

## **EMC115: Engineering materials and electronics:**

**Course description:** The course deals with properties of electrical materials; conductors, semiconductors, insulators, photoconductors, methods of fabrication of electrical materials for electronic devices, traditional and alternative methods of generation of electrical energy, photovoltaic devices, integrated circuits, laws of electrical engineering, experiments involving electronic measurements aimed at understand the properties of semiconductor devices; integrated circuits, experiments involving solar cells.  
MWF 11.10, Spring 2010.

**Credit hours:** 3

**Textbook/required materials:** a) Electrical Engineering, Theory and Examples, Revised Fourth Edition, K.H. Norian, HRC Publishers (2010). ISBN 978-0-9772484-3-8

**Course activities:** Each student will study a semiconductor material as his/her term project. The written report should include an introduction, followed by the main body of the text that explains how the semiconductor is fabricated, its materials and electrical properties, and its applications. The written report of about 10 pages, with no limits on the number of diagrams, is due on March 29. Students will learn how to search the literature to find material relevant to their project.

**Assessment:** Students are assessed on the depth of understanding of the subject of the term paper, on class assignments based on experiments conducted in class, on two tests and a final exam. Grade determination, term paper and class assignments=35%, tests=30%, exam=35%. Students who stay away from class for long periods without a good excuse will fail the course. Students with special needs need to let the instructor know of these during the first week of classes.

**Class/laboratory schedule:** This class meets three times per week, 50 minutes per session.

**Prepared by:** K.H. Norian

**Date prepared:** 2010

### **Time table**

Jan. 18, 2010 First day of class.

Paper on energy or semiconductor due March 29

April 30 Last day of class.

Tests dates to be announced.