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| **Part III**  **Skill Enhancement Course (SEC) – I - Value Added Course (VAC)**  For the students admitted from A.Y. 2021-2022 & onwards | | | |
| Offered by:  Department of **Microbiology** | Offered to: (Please mark √ as applicable) | | |
|  | Students across the College **other than** the offering department. | |
| √ | Students across the College **including** the offering department. (The course should not be a part of regular curriculum of the offering department.) | |
| **Semester : II –V (3 year programs)** | | | |
| Course Code | Course Title | | Course Credit and Hours |
| **21AEVA04** | **Mushroom Cultivation** | | **1 Credit - 4 hrs / wk** |

**Shri Manibhai Virani & Smt. Navalben Virani Science College (Autonomous), Rajkot**

**Department of Microbiology**

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| **Objective of the course:**  • To enable the students to identify the edible and poisonous mushrooms.  • To provide hands-on training for the preparation of bed for mushroom cultivation and it’s harvesting, pests and diseases control and post harvesting management.  • To provide the students awareness about the marketing trends of Mushrooms.  • To help the students to learn a means of self-employment and income generation. |

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| **Target Skills (Course outcomes) :**   1. Students can start small scale industry of Mushroom cultivation. 2. Students study the morphology and types of Mushrooms. 3. They are aware of the identification of edible and poisonous Mushrooms. 4. Students will be able produce spawn on their own. |

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| **Justification and references for the course (Mapping with NSDC/NSQF/Sector Skill Council/Regional needs/any other) :**   * The Value added course based on Mushroom Cultivation belongs to area of agriculture. Various types of courses from agriculture and farming sector are offered by Agriculture skill council of India (ASCI-SSC).   Reference:  The link of ASCI – https://asci-india.com/img/01\_ASCI-Brochure\_14\_June\_2022.pdf |

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| **Course Description:**  Mushrooms are being used as food and medicine from ancient times. Mushroom contains all essential amino acids, vitamin B complex, iron, calcium, potassium, phosphorous, folic acid and other biochemical compounds. It is also a good source of dietary fibre. It is regarded as highly edible even for people suffering from cholesterol problems, heart diseases, diabetes and cancer. Mushroom cultivation has now become a source for income generation since there is a large demand for healthy and quality food products. Many value added products are also obtained from mushrooms. The cultivation procedure is characterised by small initial investment and year round production. It is an eco-friendly agricultural practice. Considering the commercial viability and self-employment potential of mushroom cultivation and marketing, the Department is offering the same as an add on certificate course to the under graduate students of the College. The course aims to address SDG-1: No Poverty. |

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| **Course Content** | **Hours** |
| **Module-I:** Introduction to Mushrooms | 8 hrs |
| * Introduction: General History, edible mushrooms, mushrooms with medicinal importance and poisonous mushrooms. * Common Indian mushrooms. * Nutritional value, medicinal value and advantages. * Systematic position, morphology, distribution, structure and life cycle of *Agaricus*. |  |
| **Module-II :** Basics of Mushroom Cultivation | 8 hrs |
| * 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. * Methods – bed method, polythene bag method, field cultivation. * Oyster mushroom cultivation –Substrate, spawning, pre-treatment of substrate. |  |
| **Module-III :** Maintenance and disease management. | 8 hrs |
| * Maintenance of mushroom. * Diseases- Common pests, * Disease prevention and control measures. |  |
| **Module-IV :** Processing and Storage of Mushrooms. | 8 hrs |
| * Processing - Blanching, steeping, sun drying, canning, pickling, freeze drying. * Storage – short term and long term storage. |  |
| **Module-V :** Economics of Mushroom Cultivation | 8 hrs |
| * Production level, economic return, Foreign exchange from Mushroom cultivating countries and international trade. * Production level, economic return, Foreign exchange from Mushroom cultivating countries and international trade. * Case studies |  |

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| **Suggested laboratory experiments / other activities:** | | |
| 1. Identification of Edible and poisonous mushrooms 2. Microscopic observations of mushrooms 3. Cultivation of mushrooms at laboratory level | | |
| **Pedagogic tools:** | |
| 1. Chalk and Talk | |
| 1. PPT and Videos. 2. Assignment 3. Group discussion | |
| **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. | |

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| **Suggested reading / E-resources** |
| 1. http://ecoursesonline.iasri.res.in/course/view.php?id=150 |
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| **Suggested MOOCs:** |
| 1. https://onlinecourses.swayam2.ac.in/nos22\_ge18/preview |