

P.B.SIDDHARTHA COLLEGE OF ARTS & SCIENCE:: VIJAYAWADA

Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code: **BOTSET02**

Offered to B.Sc. (BZC)

Domain Subject: BOTANY

Semester – V

Max. Marks: 75

Theory Hrs. /Week: 3

Course 7C: MUSHROOM CULTIVATION

Type of the Course: Skill Enhancement Course (Elective: Theory),

Credits: 04

I. Course Outcomes: Students at the successful completion of the course will be able to:

CO1: Comprehend the value of mushrooms.

CO2: Identify the methods of composting and the materials required.

CO3: Acquire a critical knowledge on spawning and casing.

CO4: Demonstrate skills in cultivation of various mushrooms.

CO5: Understand the Post-harvest technology.

CO-PO MATRIX							
CO-PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1						H	
CO2						H	
CO3						H	
CO4						H	
CO5						H	

II. Syllabus: (Total Theory Hours: 45 including Unit tests etc.)

UNIT-I Introduction and value of mushrooms (9h)

1. Mushrooms: Definition, structure of a mushroom and a brief account of life cycle; historical account and scope of mushroom cultivation; difference between edible and poisonous mushrooms.

2. Morphological features of any four edible mushrooms, Button mushroom (*Agaricus bisporus*), Milky mushroom (*Calocybe indica*), Oyster mushroom (*Pleurotus sajor-caju*) and Paddy straw mushroom (*Volvariella volvacea*).

3. Nutraceutical value of mushrooms; medicinal mushrooms in South India - *Ganoderma lucidum*, *Phellinus rimosus*, *Pleurotus florida* and *Pleurotus pulmonaris* – their therapeutic value; Poisonous mushrooms - harmful effects.

UNIT-II Basic requirements of cultivation system (9h)

1. Small village unit and larger commercial unit; layout of a mushroom farm - location of building plot, design of farm, bulk chamber, composting, equipment and facilities, pasteurization room and growing rooms.
2. Compost and composting: Definition, machinery required for compost making, materials for compost preparation.
3. Methods of composting- long method of composting and short method of composting.

UNIT-III Spawning and casing (9h)

1. Spawn and spawning: Definition, facilities required for spawn preparation; preparation of spawn substrate.
2. Preparation of pure culture, media used in raising pure culture; culture maintenance, storage of spawn.
3. Casing: Definition, Importance of casing mixture, Quality parameters of casing soil, different types of casing mixtures, commonly used materials.

UNIT-IV Mushroom cultivation (9h)

Raw material, compost, spawning, casing, cropping, and problems in cultivation (diseases, pests and nematodes, weed molds and their management strategies), picking and packing for any Four of the following mushrooms: (a) Button mushroom (b) Oyster mushroom (c) Milky mushroom and (d) Paddy straw mushroom

UNIT-V Post harvest technology (9h)

1. Shelf life of mushrooms; preservation of mushrooms - freezing, dry freezing, drying and canning.
2. Quality assurance and entrepreneurship - economics of different types of mushrooms; value added products of mushrooms.
3. Management of spent substrates and waste disposal of various mushrooms.

References/ Text Book/ e-books/websites

1. Tewari Pankaj Kapoor, S. C. (1988). Mushroom Cultivation. Mittal Publication, New Delhi.
2. Pandey R.K, S. K Ghosh, (1996). A Hand Book on Mushroom Cultivation. Emkey Publications
3. Web resources suggested by the teacher concerned and the college librarian including reading

material.

Reference Materials on the Web/web links:

<https://www.youtube.com/watch?v=DwMCw14khIU>

<https://www.youtube.com/watch?v=vggMIUelsoU>

III Co-Curricular Activities

(a) Mandatory:(Training of students by teacher in field related skills:(lab:10 + field: 05)

1. **For Teacher:** Training of students by teacher in the laboratory/field for not less than 15 hours on the field techniques/skills of identification of edible and poisonous mushrooms, basic facilities of a mushroom culture unit, preparation of compost and spawn, cultivation practices of edible mushrooms, storage and marketing of produce.

2. **For Student:** Students shall (individually) visit mushroom culture units in universities/research organizations/private sector write their observations on infrastructure, cultivation practices and products of a mushroom culture unit etc., and submit to the teacher a hand-written Fieldwork/Project work Report not exceeding 10 pages in the given format. 3. Max marks for Fieldwork/Project work Report: 05. 6. Suggested Format for Fieldwork/Project work Report: Title page, student details, index page, details of place visited, observations, findings and acknowledgements. 4. Unit tests (IE).

b) Suggested Co-Curricular Activities: 1. Training of students by related industrial experts. 2. Assignments (including technical assignments like identifying various mushrooms, tools and techniques for culture, identification and control of diseases etc., 3. Seminars, Group discussions, Quiz, Debates etc. (on related topics). 4. Preparation of videos on tools and techniques in mushroom culture. 5. Collection of material/figures/photos related to edible and poisonous mushrooms, cultivation of mushrooms in cottage industries, writing and organizing them in a systematic way in a file. 6. Visits to mushroom culture units in universities, research organizations, private firms, etc. 7. Invited lectures and presentations on related topics by field/industrial experts.

Suggested Question Paper Pattern

Semester-wise Revised Syllabus under CBCS, 2020-21

Course Code: SECBOTT02

Offered to B.Sc. (BZC)

Title of the Course: MUSHROOM CULTIVATION

SECTION – A (Total: 25 Marks)

Short Answer Questions (25 Marks: 5 x5)

Answer any Five questions. Each answer carries 5 marks. At least 1 question should be given from each Unit

1. Extend the medicinal value of *Ganoderma*.CO2,L2
2. Describe the small village unit.CO2,L1
3. List the facilities required for spawn preparation.CO3,L1
4. Explain weed mold in mushroom cultivation .CO4,L4
5. Illustrate the Novel Value Added Products of Mushrooms .CO5,L3
6. Enumerate the Poisonous mushrooms .CO1,L1
7. Summarize Layout of a mushroom farm .CO2,L2
8. Explain about the Casing oil .CO3,L4

SECTION B (Total: 5 x 10 = 50 Marks)

Answer all questions. Each answer carries 10 marks. Two questions should be given from each unit with internal choice.

9(a) Describe the life cycle of a mushroom.CO1,L1

OR

9(b) Describe the morphological features of Paddy straw and oyster mushroom.CO1,L1

10(a) Explain various types of composting methods.CO2,L4

OR

10(b) Point out basic requirements of mushroom cultivation.CO2,L4

11(a) What is casing? Explain different types of casing mixture and their Importance.CO3,L4

OR

11(b) Appraise an account of different types of media used for preparation of pure culture.CO3,L4

12(a) Summarize the process of cultivation of Milky mushroom.CO4,L1

OR

12(b) Extend an account cultivation of Oyster mushroom.CO4,L1

13(a) Explain the shelf life of mushrooms? What are the conditions required to improve shelf life of mushrooms?CO5,L4

OR

13(b) Explain how mushrooms are preserved through Freeze drying method.CO5,L4
