

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

NPTEL Video Course - Mechanical Engineering - NOC:Steel Quality: Role of Secondary Refining and Continuous Casting

Subject Co-ordinator - Prof. Santanu Kr. Ray

Co-ordinating Institute - IIT - Madras

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

- Lecture 1 - Concept of Steel Quality
- Lecture 2 - Typical Examples of Surface Defects
- Lecture 3 - Origin of Common Quality Problems
- Lecture 4 - Present Scenario on Quality Demands
- Lecture 5 - Control of Residuals and Impact on Quality
- Lecture 6 - Non-Metallic Inclusions
- Lecture 7 - Evaluation of Residuals and Inclusions
- Lecture 8 - Cleanliness Requirements for Different applications
- Lecture 9 - Limitation of Primary Steelmaking and Importance of secondary Refining
- Lecture 10 - Deoxidation
- Lecture 11 - Prevention of Slag carryover
- Lecture 12 - Desulphurisation
- Lecture 13 - Degassing
- Lecture 14 - Secondary Refining Processes
- Lecture 15 - Injection of Calcium
- Lecture 16 - Decarburisation
- Lecture 17 - Cleanliness Measures in Ladle and Tundish
- Lecture 18 - Cleanliness Measures in Mould
- Lecture 19 - Different Routes and Temperature Control
- Lecture 20 - Nature and Distribution of Entrapments in Casting
- Lecture 21 - Sources of Exogenous Entrapments
- Lecture 22 - Effect of Vertical vis-a-vis Curved Mould
- Lecture 23 - Quality of Cast Product
- Lecture 24 - Role of Concast Process, Caster Design and Steel Grade
- Lecture 25 - Primary Cooling in Caster Mould
- Lecture 26 - Heat Transfer in Mould
- Lecture 27 - Cast Structure and Dendrite Size
- Lecture 28 - Role of Mould Oscillation
- Lecture 29 - Role of Chemistry - Part I

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- Lecture 30 - Role of Chemistry - Part II
- Lecture 31 - Role of Segregation - Part I
- Lecture 32 - Role of Segregation - Part II
- Lecture 33 - Deleterious Effect of Phosphorus
- Lecture 34 - Strength of Solidifying Strand
- Lecture 35 - Brittle Zone Near Solidus
- Lecture 36 - Strength and Toughness of Solid Shell
- Lecture 37 - Role of Chemistry on Solidification Behaviour
- Lecture 38 - Sticking vis-a-vis Depression Behaviour
- Lecture 39 - Role of Chemistry on Bulging or Depression Tendency - Part I
- Lecture 40 - Role of Chemistry on Bulging or Depression Tendency - Part II
- Lecture 41 - Effect of Cast Grain Size
- Lecture 42 - Brittle Temperature Regions
- Lecture 43 - Role of Secondary Cooling - Part 1
- Lecture 44 - Role of Secondary Cooling - Part 2
- Lecture 45 - Typical Cracks and Defects - Part I
- Lecture 46 - Typical Cracks and Defects - Part II
- Lecture 47 - Remedial Measures to Control Defects - Part I
- Lecture 48 - Remedial Measures to Control Defects - Part II
- Lecture 49 - Remedial Measures to Control Defects - Part III
- Lecture 50 - Grade - Specific Casting Parameters - Part I
- Lecture 51 - Grade - Specific Casting Parameters - Part II
- Lecture 52 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part I
- Lecture 53 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part II
- Lecture 54 - Identification of Genesis of Quality Problems Through Metallographic Investigation - Part III
- Lecture 55 - Some Examples of Quality Problems