

COURSE TITLE: ADVANCE BOTANY-V (MUSHROOM CULTIVATION)

CREDIT HOURS: 3

Syllabus Outline: Occurrence of Mushroom, Diversity Status in Pakistan, Cultivation, Knowledge of Edible and Poisonous Mushrooms, Plewotos and its Status, their Diseases. Course Outline:

1. History of Mushrooms.
2. History of Mushroom Cultivation.
3. Present status and Future Prospects of Mushroom Cultivation in Pakistan.
4. Mushroom Farms and Commercial Mushroom Fanning.
5. Food Value of Mushrooms.
6. Morphology of Mushrooms.
7. Poisonous and Edible Mushrooms.
8. Major species Cultivated for Food.
9. Cultivation of white Button Mushroom (*Agaricus bisporus*).
10. Factors suitable for Cultivation, Compost and Methods of Composting, Spawn and Methods of Spawning, Casing, Cropping and Harvesting, Preservation.
11. Cultivation of *Pleurotus* Species.
12. Methods of Cultivation, Preparation of Spawn.
13. Diseases of Mushrooms.
14. Uses of Mushrooms.

Module Aims: This includes learning all and Medical Techniques of Cultivation of Edible Mushrooms of Pakistan using Agriculture Waste etc. Aim of this course is to train the students practically as Mushroom Growers.

Learning Strategies:

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

Learning Outcome: By reading this course students would be able to recognize Edible and Poisonous Mushrooms and utilize these information for earning their livelihood.

Assessment Strategies (Theory) :

The student will be assessed according to the following criteria

Evaluation Criteria

Examination	Type	Marks
Internal Examination	Sessional Work	15%
	Mid-Semester	25%
External Examination	Final Semester	60%

Books Recommended:

1. Svreck, M. (2010). The Hamlyn Book of Mushrooms and Fungi. Hamlyn, N.Y. London.
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. Qrbis Pub. London.
4. Singer, R. (1999). The Agaricales in Modern Taxonomy. 3. Grammer, Leber, Germany.
5. Rebman, T. and Shakir, A. (1997). Mushroom Ki Kasht. PARC Publications, Pakistan.
6. Bahl, N. (1988). Handbook on Mushrooms. Oxford and IBH Pub. New Delhi.
7. Mahmood, S.K., Khaton, A.Y. and Sarfraz, K.R. (1988). Pakistan Mushrooms and Their Cultivation. PARC Publications, Pakistan.

TITLE: ADVANCE BOTANY-LAB-V (MUSHROOM CULTIVATION)

CREDIT HOURS: 1

Syllabus Outline: Learning Morphology and Anatomy of Edible Mushrooms. Media for their culturing, Optimization of Conditions for Growth and Harvest.

Course Outline:

- i) Anatomical study of Agaricus and Pleurotus species.
- ii) Cultivation of Agaricus and Pleurotus species.
- iii) Preparation of Compost using different Basic Materials (different Vegetable and Animal Matters).
- iv) Preparation of Spawn (Grain Spawn and Brick Spawn).
- v) Preparation of Casing.
- vi) Cropping (Bags, Columns and Trays).
- vii) Harvestings.
- viii) Preservation.

Module Aims:

This includes learning all and Medical Techniques of Cultivation of Edible Mushroom of Pakistan using Agriculture Waste etc. Aim of this course is to train the students practically as Mushroom Growers.

Learning Strategies:

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

Learning Outcome: By reading this course students would be able to recognize Edible and Poisonous Mushrooms and utilize this information for earning their livelihood.

Assessment Strategies (Practical) :

The student will be assessed according to the following criteria
Evaluation Criteria

Examination	Type	Marks
Internal Examination	Sessional Work	15%
	Mid-Semester	25%
External Examination	Final Semester	60%

Books Recommended:

1. Svreck, M. (2010). The Hamlyn Book of Mushrooms and Fungi. Hamlyn, N.Y-London.
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. Singer, R. (1999). The Agaricales in Modern Taxonomy. J. Grammer, Leber, Germany.
5. Rehman, T. and Shakir, A. (1997). Mushroom Ki Kasht. PARC Publications, Pakistan.
6. Bahl, N. (1988). Handbook on Mushrooms. Oxford and IBH Pub. New Delhi.
7. Mahmood, S.K., Khaton, A.Y. and Sarfraz, K.R. (1988). Pakistan Mushrooms and Their Technology. PARC Publications, Pakistan.