

THEORY:**Introduction of the Course:**

This course is designed to provide information about occurrence of mushrooms and their diversity status in Pakistan. It will help the students to have knowledge about cultivation, and identification of edible and poisonous Mushrooms including *Agaricus*, *Volvierella*, *Pleurotos*; their Status and diseases of cultivated mushrooms.

Course Objectives:

The course is designed:

1. To provide an adequate knowledge about basic concepts of different mushrooms and their diversity status in Pakistan
2. To give an insight into mushroom cultivation and identification of edible and poisonous Mushrooms

Contents:

1. Introduction and History of Mushrooms and Mushroom Cultivation.
2. Ecological importance of Mushrooms.
3. Mushroom Science and Mushroom Cultivation Technology.
4. The Nutritional attributes of Edible Mushrooms.
5. Medicinal Values of Mushrooms. Poisonous and Edible Mushrooms.
6. World production of Edible Mushrooms.
7. Present status and Future Prospects of Mushroom Cultivation in Pakistan.
8. Methods of Preparation of Spawn and Compost. Factors suitable for Cultivation.
9. Compost and Methods of Composting, Spawn and Methods of Spawning, Casing, Cropping and Harvesting, Preservation.
10. Cultivation of white Button Mushroom (*Agaricus bisporus*).
11. Cultivation of white Paddy Straw Mushroom (*Volvariella* spp.).
12. Cultivation of Oyster Mushroom (*Pleurotus* spp.).
13. Diseases of Mushrooms.
14. Uses of Mushrooms.

Practicals:

1. Morpho-Anatomical study of *Agaricus*, *Volvariella* and *Pleurotus* species
2. Cultivation of *Agaricus* and *Pleurotus* species
3. Preparation of Compost using different Basic Materials
4. Preparation of Spawn (Grain Spawn and Brick Spawn)
5. Preparation of Casing, Cropping (Bags, Columns and Trays), Harvestings, Preservation

Teaching-learning Strategies

1. Lectures
2. Group Discussion
3. Laboratory work
4. Seminar/ Workshop

Learning Outcome:

1. Students are expected to get familiarized with the morphological and systematic knowledge about different edible and poisonous mushrooms.
2. They will be able to describe, apply and integrate the basic concepts of mushroom cultivation.

Assessment Strategies:

1. Lecture Based Examination (Objective and Subjective)
2. Assignments
3. Class discussion
4. Quiz
5. Tests

Recommended Readings:

1. Bahl, N. (1988). *Handbook on Mushrooms*. Oxford and IBH Pub. New Delhi.
2. Chang, S.T. and Miles, P.G. (2004). *Mushrooms, Cultivation, Nutritional Value, Medicinal Effect and Environmental Impact*. (2nd Ed.), CRC Press, New York, Washington, D.C.
3. Dickinson, C. and Lucas, J. (2003). *Encyclopedia of Mushrooms*. Orbis Pub. London.
4. Mahmood, S.K., Khatoon, A.Y. and Sarfraz, K.R. (1988). *Pakistan Men Khhumbi Ugane Ki Technology*. PARC Publications, Pakistan.
5. Rehman, T. and Shakir, A. (1997). *Mushroom Ki Kasht*. PARC Publications, Pakistan.
6. Singer, R. (1999). *The Agaricales in Modern Taxonomy*. J. Grammer, Lebre, Germany.
7. Svreck, M. (2010). *The Hamlyn Book of Mushrooms and Fungi*. Hamlyn, N.Y. London.
