

Guidelines for
CERTIFICATE COURSE
IN
MUSHROOM TECHNOLOGY



UTD Microbiology and Bioinformatics

ATAL BIHARI VAJPAYEE UNIVERSITY, BILASPUR C.G.

CERTIFICATE COURSE IN MUSHROOM TECHNOLOGY

(Non-Semester program under self finance course)

(This program will run under the dual degree program as per the UGC Guidelines)

1. PREFACE

Mushrooms are being used from ages by man as food and medicines in different countries. There are various types of mushrooms being cultivated and eaten all over India. Mushrooms contain all essential amino acids; they are rich in proteins, vitamins and are used by people suffering from different diseases. It is good source of dietary fiber. Mushroom is an attractive crop to cultivate. One of the most charming points is that they are grown on agricultural wastes. It enables us to acquire substrate materials at low prices or even for free. Many lignocellulosic materials, including agricultural and industrial residues, such as sugarcane bagasse, straws (wheat, bean, rice, corn, etc), sawdust, coffee pulp and cotton textile industry residues, can be used as substrates for mushrooms cultivation. This versatility allows for its cultivation in lower cost substrates and different climatic conditions. Mushrooms are also natural recycler which converts lignocelluloses wastes into protein rich healthy food and help to conserve our environment by recycling wastes. It represents an alternative source of income as there is demand of healthy and quality food products. Many value added products are obtained from mushrooms. Mushroom farming requires very small initial investment with profit of year round production. Considering the commercial viability and self employment potential of mushroom cultivation the department is offering the certificate course in MUSHROOM TECHNOLOGY

2. OBJECTIVES

- To enable the candidate to identify the edible and poisonous mushrooms.
- To provide hands on training for the cultivation of Button, Paddy Straw and Oyster mushroom.
- To train candidates for managing mushroom pests and diseases and post harvest care of mushrooms.
- To provide awareness about marketing trends of mushrooms in Chhattisgarh (India)
- To give exposure to the candidates to the experiences of experts in the field and to functioning mushroom farms.
- To help the candidates to learn a means of self employment and income generation by spawn production, mushroom cultivation, mushroom processing and recycling agricultural wastes

3. DURATION: The course shall extend over a period of 6 months

4. ELIGIBILITY:

Candidates seeking admission must possess a High School Examination certificate.

5. COURSE FEE: 5000/ -

6. ADMISSION: Interested candidates shall apply for admission at the time of notification in prescribed form.

6.1. Intake: 30 seats

6.2. Selection /Admission Criteria: First come first serve

6.3. Medium of instruction: English/Hindi

7. COURSE STRUCTURE :

7.1. Theory - The theory syllabus will be updated periodically by the BOS

7.2. Practical's - The practical syllabus will be updated periodically by the BOS.

7.3. Field work - At least 1 educational visit must be conducted for candidates. Every candidate shall submit a mushroom specimen. Every candidate must give a poster presentation on the allotted topic.

S.No.	Papers	Maximum Marks	Minimum Marks	Credit
1.	Paper I- Theory (MUSHROOM TECHNOLOGY)	100	40	4
2.	Paper II- Practical (MUSHROOM TECHNOLOGY LAB)	100	40	2
Total marks		200	80	6

8. EXAMINATION PROCEDURE:

At the end of course the examination will be conducted. Its notice & time table will be displayed for communication to the students at least before 15 days of the date of examination.

8.1. For successful completion of the program, a participant is required to have a minimum of 75% attendance. A participant will not be eligible to appear in the term-end practical examinations if the percentage of attendance in practical sessions falls below 75%. He/she can, however, appear for the theory papers. In order to make up deficiency of attendance in practical sessions, the student will be required to attend extra classes (practical) as per directions issued by the University from time to time.

8.2. Theory

8.2.1. Question Paper Pattern both in Hindi and English (covering questions from each unit)

8.2.2. Examinations shall be of 75 marks which are divided as:

Part A (25 x 1 = 25) MCQs A multiple-choice questionnaire (answers are to be given for any 25 questions from given numbers of questions)

Part B (10 x 2.5 = 25) Fill in the blanks (answers are to be given for any ten questions from given numbers of questions)

Part C (5x 5 =25) Very short answer questions (answers are to be given for any five questions from given numbers of questions)

8.2.3. Candidates securing a minimum of 30 marks shall be declared to have secured pass in this section. Time allowed for the examination shall be of a maximum of 2 hours.

8.3. Practical:

8.3.1. Practical Question Paper Pattern both in Hindi and English

8.3.2. Examinations shall be of 100 marks which is divided as –

Maximum marks: 100 Time: 2 hours

Q1. Major practical = 50 Marks

Q2. Minor practical = 25 Marks

Q3. Spotting = 20 Marks

Q4. Viva Voce = 5 Marks

8.3.3. Candidates securing minimum of 40 marks shall be declared to have passed in this section.

8.4. Field work : Maximum marks: 25

Educational visit =10 Marks

Mushroom specimen = 05 Marks

Poster presentation = 10 marks

8.4.1. Candidates securing a minimum of 10 marks shall be declared to have secured pass in this section.

8.5. To qualify for the award of certificate, a candidate must pass in all the sections as mentioned in 8.1, 8.2 & 8.3 separately. Those securing 75% and above as total will be declared to have passed with distinction.

