The University of Tennessee (UT) Chapter of the Materials Research Society (MRS) and the UT Department of Materials Science and Engineering (MSE), along with the Joint Institute for Advanced Materials (JIAM), are pleased to announce the following Short Course offering:

**Short Course:**

**CHARACTERIZATION OF MATERIALS**

May 06-08, 2015 (Wednesday, Thursday, Friday)

**Time:** 8:00 AM - 5:00 PM daily

**Place:** Science and Engineering Research Facility (SERF), Rm. 307, 1414 Circle Dr., Knoxville, TN

16-20 different instructors from the Greater Knoxville / Oak Ridge area

**Experimental techniques to be covered include:**
- Mass Spectrometries: GDMS, ICPMS, etc.
- Surface Analysis: AES, XPS, UPS, SIMS
- Ion Beam Analysis: RBS, PIXE, NRA, ERS
- Electron Beam Analysis: EDS, WDS, EPMA, EELS
- Bulk Analysis: XRF
- Imaging, Optical, Scanning & Transmission Electron, STM, AFM, etc.
- Diffraction: XRD, ND, SAED, CBED, μD, LEED, RHEED
- X-Ray Absorption: EXAFS, SEXAFS, NEXAFS
- Molecular Structure: FTIR, Raman, Brillouin
- Mechanical Testing: Micro- and Nano-indentation
- Thermal Properties: TGA, DSC, Thermal Conductivity
- Defects: OA, TL, ESR
- Elastic Constants: Resonant Ultrasound
- Texture: OIM
- Condensed Matter Physics Measurements: Electronic Structure, Transport, Magnetic Properties, NMR, Mössbauer Spectrum Imaging

**FEES:**
- Regular Attendees $350
- Student Attendees $200

Fee includes copies of course materials as well as lunches and coffee break refreshments (also possible Continuing Education Units (CEU), pending approval).

**REGISTRATION DEADLINE:**

Wednesday, APRIL 1, 2015

Please visit the following website address for instructions on how to register:

[www.engr.utk.edu/mse/shortcourse](http://www.engr.utk.edu/mse/shortcourse)

Registration is limited to 100 attendees, on a first come, first served basis. Don’t wait to register!

The objective of this course is to provide an overview of techniques for assessing the structure, composition and physical properties of materials in the solid state. The goal is to provide students with a "go-to" guide to answer the question: "What technique(s) should I use to quantify the structure, composition, etc. of my material?" We will pay special attention to the following issues: (1) the spatial resolution of various techniques (atomic, nanoscale, microscopic, etc.); (2) the relative sensitivities of the various analytical procedures (parts per million, atomic %, etc.); and (3) destructive versus non-destructive analyses. Instructors for this course come from several different organizations in East Tennessee, such that students will also learn what resources exist within our extended community for characterizing materials.