ECE491 Introduction to Nanotechnology

(Department of Electrical and Computer Engineering—Fall, 2012)

Schedule 219 TH, 11am~12:15pm, Tuesday and Thursday (08/27/2012~12/07/2012)

Course website http://www.ece.uic.edu/~zyang/Teaching/20122013Fall/index.html and UIC Blackboard

Instructor Dr. Zheng Yang (yangzhen@uic.edu)

Office hours (1) Regular: ERF 3017, 2pm~3pm, Tuesday (09/04/2012~12/07/2012).

(2) Additional office hours are requested by email appointments.

Prerequisite EE346 & EE448 or instructor’s consent

Descriptions ECE491 is designed as a “seminar” style course. In the course, elementary level of quantum mechanics, fundamental knowledge of nanotechnology, and recent research progress in nanotechnology-related topics are discussed. Preparation, fabrication and characterization techniques of nano-materials and nano-devices are presented. Representative two-dimensional (e.g. 2DEG in quantum wells, graphene, MoS₂, etc), one-dimensional (e.g. nanowire, nanotube), and zero-dimensional (e.g. quantum dots) nano-material systems are discussed.

Reference book


Reference books for quantum mechanics, solid-state physics, and semiconductor physics and devices.

D. J. Griffiths, “Introduction to quantum mechanics (2nd)”, Prentice Hall, 2005


Grading The grading is based on three quizzes (15%×3=45%), one oral presentation (25%), and one research report (30%). Each student need to present an oral presentation and write a research report by the end of the semester. The topics of the oral presentation and research report are under the scope of nanotechnology research area. The guidelines and requirements for the oral presentation and the research report are posted separately.