

|                                           |                                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------|--------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------|------------------------------------------|-------------|
| <b>Course Title: Gene Technologies</b>    |                                                                                                                                                               |                        |                                     | <b>Code :</b>                              |                                                         | <b>Institute: Faculty of Science and Literature<br/>Field: Molecular Biology and Genetics</b> |                                          |             |
| <b>Education and Teaching Methods</b>     |                                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               | <b>Credits</b>                           |             |
| <b>Lecture</b>                            | <b>Application</b>                                                                                                                                            | <b>Lab.</b>            | <b>Project/<br/>Field Study</b>     | <b>Homework</b>                            | <b>Other</b>                                            | <b>Total</b>                                                                                  | <b>Credit<br/>T+A+L=Credit</b>           | <b>ECTS</b> |
| 28                                        |                                                                                                                                                               |                        |                                     |                                            |                                                         | 28                                                                                            | 2                                        | 3           |
| <b>Semester</b>                           |                                                                                                                                                               | <b>Autumn/Spring</b>   |                                     | <b>Language</b>                            |                                                         |                                                                                               | <b>Turkish/</b>                          |             |
| <b>Course Type</b>                        | Basic Scientific <input type="checkbox"/>                                                                                                                     |                        | Scientific <input type="checkbox"/> |                                            | Compulsary Elective <input checked="" type="checkbox"/> |                                                                                               | Social Elective <input type="checkbox"/> |             |
| <b>Course Objectives</b>                  | The aim of the course is to give information about the gene technologies and to teach the field of areas that gene technologies are used in the present time. |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>Learning Outcomes and Competencies</b> | To learn basic concepts of gene technologies<br>To learn the usage areas of gene technologies.                                                                |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>Textbooks and /or References</b>       | Campbell&Reece (2008). Biyoloji. (Çeviri ed. E. Gündüz, A. Demirsoy , İ. Türkan), Palme yayınları                                                             |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>ASSESSMENT CRITERIA</b>                |                                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>Theoretical Courses</b>                |                                                                                                                                                               |                        |                                     | <b>Project Course and Graduation Study</b> |                                                         |                                                                                               |                                          |             |
|                                           | <b>If any,<br/>mark as (X)</b>                                                                                                                                | <b>Percent<br/>(%)</b> |                                     | <b>If any,<br/>mark as (X)</b>             | <b>Percent<br/>(%)</b>                                  |                                                                                               |                                          |             |
| Midterm Exams                             | 1                                                                                                                                                             | 40                     | Midterm Exams                       |                                            |                                                         |                                                                                               |                                          |             |
| Quizzes                                   |                                                                                                                                                               |                        | Midterm Controls                    |                                            |                                                         |                                                                                               |                                          |             |
| Homework                                  |                                                                                                                                                               |                        | Term Paper                          |                                            |                                                         |                                                                                               |                                          |             |
| Term Paper, Project Reports, etc.         |                                                                                                                                                               |                        | Oral Examination                    |                                            |                                                         |                                                                                               |                                          |             |
| Laboratory Work                           |                                                                                                                                                               |                        | Final Exam                          |                                            |                                                         |                                                                                               |                                          |             |
| Final Exam                                | 1                                                                                                                                                             | 60                     | Other                               |                                            |                                                         |                                                                                               |                                          |             |
| Other                                     |                                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>Week</b>                               | <b>Subjects</b>                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 1                                         | Definition and application areas of gene technology                                                                                                           |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 2                                         | DNA isolation, DNA truncation and restriction enzymes                                                                                                         |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 3                                         | DNA analysis, determination of DNA and ligases                                                                                                                |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 4                                         | RNA analysis, determination of RNA                                                                                                                            |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 5                                         | Gene cloning techniques and transfer of cloning genes I                                                                                                       |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 6                                         | Gene cloning techniques and transfer of cloning genes II                                                                                                      |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 7                                         | Genetic transfer techniques and model organisms                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 8                                         | GM plants and technics                                                                                                                                        |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 9                                         | GM animals and technics                                                                                                                                       |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 10                                        | GM microorganisms and technics                                                                                                                                |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 11                                        | Production of insulin and pharmaceutical products                                                                                                             |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 12                                        | Bacterial and viral vaccine production techniques                                                                                                             |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 13                                        | Risk assessment processes of GMO production and its applications-biosecurity concept                                                                          |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| 14                                        | Advantages and disadvantages of GMO technology                                                                                                                |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
| <b>Instructor/s</b>                       | Prof.Dr.Feray KÖÇKAR,Dr. Öğr. Uyesi Hatice YILDIRIM, Dr. Öğr.Uyesi Sümeyye TÜRKOĞLU                                                                           |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |
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| <b>Website</b>                            |                                                                                                                                                               |                        |                                     |                                            |                                                         |                                                                                               |                                          |             |