



CE 241 MATERIALS SCIENCE

2024-25 Fall Semester

Instructor: Korhan Deniz Dalgıç, **PhD**

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Lecture Hours & Class Location: **Monday 13:30-15:15 & Wednesday 10:45-12:30 (B211)**

Office Hours: **by appointment**

Textbooks:

T.Y. Erdogan, M. Tokyay, İ.Ö. Yaman, S.T. Erdogan, “**Introduction to Materials Science for Engineering**”, Metu Press Ankara, 2010.

J.F. Shackelford, “**Introduction to Materials Science for Engineers**”, London: Prentice-Hall, 2000.

W.F. Smith, “**Principles of Materials Science and Engineering**”, New York: McGraw-Hill, 1990.

You can also benefit from any other Materials Science book

Course Overview:

General requirements for engineering materials. The structure of matter, atomic arrangements, structural imperfections, atom movements. Mechanical properties of materials: Force, stress, deformation, strain, elastic and plastic behavior, brittleness, ductility, toughness, resilience, viscosity, rheological models, creep, hardness and fatigue. Thermal properties of materials: Heat capacity and specific heat, thermal expansion, thermal conductivity.

Grade and Attendance Policy:

You will take **one mid-term** exam and **lab teaching sessions** during the semester, and **the final exam** will be taken at the end of the semester. The effect of Mid-Term, Lab reports and Final Exam on overall success scores will be **30%, 30%,** and **40%,** respectively.

Students must attend at least **70%** of overall lecture hours. Students are strongly recommended to answer questions asked during the class and ask questions about the subject not fully understood. It is well known that some behaviors in the class, such as entering late, leaving early, not paying attention, dealing with other material, or talking to neighbors lower the student's success. It is imperative to turn off mobile phones during the course. For whatever reason, students who are interested in mobile phones during the class will be taken out of the classroom. Lecture notes will be shared with students, but they should take their notes while solving example problems in the class.