K. L. E. SOCIETY'S S.NIJALINGAPPA COLLEGE

DEPARTMENT OF BIOTECHNOLOGY

Value Added course
On
Mushroom Cultivation

For the Academic year 2022-23

Submitted By
H.O.D
Department of Biotechnology

Submitted to
Principal
K.L.E Society's S. Nijalingappa College, Rajajinagar, Bangalore-10

COURSE DETAILS

VALUE ADDED COURSE ON MUSHROOM CULTIVATION:

- **Year :** From the Academic year 2022-23
- **Eligibility :** Candidates who have completed two year pre-University course of Karnataka or equivalent & Students studying at B.Sc. combination with at least one life science subject
- **Duration :** The course study will extend over a period of 6 months
- **Teaching hours :**50 Hrs (includes both theory, practicals & Field/industrial visits)
- **Maximum Marks:**100
- **Maximum intake :**60 Students
- **Medium of Instruction**: The medium of instruction shall be English and the candidate must answer the examination in English. Classes will be held by both online and offline modes.
- **ATTENDENCE:**A student must satisfy the requirement of attendance for the course ,if he/ she has attend less then 75% of attendance in the course then student shall not be permitted to take the examination.
- **PEDAGOGY**: It will be a blend of lectures, seminars, guest lectures, Field visits designed by the H.O.D .There will be 40 theory hours and 60 practical hours.
- **Examination:**
  Paper I: Theory examination of 3 hours duration (100 marks reduced to 40 marks)
  Paper II: Practical examination of 4 hours duration (40 marks)
  Viva voce on Field visit and lab report (20 marks)

Introduction:

Mushrooms are the health food and their demand is increasing day by day due to the changing food habits, demand for quality food, urbanisation and globalisation. As our cultivable land is shrinking, traditional agriculture is proving to be non –remunerative and our farmers want sustainable additional on farm income. Therefore, to ensure that our farmers get good and sustainable income, there is need for diversification in agriculture, value addition and marketing of farm produce. Mushroom cultivation is a novel component of agriculture that can be easily integrated in the farming system to enhance the income of the farmers, or can be taken up as an independent activity on commercial scale. Mushrooms are not only a quality food but also a way of utilizing agricultural wastes and generating wealth from the waste. Returns and productivity in mushroom cultivation are very high because of the vertical nature of its farming.

The vocation of Mushroom Production is getting popular tremendously over the last few years. It is one of the few professions that requires less labour and can be taken up as a profession by men and women, young and old, both literate and illiterate. As there are less initial investments and quick returns, hence families and unemployed youth can be encouraged to adopt this vocation. Mushroom production will improve the socio economic status and solve the employment problems of rural economy by generating the income and job opportunities.

OBJECTIVES:

- To provide detailed hands on training on mushroom cultivation, packaging and marketing.
- To make the learners self reliant to identify and produce several kind of mushrooms.
- To develop a business plan on mushroom cultivation and help the learners to develop entrepreneurship and income generation.
- Jobs in NGOs and Government Training Centres as Trainer
- Research Associate Fellowship in R&D/Research projects/Major & minor projects

Outcome/ Scope:

1. Understanding mushrooms, types (edible & poisonous) and mushroom production
2. Learning cultivation of different edible mushrooms
3. Acquaintance with climatic requirements of mushroom cultivation
4. Building knowledge on diseases and pests of mushroom and their management
5. Knowing harvesting and post harvesting processes of mushroom
6. Learning value added products preparation from mushroom having the prospects of commercial mushroom production

COURSE MATRIX:

OUTLINE OF SYLLABUS –THEORY UNITS

Sl. No.	Topics	No. of hours
1)	**Module 1** Introduction of Mushroom, Importance of Mushroom, History and folklore of Mushroom, Importance and research on productivity of mushroom	6
2)	**Module 2** Morphology of Mushroom, Mushroom Types (Edible and Poisonous),	6
3)	**Module 3** Cultivation of Different types of Mushrooms : Button, Oyster, Milky Mushroom, Shiitake, Reishi & Paddy Straw Mushrooms	6
4)	**Module 4** Diseases and Pests of Mushroom, Harvesting of Mushrooms, Post-harvesting Processing, Utilization of Spent Mushroom Wash (SMS), Storage and Dehydration	6
5)	**Module 5** Mechanization in Mushroom Cultivation, Mushroom Recipes, Profit calculation of Paddy straw mushroom, Profit calculation of Oyster and Button mushroom	6

Total hours allotted:30 Hrs

PRACTICALS

Sl. No	Topics	No. of hours
1	Preparation of Pure Culture and Maintenance Of Cultures	2
2	Preparation of Mother Spawn, Commercial Spawn and It's Storage	2
3	Spawning, Casing, Cropping and Post Harvest Handling	3
4	Cultivation of Oyster Mushroom	3
5	Cultivation of Paddy Straw Mushroom	3
6	Cultivation of Milky Mushroom	2
7	Cultivation Of Shiitake Mushroom	2
8	Identification of Indicator Moulds In Button Mushroom Crop	1
9	Diseases Caused By Fungi, Bacteria and Abiotic Factors	1
10	Management of Spent Mushroom Substrate (SMS)	1

Total hours allotted: 20 Hrs

Total Teaching Hours Of Theory = 30 Hrs.
Total Hours of Practical = 20 Hrs

Grand Total = 50 Hrs.

