Elementary Stereology for Quantitative Metallography
Metallurgy and Material Science

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Institute: IIT Kanpur
Department: Metallurgy and Material Science

Course Intro: Quantitative metallography or stereology is concerned with the measurement of microstructural features such as grain size, and the size and spatial distribution of second phase particles from the observations made on 2-D sections through optical, scanning and transmission electron microscopy. In all cases a small sample section or thin slice of material is observed in order to derive the microstructural characteristic of a bulk material. Stereology is therefore concerned with geometrical probability.

Pre Requisites: None
Core/Elective: Elective
UG/PG: Both
Industry Support: All materials related industries and Pathologists, Bio technologists

Reference:
3. The quantitative description of the microstructure of materials: K.J. Kurzydrowski and Brian Ralph, 1995, CRC press, FL, USA
9. P.J. Goodhew and F.J. Humphreys, Electron Microscopy and Analysis, Chapter 1 for elementary study of imaging principles of a microscope
10. R. C. Gonzalez and R.E. Woods, Digital Image Processing

About Instructor:
1. Prof. Sandeep Sangal is Professor at Department of Materials Science and Engineering, IIT Kanpur and his research interests are Structure-Property Correlations, Microstructural Characterization, Stereology, Image Processing, Development of Web-Based Educational Aids
## COURSE PLAN

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<td>6.Counting of grains and particles 7.Description of Polycrystalline Microstructures - derived measures</td>
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