

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

NPTEL Video Course - Mechanical Engineering - NOC:Manufacturing Process Technology - Part I

Subject Co-ordinator - Dr. Shantanu Bhattacharya

Co-ordinating Institute - IIT - Kanpur

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

Lecture 1 - Introduction to Manufacturing Process Technology
Lecture 2 - Structure of Matter (Bonding of Solids, Crystal Structures)
Lecture 3 - Brief introduction of non-conventional machining processes
Lecture 4 - Structure of matters (bonding of solids, crystal structures)
Lecture 5 - Elastic and Plastic Deformation
Lecture 6 - Crystal imperfection and dislocation
Lecture 7 - Plastic Deformation
Lecture 8 - Material Properties, Stress Strain Diagram for different types of materials
Lecture 9 - Friction and Wear, Solid solutions
Lecture 10 - Equilibrium Phase Diagram
Lecture 11 - Iron-carbon equilibrium phase diagram
Lecture 12 - Control of material properties (Alloying and heat treatment), Mechanical properties and Recrystallization
Lecture 13 - Introduction To Casting Process
Lecture 14 - Pattern and Mold Design
Lecture 15 - Mold Making Procedures
Lecture 16 - Fundamentals of Melting and Furnaces & Pouring and Gating Design
Lecture 17 - Vertical and Bottom Gating Systems Edit Lesson
Lecture 18 - Numerical Estimation To Find Mold Filling Time and Mold Design
Lecture 19 - Effects of friction and velocity distribution in time of filling
Lecture 20 - Numerical design of gating systems using frictional and bending losses
Lecture 21 - Principle of cooling and solidification in single and multiphase systems
Lecture 22 - Estimation of rate of solidification
Lecture 23 - Principles of cooling and solidification of casting
Lecture 24 - Modeling of Solidification Rates of Thin Casting in a Metal Mold
Lecture 25 - Solidification with Predominant Interface Resistance
Lecture 26 - Solidification with Constant Casting Surface Temperature
Lecture 27 - Solidification of Casting with Predominant Resistance in Mold and Solidified Metal
Lecture 28 - Solidification Time for Permanent Mold Casting
Lecture 29 - Solidification with Constant Casting Surface

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- Lecture 30 - Riser Design and Placement - Part 1
- Lecture 31 - Riser Design and Placement - Part 2
- Lecture 32 - Riser Design and Placement - Part 3
- Lecture 33 - Introduction of Machining Processes
- Lecture 34 - Review of Basic Machining Processes and the Mechanics of Chip Formation
- Lecture 35 - Estimation of Cutting Ratio and Shear Angle
- Lecture 36 - Merchant's Force Analysis
- Lecture 37 - Merchant Theory (Cutting Forces Analysis)
- Lecture 38 - Merchant Theory (Force analysis) Part-2
- Lecture 39 - Lee Shaffer's Solution
- Lecture 40 - Specific Energy Model for Cutting
- Lecture 41 - Modeling of Heat Generation and Cutting Tool Temperature
- Lecture 42 - Temperature in Cutting and Builtup Edge Formation
- Lecture 43 - Metal Cutting Operation
- Lecture 44 - Tool life and Tool wear
- Lecture 45 - Economics of Machining
- Lecture 46 - Joining Process
- Lecture 47 - Principle of Solid State Welding
- Lecture 48 - Numerical Design of Welding Power Sources in Arc Welding