Laboratory works will be conducted at Department of Biotechnology Laboratory

Faculty:

1. H.O.D & Faculty from department of Biotechnology
2. Resource person from Universities / Government Departments/ Training Institutes/ Biotechnology laboratory / Premier Research institute

REFERENCES:

1. Mushroom Cultivation in India- B.C.Suman and V.P.Sharma

2. Mushroom Growing for Everyone- G. Roy

3. Mushroom Production and Processing- V.N.Pathak, N.Yadav and M.Gaur

4. Production Technology of edible and medicinal mushrooms by Dr. B.N. Srinivasa Murthy, ICAR, Hesaraghatta Lake, Bengaluru

I) SCHEME OF EXAMINATION:

There shall be examination at the end of the course.

1. Evaluation of each paper shall be for 100 marks comprising of 40 marks in theory and 40 marks in practical and 20 marks for Viva voce on Field visit and lab report
2. The composition of the theory paper including written
3. The duration of examination for the theory paper of 40 marks shall be 3 hours.
4. The duration of examination per practical paper of 40 marks shall be 4 hours.
5. In case of practical examinations, the students will be assessed on the basis of knowledge of processes, skills, operations involved, results and observations and reporting. Practical records will be evaluated during the examination.
6. The minimum for pass in the examination is 40 % per paper inclusive of theory and practicals.

II) EXAMINATION VALUATION:

The question paper for the examination shall be set by the college. The candidate shall take the examination as per the syllabus and the scheme of examination in force.

III) PATTERN OF QUESTION PAPER:

Each theory paper shall ordinarily consist of three sections to test conceptional skills, understanding skills, comprehensive skills and application skills.

SECTION A – Answer All Questions (Multiple Choice)	(10 x 1 MARK = 10)
SECTION B-Answer all the questions (One sentence answer**)**	(1 x 5 MARKS = 5)
SECTION C– Answer Any Five Questions (Out Of 7) (Short Answer Questions)	(5 x 3 MARKS = 15)
SECTION D–Answer Any Two Questions (Out Of four) (Medium Length Answers)	(2 x 5 MARKS = 10)

IV) CLASSIFICATION OF SUCCESSFUL CANDIDATES:

SUCCESSFUL CANDIDATES SHALL BE CLASSIFIED AS FOLLOWS:

- FIRST CLASS: Those who obtain 60% and above of the aggregate marks.
- SECOND CLASS: Rest of the successful candidates who obtain 50% and above of the aggregate marks.

K. L. E. SOCIETY's S.NIJALINGAPPA COLLEGE

Bangalore -10

DEPARTMENT OF BIOTECHNOLOGY

Ad-hoc Board of Studies (BOS)

Ad-hoc Board of Studies (BOS) for value added course in Biotechnology on "MUSHROOM CULTIVATION "

is constituted with the following members for a period of one year from the date of this notification.

1. Dr.Prathibha .K.S - HOD of Biotechnology Department
2. Prof.Sujatha.M. - HOD Department of Biotechnology, MES Degree college
3. Dr. Jyothi - HOD Department of Biotechnology, S.J.R.C.W
4. Smt.Pallavi Prasad M.S. - Member
5. Mr.Rajeev R. Potadar - Member
6. Dr. Varun Amingad - Technical Expert & Advisor

K. L. E. SOCIETY's S.NIJALINGAPPA COLLEGE

Bangalore -10

DEPARTMENT OF BIOTECHNOLOGY

Ad-hoc Board Of Examiners (BOE)

Ad-hoc Board of Examiners (BOE) for Value added course in Biotechnology on "Mushroom Cultivation" is constituted with the following members for a period of one year from the date of this notification

1. Dr.Prathibha .K.S - HOD of Biotechnology Department
2. Prof.Sujatha.M. - HOD Department of Biotechnology, MES Degree college
3. Dr. Jyothi - HOD Department of Biotechnology, S.J.R.C.W
4. Smt.Pallavi Prasad M.S. - Member
5. Mr.Rajeev R. Potadar - Member
6. Dr. Varun Amingad - Technical Expert & Advisor