# AYDIN ADNAN MENDERES UNIVERSITY
# COURSE INFORMATION FORM

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|---|---|---|---|---|---|---|---|---|---|
| Course Title | Alternative Energy Resources | | | | | | | | |
| Course Code | ZTM530 | | Couse Level | | Second Cycle (Master's Degree) | | | | |
| ECTS Credit | 8 | Workload | 200 *(Hours)* | Theory | 3 | Practice | 0 | Laboratory | 0 |
| Objectives of the Course | The aim of this course is to provide the understanding of energy, energy balance in agriculture, usage of renewable energy sources and energy savings in agriculture | | | | | | | | |
| Course Content | Basic concepts of energy, forms of energy, classification of energy, importance of energy in agriculture, energy usage in agriculture, renewable energy sources used in agriculture, energy production from agricultural residues, usage of renewable energy sources in agriculture, usage of geothermal energy, solar energy, hydraulic energy and geothermal energy in agriculture, energy balance in agriculture, energy savings methods in agriculture. | | | | | | | | |
| Work Placement | N/A | | | | | | | | |
| Planned Learning Activities and Teaching Methods | Explanation (Presentation) | | | | | | | | |
| Name of Lecturer(s) | | | | | | | | | |

| Assessment Methods and Criteria | | |
|---|---|---|
| Method | Quantity | Percentage (%) |
| Midterm Examination | 1 | 40 |
| Final Examination | 1 | 60 |

| Recommended or Required Reading | |
|---|---|
| 1 | Enerji Teknolojisi. 1994. Yavuzcan, G. Ankara Üniversitesi Ziraat Fakültesi Yayınları No: 1324. Ankara Üniversitesi Halkla İlişkiler ve Yayın Ünitesi. Ankara, ISBN: 975-482-171-2 117 s. (Ders Kitabı) |
| 2 | Energy and Agriculture. 1984.Stanhill, G. Springer-Verlag, Germany, ISBN:3-540-13476-X192p. |
| 3 | Güneş Işınımı ve Düz Toplayıcılar. 1984. Kılıç, A., Öztürk., SEGEM Ankara. |
| 4 | Türkiyenin Yeni ve Temiz Enerji Kaynakları, 1984. Anonim, TÇSV. |

| Week | Weekly Detailed Course Contents | |
|---|---|---|
| 1 | Theoretical | Energy information, energy definition and classification |
| 2 | Theoretical | Energy in agriculture, energy usage in agriculture |
| 3 | Theoretical | Renewable energy sources used in agriculture |
| 4 | Theoretical | Energy production from agricultural residues and usage methods |
| 5 | Theoretical | Energy production from agricultural residues and usage methods |
| 6 | Theoretical | Solar energy and usage possibilities in agriculture |
| 7 | Theoretical | Solar energy and usage possibilities in agriculture |
| 8 | Intermediate Exam | Midterm exam |
| 9 | Theoretical | Solar energy and usage possibilities in agriculture |
| 10 | Theoretical | Wind energy and usage possibilities in agriculture |
| 11 | Theoretical | Wind energy and usage possibilities in agriculture |
| 12 | Theoretical | Wind energy and usage possibilities in agriculture |
| 13 | Theoretical | Hydraulic energy and usage possibilities in agriculture |
| 14 | Theoretical | Geothermal energy and usage in agriculture |
| 15 | Theoretical | Integrated energy systems |
| 16 | Final Exam | Final exam |

| Workload Calculation | | | | |
|---|---|---|---|---|
| Activity | Quantity | Preparation | Duration | Total Workload |
| Lecture - Theory | 14 | 2 | 2 | 56 |
| Lecture - Practice | 2 | 25 | 25 | 100 |
| Reading | 1 | 20 | 20 | 40 |
| Midterm Examination | 1 | 0 | 2 | 2 |

| | | | | |
|---|---|---|---|---|
| Final Examination | 1 | 0 | 2 | 2 |
| | | | Total Workload (Hours) | 200 |
| | | | [Total Workload (Hours) / 25*] = **ECTS** | 8 |
| **25 hour workload is accepted as 1 ECTS* | | | | |

| **Learning Outcomes** | |
|---|---|
| 1 | Understanding of energy information, definition and classification of energy, |
| 2 | Understanding the usage of renewable energy sources in agriculture |
| 3 | Understanding of energy production from agricultural residues and usage methods |
| 4 | Understanding the usage of renewable energy sources in agriculture |
| 5 | Understanding integrated energy systems |

| **Programme Outcomes** *(Agricultural Machinery Master)* | |
|---|---|
| 1 | Identification, formulation and solving the problems in the field of Agricultural Machinery |
| 2 | The ability to use modern engineering tools and techniques |
| 3 | The ability to use the information, which is obtained by following the scientific and technological developments, in the academic life and practice. |
| 4 | The ability to evaluate multi-faced relationship between them by understanding interaction among agricultural technology, soil, plants and animals |
| 5 | Professionalism and ethical responsibility |
| 6 | The ability to work in disciplinary and multi-disciplinary teams |
| 7 | The ability to communicate effectively |
| 8 | The ability to do research for accessing information and to use data base and other resources |
| 9 | The ability to do analyze and interpret the experimental results and the design of experiment |
| 10 | The ability to identify and interpret knowledge of current professional issues and events |
| 11 | The ability to get aware the universal and social effects of engineering solutions and applications |
| 12 | Accordance with the requirements of science and technology, ability to use scientific knowledge creative |

**Contribution of Learning Outcomes to Programme Outcomes** *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

| | L1 | L2 | L3 | L4 | L5 |
|---|---|---|---|---|---|
| P1 | 5 | 5 | 5 | 5 | 5 |
| P2 | 4 | 4 | 4 | 4 | 4 |
| P3 | 5 | 5 | 5 | 5 | 5 |
| P4 | 5 | 5 | 5 | 5 | 5 |
| P5 | 2 | 2 | 2 | 2 | 2 |
| P6 | 5 | 5 | 5 | 5 | 5 |
| P7 | 2 | 2 | 2 | 2 | 2 |
| P8 | 5 | 5 | 5 | 5 | 5 |
| P9 | 5 | 5 | 5 | 5 | 5 |
| P10 | 5 | 5 | 5 | 5 | 5 |
| P11 | 5 | 5 | 5 | 5 | 5 |
| P12 | 5 | 5 | 5 | 5 | 5 |