

## NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Metallurgy and Material Science - NOC:Defects in Materials

Subject Co-ordinator - Prof. Sundararaman M

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to defects in materials  
Lecture 2 - 1-D Lattice  
Lecture 3 - 2-D Lattice  
Lecture 4 - 3-D Lattice - a  
Lecture 5 - 3-D Lattice - b  
Lecture 6 - 3-D Lattice - c  
Lecture 7 - 3-D Crystals  
Lecture 8 - Types of Point Defects  
Lecture 9 - Vacancy Concentration Determination - 1  
Lecture 10 - Vacancy Concentration Determination - 2  
Lecture 11 - Point Defect Interstitial  
Lecture 12 - Transformation of co-ordinates  
Lecture 13 - Tensor - 1  
Lecture 14 - Tensor - 2  
Lecture 15 - Strain  
Lecture 16 - Stress  
Lecture 17 - Description of Dislocation - 1  
Lecture 18 - Description of Dislocation - 2  
Lecture 19 - Stress field around Dislocation  
Lecture 20 - Self Energy of Dislocation  
Lecture 21 - Force on Dislocation  
Lecture 22 - Forces Between Dislocation  
Lecture 23 - Chemical Force on Dislocation  
Lecture 24 - Perfect Dislocation in FCC Structures  
Lecture 25 - Intrinsic Stacking Faults in FCC  
Lecture 26 - Extrinsic Faults and Thompson Tetrahedron in FCC  
Lecture 27 - Dislocations in BCC and HCP  
Lecture 28 - Dislocations in Ordered Alloys and Dislocation Dislocation Interaction  
Lecture 29 - Twinning - 1

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- Lecture 30 - Twinning - 2
- Lecture 31 - Martensitic Transformation - 1
- Lecture 32 - Martensitic Transformation - 2
- Lecture 33 - Interfaces - 1
- Lecture 34 - Interfaces - 2
- Lecture 35 - Defect Interaction and Strength