**2024-2025 AGRICULTURAL BIOTECHNOLOGY DEPARTMENT UNDERGRADUATE EDUCATION PLAN**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **I. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab. | NC | ECTS |
| 251511001 | Zoology | C | 2 | 2 | 0 | 3 | 4 |
| 251511002 | Botany | C | 2 | 2 | 0 | 3 | 4 |
| 251511013 | Physics | C | 3 | 0 | 0 | 3 | 3 |
| 251511004 | Chemistry | C | 2 | 2 | 0 | 3 | 4 |
| 251511005 | Mathematics | C | 3 | 0 | 0 | 3 | 3 |
| 251511014 | Laboratory Technique | C | 1 | 2 | 0 | 2 | 3 |
| 251511015 | Turkish Language I | C | 2 | 0 | 0 | 2 | 2 |
| 251511009 | Atatürk’s Pr. & The History of Rev. I | C | 2 | 0 | 0 | 2 | 2 |
| 251511016 | English I | C | 3 | 0 | 0 | 3 | 2 |
|  | Social Elective Course Group I (1 course to be taken) | E | 2 | 0 | 0 | 2 | 3 |
| Total | | | 22 | 8 | 0 | 26 | 30 |

**C:** Compulsory Course **E:** Elective Course **Theo.:** Theory **Prac.:** Practice **Lab.:** Laboratory **NC:** National Credit **ECTS:** European Credit Transfer System

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| **II. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab. | NC | ECTS |
| 251512001 | History of Agriculture and Deontology | C | 2 | 0 | 0 | 2 | 2 |
| 251512004 | Biochemistry | C | 2 | 0 | 0 | 2 | 3 |
| 251512017 | Technical Drawing | C | 1 | 2 | 0 | 2 | 3 |
| 251512018 | Statistic | C | 2 | 0 | 0 | 2 | 3 |
| 251512019 | Microbiology | C | 2 | 2 | 0 | 3 | 4 |
| 251512014 | Career Planning | C | 1 | 0 | 0 | 1 | 2 |
| 251512020 | Engineering Mechanics | C | 3 | 0 | 0 | 3 | 4 |
| 251512021 | Turkish Language II | C | 2 | 0 | 0 | 2 | 2 |
| 251512009 | Atatürk’s Pr. &The History of Rev. II | C | 2 | 0 | 0 | 2 | 2 |
| 251512022 | English II | C | 3 | 0 | 0 | 3 | 2 |
|  | Social Elective Course Group II (1 course to be taken) | E | 2 | 0 | 0 | 2 | 3 |
| Total | |  | 22 | 4 | 0 | 24 | 30 |

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| **III. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab. | NC | ECTS |
| 251513027 | Analytical Chemistry | C | 2 | 2 | 0 | 3 | 5 |
| 251513011 | Genetics | C | 2 | 0 | 0 | 2 | 3 |
| 251513028 | Animal Physiology | C | 3 | 0 | 0 | 3 | 4 |
| 251513029 | Basic Information Technologies | C | 2 | 0 | 0 | 2 | 2 |
| 251513030 | Materials Science | C | 3 | 0 | 0 | 3 | 4 |
| 251513007 | Horticulture | C | 2 | 0 | 0 | 2 | 3 |
| 251513008 | Field Crops | C | 2 | 0 | 0 | 2 | 3 |
| 251513031 | Agricultural Structures and Irrigation | C | 2 | 0 | 0 | 2 | 3 |
|  | Out of Field Elective Course Group I (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
| Total | |  | 21 | 2 | 0 | 22 | 30 |
|  | Out of Field Elective Course Group I (1 course to be taken) |  |  |  |  |  |  |
| 251513032 | Intelligent Agriculture | E | 3 | 0 | 0 | 3 | 3 |
| 251513033 | Geographic Information Systems | E | 3 | 0 | 0 | 3 | 3 |

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| **IV. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab. | NC | ECTS |
| 251514028 | Introduction to Biotechnology | C | 2 | 0 | 0 | 2 | 3 |
| 251514029 | Plant Physiology | C | 2 | 2 | 0 | 3 | 5 |
| 251514030 | Agricultural Law | C | 2 | 0 | 0 | 2 | 2 |
| 251514018 | Thermodynamics | C | 3 | 0 | 0 | 3 | 4 |
| 251514010 | Plant Protection | C | 2 | 0 | 0 | 2 | 3 |
| 251514031 | Animal Production | C | 3 | 0 | 0 | 3 | 3 |
| 251514032 | Agricultural Economics | C | 2 | 0 | 0 | 2 | 2 |
| 251514033 | Agricultural Machinery | C | 2 | 0 | 0 | 2 | 2 |
| 251514034 | Soil Science | C | 2 | 0 | 0 | 2 | 3 |
|  | Out of Field Elective Course Group II (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
| Total | | Total | 23 | 2 | 0 | 24 | 30 |
|  | Out of Field Elective Course Group II (1 course to be taken) |  |  |  |  |  |  |
| 251514035 | Ecology | E | 3 | 0 | 0 | 3 | 3 |
| 251514036 | Meteorology | E | 3 | 0 | 0 | 3 | 3 |
| 251514037 | Surveying Technique | E | 3 | 0 | 0 | 3 | 3 |

