**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
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| Geometry of crystals | 1. Lattice and crystal
2. Miller index of direction and plane
3. Reciprocal lattice
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| Diffraction | 1. Geometry
2. Intensities of diffracted beams
3. Diffraction measurement
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| Applications | 1. Real samples
2. Phase identification
3. Determination of crystal structure
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