

Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Electrical-Electronics Engineering Department
2023-2024 Fall Semester

Syllabus

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|------------------------|---|
| Code/Name | EEE 209 Electrical Engineering Materials |
| Type | Required |
| Credit/ECTS | 5/5 |
| Hour per Week | 3(3+0+0) |
| Level/Year | Undergraduate/2 |
| Semester | Fall |
| Classroom | A103 |
| Content | Atom Model and Crystal Structures. Electrical and Thermal Conduction in Solids. Dielectric Materials and Insulations. Semiconductor Physics. Magnetic Properties and Superconductivity. Nano materials. Aerial Conductors and Underground Cables. Internal Installation Conductors and Pipes. Fiber Optic Cables. Switches, Fuses, Insulators and Lighting Armatures. Electric-Meters and Their Connections. Calculation of Current Carrying Capacity of Conductors and Heating in Cables. Basic Security Concepts in Electrical Installations. |
| Prerequisites | None |
| Textbooks | Primary Principles of Electrical Engineering Materials and Devices”, S.O.KASAP, Mc Graw Hill, 3rd Edition 2002. Supplementary Lectures on the Electrical Properties of Materials”, L. SOYMER, D. WALSH, Oxford University Press, 7th Edition, 2004. |
| Objectives | <ul style="list-style-type: none">• To introduce frequently used engineering and especially electrical-electronics engineering materials• To learn the operation of basic materials used in electrical and electronics engineering and their practical applications |
| Course Outcomes | In this course you will be able to: CO1 Know about conductors and dielectrics CO2 Know selection and diagnosis of some basic materials and devices CO3 Know the connection of them to electrical circuits CO4 Know important security rules starting to electrical-electronics engineering applications |

Weekly Schedule of Topics

| W | Topic |
|---|---|
| 1 | Atom Model and Crystal Structures |
| 2 | Electrical and Thermal Conduction in Solids |
| 3 | Dielectric Materials and Insulations. |
| 4 | Semiconductor Physics |
| 5 | Magnetic Properties and Superconductivity |
| 6 | Nano materials |
| 7 | Aerial Conductors and Underground Cables. |
| 8 | Internal Installation Conductors and Pipes |
| 9 | Fiber Optic Cables. |

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| 10 | Switches, Fuses, Insulators and Lighting Armatures |
| 11 | Electric-Meters and Their Connections |
| 12 | Calculation of Current Carrying Capacity of Conductors and Heating in Cables |
| 13 | Basic Security Concepts in Electrical Installations |
| 14 | Material Research Presentations |

Contribution to Program Outcomes*

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 5 | 5 | 1 | 5 | 0 | 5 | 1 | 3 | 1 | 3 | 0 |
| CO2 | 5 | 5 | 1 | 4 | 0 | 5 | 4 | 3 | 4 | 3 | 0 |
| CO3 | 5 | 5 | 3 | 5 | 2 | 5 | 1 | 3 | 1 | 3 | 0 |
| CO4 | 5 | 4 | 3 | 5 | 0 | 5 | 2 | 3 | 1 | 4 | 0 |
| CO5 | 5 | 4 | 1 | 4 | 0 | 5 | 4 | 3 | 4 | 1 | 2 |

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

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| Requirements | Basic knowledge of Electromagnetic Field Theory |
| Course Policy | <ul style="list-style-type: none">• Be in the class on time.• English should always be used to communicate with one another.• At least 70% attendance is required, otherwise a grade of DZ will be assigned. |
| Cheating & Plagiarism | <ul style="list-style-type: none">• Copying or letting someone copy your work on exams, assignments, or reports is cheating.• Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism.• The consequence of academic dishonesty is to receive a grade of FF for the course. |
| Evaluation | Midterm 40% <u>Final Exam</u> 60% Total 100% |

Instructor

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|--------------|---------------|--------------|-----------------------------|
| Name/Surname | Leyla Akbulut | Email | leyla.akbulut@alanya.edu.tr |
| Room | 209 | Office Hours | |

Prepared by Akm Uslu on June 10th, 2024.