

# Electronic Properties Of Materials: An Introduction For Engineers

**Course number and name:** MTSE 3070: Electrical, Optical and Magnetic Properties of Materials

**Credits and contact hours:** 3 Credits. Walk in or by appointment

**Instructor's or course coordinator's name:** Dr. Wonbong Choi

**Text book, title, author, and year**

Electronic Properties of Materials, R.E. Hummel, 4th Edition, Springer.

Principles of Electronic Materials and Devices, by S.O.Kasap, 2nd ed., McGraw-Hill, 2002

*a. Other supplemental materials*

Materials Science and Engineering: An Introduction, by William D. Callister, Jr., John Wiley & Sons, 8<sup>th</sup> Ed., 2009

**Specific Course Information**

*a. Brief description of the content of the course (catalog description)*

Bonding and the electronic structure and properties of metallic, ceramic, semiconducting and polymeric materials

*b. Prerequisites or co-requisites*

ENGR 3450

*Indicate whether a required, elective, or selected elective course in the program*

Required

**Specific goals for the course**

*a. Specific outcomes of instruction*

*b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.*

Student/ABET Outcome	a	b	c	d	e	f	g	h	i	j	k
<b>Specific Course Learning Outcome</b>											
1. Students will learn about the fundamental of electron theory (solution to Schrödinger's equation for electrons in the periodic potential of a crystal, band structure types, effective mass, density of states, population density, Fermi distribution function, Fermi level).			x					x	x		x
2. Students will learn the electrical properties of materials: Electrical Conduction in Metals and Alloys, Semiconductors, Semiconductor Devices								x	x		

Electronic Properties of Materials: An Introduction for Engineers [Rolf E. Hummel] on templebaptistchurchsantafe.com \*FREE\* shipping on qualifying offers. BLECK: IEEE.This carefully revised third edition on the electrical, optical, magnetic, and thermal properties of materials stresses concepts rather than mathematical formalism.Introduction to the Electronic Properties of Materials, 2nd Edition presents the approach spanning physics, electrical engineering, and materials science.Electronic Properties of Materials: An Introduction for Engineers by Rolf E. Hummel at templebaptistchurchsantafe.com - ISBN - ISBN .Introduction to the Electronic Properties of Materials, 2nd Edition - CRC Press approach spanning physics, electrical engineering, and materials science.COUPON: Rent Electronic Properties of Materials An Introduction for Engineers 3rd edition () and save up to 80% on textbook rentals and 90%.New Book. Electronic properties of materials an introduction for engineers. Von ROLF E. HUMMEL. ISBN und Electronic Properties of Materials. An Introduction for Engineers. Springer?Verlag , Berlin Heidelberg New York Tokyo , pages, figures.Introduction ] [ Chapter 2. Materials Science and Engineering For instance, the mechanical, electrical and magnetic properties are the responses to .The interdisciplinary field of materials science, also commonly termed materials science and Materials science is also an important part of forensic engineering and failure . Much of the electrical, magnetic and chemical properties of materials arise from this .. Introduction to the Thermodynamics of Materials (4th ed.).I~ltroductionr z to the Electronic Properties of Materials. by David author is a professor of Materials Science and Engineering at Iowa State University,. Atnes.The study of electronic properties forms a significant component in the education of physics, materials science and electrical engineering majors, and requires a.Introduction to the Electronic Properties of Materials, 2nd Edition presents spanning physics, electrical engineering, and materials science.

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