8.6. Candidates who have failed and wish to appear again in the examination shall have to appear in both i.e. theory and practical sections irrespective of their performance in

various sections in the last examination in which they appeared. A candidate re-appearing after two years (either failed twice or could not appear for two years due to any other reason shall have to submit a fresh mushroom specimen and give poster presentation on a topic allotted to them.

9. **RESULT:** Results will be declared on receipt of the final result sheet from the tabulator, Examination, Atal Bihari Vajpayee Vishwavidyalaya, Bilaspur Chhattisgarh.
10. **CERTIFICATES:** Certificate shall be awarded to the candidate after successful completion of the course and declaration of the result.

Syllabus

The Syllabus will be revised by a BOS on a periodical basis.

Theory

Unit: I

- Introduction: general History, Edible mushrooms and poisonous mushrooms
- Common Indian Mushrooms
- Nutritional value, medicinal value and advantages
- Mushroom Classification
- Biology of Mushrooms: Button, Paddy Straw & Oyster- General morphology, distinguishing characteristics, spore germination and life cycle.

Unit: II

- Cultivation System & Farm design:
- Fundamentals of cultivation system- small village unit & larger commercial unit.
- Principles of mushroom farm layout- location of building plot, design of farm, bulk chamber, composting platform, equipments & facilities , pasteurization room & growing rooms

Unit: III

- Mushroom Cultivation: Spawn production, Substrate and Compost Preparation,
- Spawning, casing & case run, cropping & crop management, picking & packing Techniques for Button, Paddy Straw & Oyster mushroom cultivation

Unit: IV

- Maintenance of mushroom
- Diseases management and pests control measures
- Mushroom storage (short term and long term storage) and processing (Blanching, Steeping, Drying, pickling)

Unit: V

- Mushroom Industry, production level and marketing in India. Mushroom products and recipes.

Practicals

1. Button mushroom compost preparation
2. Mushroom spawn preparation
3. Substrate preparation and sterilization
4. Mushroom cultivation (Button, paddy straw and oyster mushroom)
5. Mushroom Storage and Processing
6. Recipes of Mushroom

Reference Books:

1. Mushroom Cultivation, Tripathi, D.P.(2005) Oxford & IBH Publishing Co. PVT.LTD, New Delhi.
2. Mushroom Production and Processing Technology, Pathak Yadav Gour (2010) Published by Agrobios (India).
3. A hand book of edible mushroom, S.Kannaiyan & K.Ramasamy (1980). Today & Tomorrows printers & publishers, New Delhi
4. Handbook on Mushrooms, Nita Bahl, oxford & IBH Publishing Co.
3. Indian Journal of mushrooms, published by IMGAR Mushroom Research Laboratory, college Agriculture, Solan
4. Mushroom research published by ICAR, DMR , Solan

Field work - Field visit: Visit to mushroom cultivating laboratory or farm or excursion for collection of mushroom from natural environment. It will also include mushroom specimen submission and poster presentation.

BUDGET PLAN FOR THE CERTIFICATE COURSE

S.No.	Income /course	Amount (in Rupees)
a)	Intake- 30 candidates with course fee 5000 rupees	1,50,000/-
S.No.	Expenditure Detail	Amount (in Rupees)
1.	Instruments and tools (one time)	1,50,000/-
2.	Contingencies	15,000/-
3.	Salary (lab assistant) (5000 Rs/month)	60,000/-
4.	Stationary and printing	10,000/-
5.	TA and Conveyance	10,000/-
6.	Honorarium (5 guest lecturers / course-1000/- per lecture)	5000/-
7.	Total	2,50,000 /-

Year wise plan

S.No.	Expenditure Detail	Amount (in Rupees)
1.	For first year	2,50,000 /-
2.	From second year	1,00,000/-

QUESTION PAPER

1. Theory Question Paper Pattern both in Hindi and English (covering questions from each unit)

External: 75 Marks

Maximum marks: 75 Time: 2 hours

- Part A ($25 \times 1 = 25$) MCQs (answers are to be given for any 25 questions from given numbers of questions)
- Part B ($10 \times 2.5 = 25$) Fill in the blanks (answers are to be given for any ten questions from given numbers of questions)
- Part C ($5 \times 5 = 25$) Very short answer questions (answers are to be given for any five questions from given numbers of questions)

Internal: 25 Marks

2. Practical Question Paper Pattern both in Hindi and English

Maximum marks: 100 Time: 2 hours

- | | |
|---------------|------------|
| Q1. Major | = 50 Marks |
| Q2. Minor | = 25 Marks |
| Q3. Spotting | = 20 Marks |
| Q4. Viva Voce | = 5 Marks |

Available infrastructure: Well equipped laboratory, small scale mushroom cultivation unit

Teaching Staff: Lectures and hands-on will be delivered by subject experts. Qualified, Experienced Guest Lecturers & eminent professors will be invited.

Scheme

Subject	Theory				Practical		Total Marks
	External Evaluation TH		Internal Assessment SE		PR		
	Max	Pass Marks	Max	Pass Marks	Max	Pass Marks	
Mushroom Technology	75	30	25	10	--	--	100
Mushroom technology Lab	--	--	--	--	100	40	100