B.Sc. Honours/ Honours with Research in Microbiology

(NCrF Level- 4.5 First Year – Certificate in Microbiology)

Semester – II

Course Category	**Skill Enhancement Course (SEC)-2** Skill based Practical Course-2; In addition to courses mentioned in SOP basket
Title of the Course	**Mushroom Cultivation**
Course Credit	**02**
Teaching Hours per Sem.	**60**
Total Marks	**CCE-25 + SEE-25**

1	Employability/Entrepreneurship/Skill Development પરકેન્દ્રિતથયેલછેકેનહિ ?					Yes/~~No~~
2	Value added Courses Imparting Transferable and Life Skillsનાગુણોધરાવેછે?					Yes/~~No~~
3	Major		~~Yes~~/No	Minor		~~Yes~~/No
	Skill Enhancement Courses		Yes/~~No~~	Ability Enhancement Courses		Yes/~~No~~
	Value Added Courses		~~Yes~~/No	Exit/ Vocational Courses		~~Yes~~/No
4	Holistic Education	Yes/~~No~~	Multidisciplinary	Yes/~~No~~	Interdisciplinary	Yes/~~No~~
5	દિવ્યાંગમાટેવિષયઅંતર્ગતઆનુસાંગિકજોગવાઈકરાયેલછે ?					Yes/~~No~~
6	New India Literacy Programme (NILP) મુજબનોવિષયછે ?					Yes/~~No~~
7	Swayam પ્લેટફોર્મપરના MOOC વિષયપરઆધારિતઆવિષયછે ?					~~Yes~~/No
8	ઇન્ડીયનનોલેજસીસ્ટમ (IKS) પરઆધારિતવિષયછે ?					Yes/~~No~~

Course Outcomes:

At the end of the course, the student shall be able to:

1. Identify the edible and poisonous mushrooms.
2. Perform the preparation of bed for mushroom cultivation and it's harvesting
3. Identify and apply pests and diseases control and post harvesting management of Mushrooms
4. Comprehend marketing trends of Mushrooms.
5. Be self-employed and generate income.

Course Content	Hours
UNITS – 1: Introduction	**12hrs**
• General History, edible mushrooms, mushrooms with medicinal importance and poisonous mushrooms. • Common Indian mushrooms and morphology, distribution, structure and life cycle of *Agaricus*, Microscopic observations of mushrooms • Nutritional value, medicinal value and advantages. • Identification of Edible and poisonous mushrooms	
UNIT – 2: Basics of Mushroom Cultivation	**12hrs**
• 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. • Cultivation: Paddy straw mushroom – substrate, spawn making.	
UNITS –3: Methods of Mushroom Cultivation	**16hrs**
• Cultivation of mushrooms at laboratory level - Bed method, polythene bag method, field cultivation. • Oyster mushroom cultivation –Substrate, spawning, pre-treatment of substrate. • Maintenance and Storage of mushroom – short term and long term storage. • Diseases- Common pests, disease prevention and control measures. • Processing - Blanching, steeping, sun drying, canning, pickling, freeze drying.	

Practical:

1. Study of different parts of a typical mushroom
2. Preparation of Pure Culture and Maintenance of Cultures.
3. Preparation of Mother Spawn.
4. Cultivation of Oyster / Button Mushroom.
5. Study of Fungal, and Bacterial diseases of mushroom and effect of Abiotic Factors.
6. Management of Spent Mushroom Substrate (SMS).

Text Books

1. Harander Singh. 1991. Mushrooms- The Art of Cultivation- Sterling Publishers.
2. Kaul, T.N. (1997). Introduction to Mushroom Science (Systematics). Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi & Calcutta, India.
3. Vijaya Khader (1998). Mushrooms for Livelihood. Kalyani Publishers, Ludhiana, India.

Reference books

1. Mushroom Production and Processing Technology, Pathak Yadav Gour (2010) Published by Agrobios (India).
2. Singh, Reeti and Singh, V.C. (2005). Modern Mushroom Cultivation. Agrobios, India.
3. Suman, B.C. and Sharma, V.P. (2005). Mushroom Cultivation and Uses. Agrobios, India.

Pedagogic tools:

- Chalk and Board
- PPT and Videos.
- Assignment