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| **V. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab. | NC | ECTS |
| 251515024 | Molecular Biology and Genetics | C | 2 | 2 | 0 | 3 | 4 |
| 251515025 | Cell Biology | C | 2 | 0 | 0 | 2 | 2 |
| 251515026 | Research and Experiment Methods | C | 3 | 0 | 0 | 3 | 3 |
| 251515027 | Occupational Health and Safety I | C | 2 | 0 | 0 | 2 | 2 |
| 251515028 | Professional Practice I | C | 0 | 4 | 0 | 0 | 3 |
|  | Field Elective Course Group I (3 courses to be taken) | E | 2 | 0 | 0 | 2 | 3 |
|  | Field Elective Course Group II (1 courses to be taken) | E | 2 | 2 | 0 | 3 | 4 |
|  | Out of Field Elective Course Group III (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
| Total | | Total | 20 | 8 | 0 | 22 | 30 |
|  | Field Elective Course Group I (3 courses to be taken) |  |  |  |  |  |  |
| 251515029 | Biosafety and Bioethics | E | 2 | 0 | 0 | 2 | 3 |
| 251515030 | Environmental Biotechnology | E | 2 | 0 | 0 | 2 | 3 |
| 251515031 | Biotechnological Methods in the Control of Plant Diseases | E | 2 | 0 | 0 | 2 | 3 |
| 251515032 | Agricultural Biomass Technologies | E | 2 | 0 | 0 | 2 | 3 |
| 251515033 | Academic English | E | 2 | 0 | 0 | 2 | 3 |
|  | Field Elective Course Group II (1 courses to be taken) |  |  |  |  |  |  |
| 251515034 | Enzymology | E | 2 | 2 | 0 | 3 | 4 |
| 251515035 | Microbial Biotechnology (Prerequisite: | E | 2 | 2 | 0 | 3 | 4 |
|  | Microbiology) |  |  |  |  |  |  |
| 251515005 | Out of Field Elective Course Group III (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
| 251515006 | Determining Plant Fertilizer Requirements | E | 3 | 0 | 0 | 3 | 3 |
| 251515007 | Agriculture and Environment | E | 3 | 0 | 0 | 3 | 3 |
| 251515010 | Beekeeping and Sericulture | E | 3 | 0 | 0 | 3 | 3 |
| 251515020 | Phytopathology | E | 3 | 0 | 0 | 3 | 3 |
| 251515021 | Food Science and Technology | E | 3 | 0 | 0 | 3 | 3 |
| 251515036 | Organic Agriculture | E | 3 | 0 | 0 | 3 | 3 |

