## Materials Characterization (ME 590/ENGR 590)

Course instructor: Dr. Sougata Roy (Assistant Professor, Mechanical Eng. Department) Schedule: Tu-Th (9:30-10:45 am, Fall 2021); Prerequisite: PHYS 252, ME 301

**Course overview:** This course is a technical elective in the domain of materials and manufacturing science. Quantitative and qualitative material characterization techniques are used in a wide range of research sectors both applied and fundamental fields. This course is designed to discuss about fundamentals of some important and popular material characterization techniques along with their respective applications. The field of scientific inquiry can vary (Mechanical/Electrical/Civil/Materials/Geological/Chemical/Petroleum/Basic Science i.e. Physics or Chemistry). Consequently, students from diverse backgrounds can attend this course. Interested students are encouraged to contact the instructor (email: sougata.roy@und.edu) for clarification regarding prerequisites or other course details, if any.

## Module I: Light microscopy Module II: Module IV: Scanning X-Ray **Materials** Electron Diffraction Characterization Microscopy Module III: EDS/WDS/ AES' \*EDS: Energy Dispersive X-Ray Spectroscopy WDS: Wavelength Dispersive X-ray Spectroscopy AES: Auger Electron Spectroscopy

## **Course structure of Materials Characterization (ME 590/ENGR 590)**