

## As Per NEP 2020

# University of Mumbai



| Syllabus for<br>Basket of OE                      |              |
|---------------------------------------------------|--------------|
| Board of Studies in Biotechnology                 |              |
| UG First Year Programme                           |              |
| Semester – I                                      |              |
| Title of Paper                                    | Credits 2/ 4 |
| I) OE: Wine Technology                            | 2            |
|                                                   |              |
| From the Academic Year (2023-24<br>Progressively) |              |

**Name of the Course: Wine Technology**

| <b>Sr. No.</b> | <b>Heading</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Particulars</b>                                                                                                                                                                              |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b>       | <b>Description the course :</b><br><b>Including but Not limited to :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | This course is a comprehensive introduction to the field of winemaking and viticulture, providing learners with the knowledge and comprehension necessary to succeed in this exciting industry. |
| <b>2</b>       | <b>Vertical :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Open Elective                                                                                                                                                                                   |
| <b>3</b>       | <b>Type :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Theory                                                                                                                                                                                          |
| <b>4</b>       | <b>Credit:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 2 credits                                                                                                                                                                                       |
| <b>5</b>       | <b>Hours Allotted :</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 30 Hours                                                                                                                                                                                        |
| <b>6</b>       | <b>Marks Allotted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 50 Marks                                                                                                                                                                                        |
| <b>7</b>       | <b>Course Objectives (CO):</b><br>CO 1. Grasp the basics of winemaking and viticulture, including history, terminologies, grapevine classification, and climatic conditions.<br>CO 2. Understand the classification and production of various types of wine, including white, red, and fortified wines.<br>CO 3. Analyse the variation in viticulture practices in different countries, including grapevine selection and harvesting methods.<br>CO 4. Explore the role of automation in the wine industry and learn about the distribution, species, and advantages of oak.         |                                                                                                                                                                                                 |
| <b>8</b>       | <b>Course Outcomes:</b> Learner will be able to<br>OC 1. explain the basics of winemaking and viticulture, including history, terminologies, grapevine classification, and climatic conditions.<br>OC 2. classify and describe the production of various types of wine, including white, red, and fortified wines.<br>OC 3. analyse the variation in viticulture practices in different countries, including grapevine selection and harvesting methods.<br>OC 4. explain the role of automation in the wine industry and describe the distribution, species, and advantages of oak. |                                                                                                                                                                                                 |
| <b>9</b>       | <b>Modules:-</b><br><b>Module 1:</b> Introduction to Winemaking grapevine and concept of Terrior                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                 |
|                | 1. Introduction to winemaking, its history, definition and terminologies.<br>Viticulture: Introduction to viticulture, history, definition and terminologies. <b>(3 lectures)</b><br>2. Grapevine: Classification, anatomy and function of various parts of grapevine. Cultivars and development of varieties of grapevine. <b>(3 lectures)</b><br>3. Effect of climatic conditions on the cultivation of grapevine (sunlight Temperature, wind, rain, hail, frost). <b>(2 lectures)</b><br>4. Terrior: Concept of Terrior <b>(1 lectures)</b>                                       |                                                                                                                                                                                                 |

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|           | <p>5. Wine making Classification of wine: Generic classification. varietal classification, vinitication classification and classification on the basis of chemical constituents. Flow charts of white wine production and recommended varieties. Flow charts of red wine production and recommended varieties. Flow charts of Fortified wine production and recommended varieties. Production of wine from fruits other than grapes. <b>(6 lectures)</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |  |
|           | <b>Module 2: Winemaking and Automation</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|           | <p>1. Vine and wine present scenario of viticulture in different countries: Variation in varieties selection vines harvesting, irrigation practices, clonal selection and other practices. <b>(3 lectures)</b></p> <p>2. Grape variety as criteria for quality wine production: Study of criteria such as tractability, distinctive flavours, and other special characteristics. <b>(3 lectures)</b></p> <p>3. Introduction to barrel: Distribution; species and advantages of oak, anatomical and chemical constituents of oak and liberation of oak flavours from the barrel or cask in wine. <b>(4 lectures)</b><br/> Barrel making and maintenance: Harvesting of oak wood. selection and seasoning of wood for barrel making and maintenance or storage of barrels in the winery. <b>(3 lectures)</b></p> <p>4. Automation in wine industry: Importance of automation operation in wine Industries and concept of Programmed Logic Control System. <b>(2 lectures)</b></p> |  |
| <b>10</b> | <p><b>Text Books:</b></p> <p>1. Boltan R. B. (1996) Principles and practice of winemaking, Chapman and Hall.</p> <p>2. Glaudio Delfins &amp; Formica J. V. (2001) Wine microbiology Science and Technology.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |

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| <b>11</b> | <p><b>Reference Books:</b></p> <p>1. Young J.O. (1980) Home Winemaking ,Washington State University, Pullman, Washington.</p>                     |                                                                                                           |
| <b>12</b> | <b>Internal Continuous Assessment: 40%</b>                                                                                                        | <b>External, Semester End Examination<br/>60% Individual Passing in Internal and External Examination</b> |
| <b>13</b> | <b>Continuous Evaluation through:</b><br>Quizzes, Class Tests, presentation, project, role play, creative writing, assignment etc. ( at least 3 ) |                                                                                                           |
| <b>14</b> | <p><b>Format of Question Paper:</b><br/>Semester End Examination theory - 50 Marks</p>                                                            |                                                                                                           |

**Sign of the BOS  
Chairman  
Dr. Varsha Kelkar-Mane  
Ad-hoc BoS  
(Biotechnology)**

**Sign of the  
Offg. Associate Dean  
Dr. Madhav R. Rajwade  
Faculty of Science &  
Technology**

**Sign of the  
Offg. Dean  
Prof. Shivram S. Garje  
Faculty of Science &  
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