General Information:

Name of Course:	**ELECTRICAL PROPERTIES OF MATERIALS**
Course Code:	MSB281ANEP
Semester:	**1**
Number of Credits:	2
Allotment of Hours per Week:	2 Lectures /Week+1 Laboratory/Week
Evaluation:	Signature (with grade) and exam
Prerequisites:	**None**

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Introduction, General Course Description:

The aim of this course is to present the basic concepts of Material Science that students need to know for later courses and future careers. Many times, a material problem is one of selecting the right material from the many thousands that are available. There are several criteria on which the final decision is normally based.

Learning Objectives:

Excel in careers related to the entire life cycle of materials—from synthesis and processing, through design and development, to manufacturing, performance, reclamation and recycling.

- Know the fundamental science and engineering principles relevant to materials.
- Understand the relationship between nano/microstructure, characterization, properties and processing and design of materials.
- Possess a knowledge of the significance of research, the value of continued learning and environmental/social issues surrounding materials.

Methodology:

- **Lectures**: will give an introduction to the Material Science.
- **Homework: -**
- **Exams:** Accumulated knowledge is tested in only one exam. The feature of the exam is essay or multiple choice. In case the exam fails or the student disagree with the grade of the exam a retake exam will be organized. In case the exam succeeded the grade is recommended for the student as a final exam result.

Schedule:

Week	Topic of lecture
Week 1	Classification of materials
Week 2	History of materials
Week 3	Atomic Structures and Interatomic Bondings
Week 4	The periodic Table
Week 5	Abundance and Usability of Elements
Week 6	The Structure of Crystalline Solids
Week 7	Imperfection of Solids

Week 8	Mechanical Properties of Metals
Week 9	*Break – no class*
Week 10	Metal Alloys
Week 11	Applications and Processing Ceramics
Week 12	Polymer Structures
Week 13	Corrosion and Degradation of Materials
Week 14	**Exam**
Week 15	**Second exam** (only if required).

Attendance:

To be in class at the beginning time and stay until the scheduled end of the lesson is required, tardiness of more than 20 minutes will be counted as an absence. In the case of an illness or family emergency, the student must present a valid excuse, such as a doctor's note.

Grading:

100% - Exam

Grade:	5	4	3	2	1
Evaluation in percents:	89%-100%	77%-88%	66%-76%	55%-65%	0-54%

Students with Special Needs:

Students with a disability and needs to request special accommodations, please, notify the Deans Office. Proper documentation of disability will be required. All attempts to provide an equal learning environment for all will be made.

Readings and Reference Materials:

Gambiattista, Richardson, Richardson: “College Physics” McGraw-Hill International Edition 2007 ISBN-13 978-0-07-110608-5