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| **VI. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab | NC | ECTS |
| 251516026 | Bioinformatics | C | 1 | 1 | 0 | 1 | 2 |
| 251516027 | Project preparation | C | 1 | 0 | 0 | 1 | 1 |
| 251516028 | Occupational Health and Safety II | C | 2 | 0 | 0 | 2 | 2 |
| 251516029 | Professional Practice II | C | 0 | 4 | 0 | 0 | 3 |
|  | Field Elective Course Group III (1 course to be taken) | E | 2 | 2 | 0 | 3 | 5 |
|  | Field Elective Course Group IV (1 course to be taken) | E | 2 | 2 | 0 | 3 | 5 |
|  | Field Elective Course Group V (3 courses to be taken) | E | 2 | 0 | 0 | 2 | 3 |
|  | Out of Field Elective Course Group IV (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
| Toplam | | Toplam | 17 | 9 | 0 | 19 | 30 |
|  | Field Elective Course Group III (1 course to be taken) |  |  |  |  |  |  |
| 251516030 | Plant Tissue Culture | E | 2 | 2 | 0 | 3 | 5 |
| 251516031 | Animal Cell Culture | E | 2 | 2 | 0 | 3 | 5 |
|  | Field Elective Course Group IV (1 course to be taken) |  |  |  |  |  |  |
| 251516032 | Genetic Engineering | E | 2 | 2 | 0 | 3 | 5 |
| 251516033 | Genomics and Proteomics | E | 2 | 2 | 0 | 3 | 5 |
|  | Field Elective Course Group V (3 courses to be taken) | E |  |  |  |  |  |
| 251516034 | Entrepreneurship in Agricultural Biotechnology | E | 2 | 0 | 0 | 2 | 3 |
| 251516035 | Synthetic Biology | E | 2 | 0 | 0 | 2 | 3 |
| 251516036 | Seed and Seed Material Biotechnology | E | 2 | 0 | 0 | 2 | 3 |
| 251516037 | Genetically Modified Organisms | E | 2 | 0 | 0 | 2 | 3 |
| 251516038 | Biotechnological Methods in Plant Pest Control | E | 2 | 0 | 0 | 2 | 3 |
| 251516039 | Sectoral Applications in Agricultural Biotechnology | E | 2 | 0 | 0 | 2 | 3 |
|  | Out of Field Elective Course Group IV (1 course to be taken) |  |  |  |  |  |  |
| 251516005 | Medicinal and Aromatic Plants | E | 3 | 0 | 0 | 3 | 3 |
| 251516022 | Entomology | E | 3 | 0 | 0 | 3 | 3 |
| 251516007 | Organic Animal Breeding | E | 3 | 0 | 0 | 3 | 3 |
| 251516010 | Grafting and Pruning Technique | E | 3 | 0 | 0 | 3 | 3 |
| 251516011 | Agricultural Appraisal and Expertise | E | 3 | 0 | 0 | 3 | 3 |
| 251516023 | Landscape Architecture | E | 3 | 0 | 0 | 3 | 3 |
| 251516006 | Soilless Culture | E | 3 | 0 | 0 | 3 | 3 |
| 251516025 | Food Safety | E | 3 | 0 | 0 | 3 | 3 |

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| **VII. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab | NC | ECTS |
| 251517032 | Graduation Thesis (Prerequisite: Project  Preparation) | C | 0 | 2 | 0 | 1 | 3 |
| 251517033 | Design in Engineering (Prerequisite:  Thermodynamics) | C | 2 | 2 | 0 | 3 | 5 |
| 251517034 | Artificial Intelligence in Biotechnology | C | 2 | 0 | 0 | 2 | 2 |
| 251517035 | Plant Breeding and Biotechnology | C | 3 | 0 | 0 | 3 | 4 |
| 251517036 | Animal Breeding and Biotechnology | C | 3 | 0 | 0 | 3 | 4 |
|  | Field Elective Course Group VI (1 course to be taken) | E | 3 | 0 | 0 | 3 | 3 |
|  | Field Elective Course VII (1 course  to be taken) | E | 2 | 0 | 0 | 2 | 3 |
|  | Field Elective Course Group VIII (2 courses to be taken) | E | 2 | 0 | 0 | 2 | 3 |
| Total | |  | 19 | 4 | 0 | 21 | 30 |
|  | Field Elective Course Group VI (1 course to be taken) |  |  |  |  |  |  |
| 251517037 | Industrial Biotechnology | E | 3 | 0 | 0 | 3 | 3 |
| 251517038 | Biotechnological Methods in Animal Feeding | E | 3 | 0 | 0 | 3 | 3 |
|  | Field Elective Course VII (1 course  to be taken) |  |  |  |  |  |  |
| 251517039 | Plant Genetic Resources | E | 2 | 0 | 0 | 2 | 3 |
| 251517040 | Animal Genetic Resources | E | 2 | 0 | 0 | 2 | 3 |
|  | Field Elective Course Group VIII (2 courses to be taken) |  |  |  |  |  |  |
| 251517041 | Occupational English | E | 2 | 0 | 0 | 2 | 3 |
| 251517042 | Reproductive Physiology and Applications | E | 2 | 0 | 0 | 2 | 3 |
| 251517031 | Biofuels and Energy Crops | E | 2 | 0 | 0 | 2 | 3 |
| 251517043 | Fermented Products Technology | E | 2 | 0 | 0 | 2 | 3 |

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| **VIII. Semester** | | | | | | | |
| Course Code | Course Name | C/E | Theo | Prac | Lab | NC | ECTS |
| 251518031 | Vocational Training Course (Workplace Training) \* | C | 5 | 25 | 0 | 18 | 30 |
| Total | |  | 5 | 25 | 0 | 18 | 30 |

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\***Prerequisite: All courses in seven semesters must be successfully completed and the GPA must be 2 and above.**