# TRANSGENIC PLANT TECHNOLOGY

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| 1 | Course Title: | TRANSGENIC PLANT TECHNOLOGY |
| 2 | Course Code: | MBG4115 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | First Cycle |
| 5 | Year of Study: | 4 |
| 6 | Semester: | 7 |
| 7 | ECTS Credits Allocated: | 6.00 |
| 8 | Theoretical (hour/week): | 3.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 0 |
| 11 | Prerequisites: | None |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Dr. Ögr. Üyesi FİGEN ERSOY |
| 15 | Course Lecturers: | |
| 16 | Contact information of the Course Coordinator: | e-posta: figen@uludag.edu.tr<br>0 224 29 41779<br>Fen-Edebiyat Fakültesi, Biyoloji Bölümü,<br>Görükle Kampüsü, 16059 Bursa |
| 17 | Website: | |
| 18 | Objective of the Course: | The aim of the course is to make the students learn the gene transfer methods in plants. The goals are to teach the new methods in Transgenic Plant Technology, it’s applications and to develop the students experimental view. |
| 19 | Contribution of the Course to Professional Development: | |
| 20 | Learning Outcomes: | |
| | 1 | Integrate and evaluate critically information from various sources.<br>. |
| | 2 | Analyse and solve problems using an integrated multidisciplinary approach. |
| | 3 | Plan, conduct and write a programme of original research. |
| | 4 | Use modern information and communications technologies. |
| | 5 | Critically evaluate scientific publications. |
| | 6 | Communicate effectively through oral presentations. |
| | 7 | Devise proteomics methodologies for problems. |
| | 8 | Transfer techniques and solutions from one discipline to another. |
| | 9 | |
| | 10 | |

| 21 | Course Content: |
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**Course Content:**

| Week | Theoretical | Practice |
|---|---|---|
| 1 | Introduction | |
| 2 | Gene cloning in plants | |
| 3 | preparation of vectors | |
| 4 | the methods in order to prepare transgenic plants | |
| 5 | PEG, Electroporation | |
| 6 | Liposome mediated gene transfer, microinjection | |
| 7 | Agrobacterium mediated gene transfer | |
| 8 | Biolistic | |
| 9 | applications in plants (Resistance to drought, cold, diseases, heavy metals etc.) | |
| 10 | applications in plants (Resistance to drought, cold, diseases, heavy metals etc.) (cont.) | |
| 12 | Paper presentations | |
| 13 | Paper presentations | |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 2.00 | 28.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 1.00 | 14.00 |
| Homeworks | 0 | 0.00 | 0.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 40.00 | 40.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 40.00 | 40.00 |
| Total Work Load | | | 122.00 |
| Total work load/ 30 hr | | | 4.07 |
| ECTS Credit of the Course | | | 6.00 |

Materials: Plant Biotechnology and Transgenic Plants
KIRSLMARIA OKSMAH CALDENTEY

| TERM LEARNING ACTIVITIES | NUMBER | WEIGHT |
|---|---|---|
| Quiz | 0 | 0.00 |
| Home work-project | 0 | 0.00 |
| Final Exam | 1 | 60.00 |
| Total | 2 | 100.00 |
| Contribution of Term (Year) Learning Activities to Success Grade | | 40.00 |
| Contribution of Final Exam to Success Grade | | 60.00 |
| Total | | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | | |

| 24 | **ECTS / WORK LOAD TABLE** |
|---|---|

| 25 | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
| **ÖK1** | 0 | 4 | 4 | 0 | 4 | 4 | 4 | 0 | 4 | 5 | 5 | 4 | 0 | 0 | 0 | 0 |
| **ÖK2** | 0 | 5 | 4 | 0 | 4 | 3 | 5 | 0 | 4 | 5 | 5 | 5 | 0 | 0 | 0 | 0 |
| **ÖK3** | 0 | 3 | 5 | 0 | 4 | 3 | 5 | 0 | 4 | 4 | 4 | 5 | 0 | 0 | 0 | 0 |
| **ÖK4** | 0 | 5 | 3 | 0 | 0 | 4 | 4 | 0 | 4 | 4 | 4 | 4 | 0 | 0 | 0 | 0 |
| **ÖK5** | 0 | 4 | 5 | 0 | 4 | 0 | 0 | 0 | 5 | 5 | 4 | 4 | 0 | 0 | 0 | 0 |
| **ÖK6** | 0 | 4 | 3 | 0 | 4 | 0 | 3 | 0 | 5 | 3 | 3 | 4 | 0 | 0 | 0 | 0 |
| **ÖK7** | 0 | 4 | 4 | 0 | 3 | 4 | 0 | 0 | 0 | 5 | 5 | 4 | 0 | 0 | 0 | 0 |
| **ÖK8** | 0 | 3 | 4 | 0 | 4 | 0 | 5 | 0 | 3 | 4 | 4 | 4 | 0 | 0 | 0 | 0 |
| **LO: Learning Objectives PQ: Program Qualifications** | | | | | | | | | | | | | | | | |
| **Contribution Level:** | **1 very low** | | **2 low** | | | **3 Medium** | | | **4 High** | | | | **5 Very High** | | | |