SPRING 2013
CHEM 450 / MASE 550 Selected Topics in Chemistry

Physical Methods of Materials Characterization

1. Instructor & Lectures:
Dr. Özgür Birer
Office: SCI-215
Ext:1357
e-mail: obirer@ku.edu.tr
Office Hours: Tu 14:00-15:30
Lecture: Tu/Th 15:30-16:45 ENG B20A

2. Course Material:
F:\COURSES\UGRADS\CHEM\CHEM450
F:\COURSES\GRADS\MASE\MASE550

- Detectors and Amplifiers
  - Optical and Charged Particle Detectors
  - Signal and noise
- Optical Spectroscopy
  - Absorption Spectroscopy
  - Fluorescence Spectroscopy
  - Life-time Measurements
  - FTIR
- X-Ray Spectroscopy
  - Generation of x-rays
  - Detection of x-rays
  - X-ray fluorescence Spectroscopy
- X-Ray Diffraction
- Surface Analysis
  - High Vacuum Techniques
  - X-ray Photoelectron Spectroscopy
  - Auger Electron Spectroscopy
- Electron Microscopy
  - Scanning Electron Microscopy
  - Tunneling Electron Microscopy
- Scanning Probe Microscopy
  - Scanning Tunneling Microscopy
  - Atomic Force Microscopy

3. Grading:
i) The final grade of the student will be calculated according to the following percentages:
   - Mid-term exam: 30 %
   - Final exam: 35 %
   - Experimental/Homework/Presentation: 35 %

ii) There will be several assignments during the semester to apply the theoretical course material to materials analysis.
A student absent from more than 70% of held lectures with or without a medical report or any other legitimate excuse will automatically receive an F grade. **Gaining the cumulative knowledge is important in this course. Therefore, attendance to all the lectures is strongly encouraged.**