



NATURE AND PROPERTIES OF MATERIALS- AN INTRODUCTORY COURSE

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PRE-REQUISITES : 12th standard science background

INTENDED AUDIENCE : UG and PG students of science and engineering of non-materials related background.

INDUSTRY SUPPORT : Materials related companies

COURSE OUTLINE :

The course is first part of the broader course on Introduction to Nature of materials and would be suitable for undergraduate and postgraduate students of every branch of science and engineering. The first part of this course will focus on essentials of crystallography, crystal structures of different classes of materials, structure determination and defects in materials.

ABOUT INSTRUCTOR :

Prof. Ashish Garg is Professor of Materials Science and Engineering at IIT Kanpur. Details of his research and teaching can be accessed on home.iitk.ac.in/~ashishg/

COURSE PLAN :

Week 1 : Introduction and Basic crystallography

Week 2 : Symmetry

Week 3 : Crystal Systems, Bravais Lattices and Miller Indices, Interstices

Week 4 : Structure of Metals and Alloys

Week 5 : Structure of Ceramics

Week 6 : Structure of Polymers

Week 7 : Structure Determination: X-ray diffraction

Week 8 : Defects in Materials