4.8.2020

JUNE 2018

12 Tuesday

Week 24
163-202

SCI347 SELECTED TOPICS IN INSTRUMENTAL ANALYSIS

TAUGHT BY

- prof.: tapan kumar sau

COURSE TOPICS

1. introduction
   - chemical measurements
   - instrumental analysis
2. elemental analysis
   - atomic absorption spectroscopy
   - energy dispersive X-ray spectroscopy
3. spectroscopic chemical speciation
   - UV-visible absorption and emission
   - infrared (IR)
   - raman scattering

- nuclear magnetic resonance (NMR)
- mass spectrometry

4. Separation techniques
   - gas chromatography
   - high performance liquid chromatography (HPLC)
   - capillary electrophoresis

5. electroanalytical analysis
   - cyclic voltammetry (CV)

6. thermal analysis
   - thermogravimetry (TG)
   - differential scanning calorimetry (DSC)

7. Surface analysis
   - BET surface area analysis

- X-ray photoelectron spectroscopy (XPS) or electron spectroscopy for chemical analysis (ESCA)
- atomic force microscopy (AFM)
- scanning electron microscopy (SEM)

TEXTBOOKS

1. instrumental methods of analysis; sivasankar. (2012)
2. handbook of analytical instruments; khandpur. (2006)
3. principles of instrumental analysis; skoog.
4. instrumental methods of analysis; willard.
5. introduction to instrumental analysis; braun.
6. instrumental methods of chemical analysis; galen.