaching students to assess Forest resources, their scientific management and how to protect these natural resources.

Course Objectives:

The course is designed:

1. To provide adequate knowledge of Forests and their role in the Ecology of a country
2. To give an insight into forest communities and their distribution
3. To provide knowledge about Forest resources and their scientific management

Contents:

1. **Introduction:**
 - 1.1. Importance and history of forestry.
 - 1.2. Role of forests in climate change, wildlife conservation.
 - 1.3. Role in habitat and ecosystem conservation.
 - 1.4. Role in C sequestration.
 - 1.5. Current situation of forests in Pakistan.
2. **Forest Types and their Geographical Distribution in Pakistan:**
 - 2.1. Tropical Littoral and Swamp Forests.
 - 2.2. Tropical Thorn forests.
 - 2.3. Dry sub-tropical forests.
 - 2.4. Sub-Tropical Pine forests.
 - 2.5. Himalayan Moist Temperate forests.
 - 2.6. Dry sub-tropical Broad-Leaved forests.
 - 2.7. Dry Temperate forests.
 - 2.8. Sub-alpine forests.
 - 2.9. Alpine forest.
 - 2.10. Riverain forests.
 - 2.11. Irrigated forests.
3. **Silvicultural System:**
 - 3.1. Classification.
 - 3.2. Choice of Silvicultural system.
4. **Management of Forests:**

Management practices in the following forests:

 - 4.1. Coniferous forests.
 - 4.2. Scrub forests.
 - 4.3. Irrigated plantations.
 - 4.4. Riverain forests.
 - 4.5. Mangroves.
5. **Protection of Forests:**
 - 5.1. Protection against man, animals and injurious plants.

5.2. Protection against fire, insects and disease.

6. Range Management:

6.1. Rangeland resources of Pakistan.

6.2. Rangeland Improvement.

7. Landscape Planning:

7.1. Trees in landscaping.

7.2. The role of shrubs in landscape designing.

8. Forest Conservation and Urbanization Challenges:

8.1. Biodiversity and forests.

8.2. Anthropogenic influences and urbanization.

8.3. Forest mapping using GIS and RS.

Practical:

- 1- Study of various forest types of Pakistan.
- 2- Study of Silvicultural systems.
- 3- Study of forest management of various forests.
- 4- Study of social forestry / Agro-Forestry / community forestry.
- 5- Visit to some water-shed areas.
- 6- Visit to range management areas and wildlife habitat.
- 7- Visit to various National parks.
- 8- Visit to City Park for landscaping.
- 9- Submission of tour diaries based on field observations.

Teaching-learning Strategies:

- Lectures
- Group discussion
- Presentations / Seminars
- Tutorials
- Assignments

Learning Outcome:

1. Students are expected to learn about forest communities, their distributions, ecological, socioeconomic impact and protection of this natural resource.
2. They may use this brief and basic information to apply practically should they enter in the field of forestry as a young associate.
3. The course provides basic information and interest in this important field that may lead to further studies in forestry thus becoming part of it professionally.

Assessment strategies:

- Lecture based examinations (objective and subjective)
- Presentations / Seminars
- Class discussions
- Quiz

Recommended Books

1. Alexopoulos, C. J., Mims, C. W. & Blackwell, M. (1996). *Introductory Mycology* (4th Ed.). John Wiley and Sons, Ltd. Tappan Co. Ltd, Tokyo.
2. Beeson, C. F. C. (1961). *The ecology and control of Forest insects of Indian and Neighboring countries*. Government of India.

3. Daniel, H. B. (1979). *Principles of Silviculture*. McGraw-Hill. ISBN 0070152977, 9780070152977.
4. Doubenmire, R. (1968). *Plant communities: A text book of plant synecology*. Harper & Row, New York, USA.
5. Francois, T. (1950). *Forest Policy, Law and Administration*. Food and Agriculture Organization of United States (FAO), Washington.
6. Honnay, O. (2004). *Forest Biodiversity—Lessons from history for conservation*. Wallingford, Oxfordshire, UK; Cambridge, M.A., USA: CABI Pub. ISBN:08519992399780851999234.
7. Ian, H. (1999). *Forest Management in Nepal, Economics and Ecology*. World Bank, ISBN:0-8213-4480-3.
8. Iqbal, S. M., and Hafeez, S. M. (2001). *Forest and Forestry of Pakistan*. A-One Publishers, Urdu Bazar, Lahore.
9. Kimmins, J. P. (1997). *Forest Ecology*. Prentice Hall.
10. Kohyama, T. (2005). *Forest Ecosystems and Environments, Scaling up from Shoot Module to Watershed*. Tokyo Springer-Verlag, ISBN: 44312607499784431260745.
11. Longman, K. A. (1974). *Tropical Forest and its Environment*. Longman, UK.
12. Metcalf, C. L. and Flint, W. P. (1993). *Destructive and useful insects, their habits and control*. New York: Mc Graw Hill.
13. Sands, R. (2005). *Forestry in Global Context*. CABI Head office, Oxfordshire.
14. Shappard, S. R. J., and Harshaw, H. W. (2001). *Forests and Landscapes linking Ecology, Sustainability and Aesthetics*. 1st Edition. CABI Publishing.
15. Smith, W. H. (1981). *Air Pollution and Forests*. Springer-Verlag.
16. Stoddart, J. A., Smith, A. D. & Baix. (1975). *Range management*. New York McGraw Hill.
17. Weiss, G., Pettenella, D., Ollonqvist, P. & Slee, B. (2011). *Innovation in Forestry: Territorial and value chain relationships*. CABI Head office, Oxfordshire.