**COURSE SYLLABUS**

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| **Course Title**：Introduction to X-ray Diffraction | | | | |
| **Credits / Hours** | 3/3 | **Course Number** |  | **□Required ■Elective** |
| **Course Description**  This course mainly introduces the principle of X-ray diffraction and its application in material analysis. The course content includes introduction to X-ray characteristics, overview of crystal structure, X-ray diffraction principle, powder diffraction pattern, construction principle of diffraction instrument, crystal structure and composition analysis, etc. | | | | |
| **Course Topics** | | | | |
| **Topic** | | **Content** | | |
| Introduction | | 1. 1. Introduction of X-ray 2. 2. Introduction of diffraction | | |
| Geometry of crystals | | 1. Lattice and crystal 2. Miller index of direction and plane 3. Reciprocal lattice | | |
| Diffraction | | 1. Geometry 2. Intensities of diffracted beams 3. Diffraction measurement | | |
| Applications | | 1. Real samples 2. Phase identification 3. Determination of crystal structure | | |