Name of the Programme: M. Sc (Botany)
Course Code: BOT-625
Title of the Course: Mushroom Biotechnology
Number of Credits: 1
Effective from AY: 2022-23

Prerequisites for the course:	Basic knowledge of Biology.	
Objective(s):	To impart knowledge in the diversity and biology of mushrooms. To acquire knowledge of mushroom biotechnology concerning edible and medicinal species. To acquire information on toxic species of mushrooms. To gain knowledge on mushroom production and marketing.	
Content:	1. Cultivation Technology: Infrastructure, equipment, and substrates in mushroom cultivation. 2. Diversity of mushrooms, edible and medicinal mushrooms, criteria for edibility, domestication of edible and medicinal mushrooms. 3. Mushroom biotechnology of commercially cultivated species. 4. Spawn development and quality parameters. 5. Production and quality management. Substrates used in mushroom production. 6. Harvesting, grading, branding, marketing. 7. Mushrooms-post harvest processing and value addition. 8. Storage and food preparation from mushrooms. 9. Mushroom marketing, scope for new species, scope in tropical countries. 10. Future of mushroom industry-global, national, local perspectives.	**1 hour** **2 hours** **1 hour** **2 hours** **2 hours** **1 hour** **2 hours** **2 hours** **1 hour** **1 hour**
Pedagogy:	Lectures/Tutorials/Assignments/Seminars/Videos/Moodle based guidance/Expert Lectures.	
References/ Readings:	**Board N.** (2006). Handbook on Mushroom Cultivation and Processing: With Dehydration, Preservation and Canning: Asia Pacific Business Press, 522 pp. **Biswas S., Datta M. and Ngachan S.V.** (2007). Mushrooms: A Manual for Cultivation: PHI Learning, 220 pp. **Chang, S.T. and W. A. Hayes** (2013). The Biology and Cultivation of Edible Mushrooms. Academic Press Inc., New York, New York. 819 pp. **Dutta, R.** (2007). Advances in mushroom science. Satish Serial Publishing House, Delhi. **Gogoi Robin, Rathaiah Yella and Borah Tasvina Rahman** (2006). Mushroom Cultivation Technology: Scientific, 130 pp. **Jana B.L.** (2014). Mushroom Culture: Agrotech Publishing Academy, 152 pp. **Kannaiyan S., Marimuthu T. and Lenin K.** (Ed) (2011), Diversity and Production of Edible Mushrooms: Associated Publishing Company, 184 pp.	

	Kuo, M. (2007). 100 Edible Mushrooms. Ann Arbor: University of Michigan Press. 329 pp. **Kumar, A., and Satpathy, A.** (2022). Cultivation of Two Edible Mushrooms and Need for Training of Mushroom Production Technology to Enhance Rural Economy. In Biology, Cultivation and Applications of Mushrooms (pp. 561-577). Springer, Singapore. **Largent, D.L., Johnson, D. and Watling, R.** (1973). How to identify mushrooms to genus III: Microscopic features. Eureka, CA: Mad River Press. 148 pp. **Largent, D.L. and Baroni, T.J.** (1988). How to identify mushrooms to genus VI: Modern genera. Eureka, CA: Mad River Press. 277 pp. **Moser, M.** (1983). Keys to Agarics and Boleti (Polyporales, Boletales, Agaricales, Russulales). Ed. Kibby, G. Transl. Plant, S. London: Roger Phillips. 535 pp. **Pacific Northwest Key Council** (2006). Keys to mushrooms of the Pacific Northwest. Retrieved from the Pacific Northwest Key Council. **Pathak V.N., Yadav Nagendra and Gaur Maneesha** (2011). Mushroom Production and Processing Technology: Agrobios, 180 pp.**Phillips, R.** (1991). Mushrooms of North America. Boston: Little, Brown and Company. 319 pp. **Ram Aavishkar R.C.** (2007). Mushrooms and Their Cultivation Techniques. 164 pp. **Roberts, P. and Evans, S.** (2014). The Book of Fungi: A Life-Size Guide to Six Hundred Species from Around the World. United Kingdom: Ivy Press. **Singh J.K.** (2012). Mushroom: Diseases and Its Control: Enkay Pub, 264 pp. **Singh Reeti and Singh U.C.** (2011). Modern Mushroom Cultivation: Agrobios, 229. **Singh S.K. and Jha P.K.** (2014). Mushroom: Production and Utilization: Scientific Publishers, 2014, 189 pp. **Suman B.C. and Sharma V.P.** (2014). Mushroom Cultivation in India: Daya, Reprint, 180 pp. **Verma B.N., Prasad Prem Kumar and Sahu K.K.** (2013). Mushrooms: Edible and Medicinal Cultivation Conservation Strain Improvement with their Marketing: Daya, 431 pp.	
Learning Outcomes:	1. Will enable to appreciate the ethnomycological traditions and role of edible mushrooms in culture and economy. 2. Will enable to handle and culture edible mushrooms independently. 3. Will enable the analysis of mushroom production and marketing trends. 4. Will enable to work in the mushroom industry.	