

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

NPTEL Video Course - Mechanical Engineering - NOC:Mathematical Modeling of Manufacturing Processes

Subject Co-ordinator - Prof. Swarup bag

Co-ordinating Institute - IIT - Guwahati

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

Lecture 1 - Materials and manufacturing Processes - 1
Lecture 2 - Materials and manufacturing Processes - 2
Lecture 3 - Physics based modeling approach at different scale
Lecture 4 - Evaluation of properties and process modelling
Lecture 5 - Thermofluid and electromagnetic analysis
Lecture 6 - Solid-state deformation and residual stress - 1
Lecture 7 - Solid-state deformation and residual stress - 2
Lecture 8 - Melting, solidification and additive manufacturing
Lecture 9 - Force and velocity diagram - 1
Lecture 10 - Force and velocity diagram - 2
Lecture 11 - Heat transfer analysis
Lecture 12 - Principal and mechanism at different processes - 1
Lecture 13 - Principal and mechanism at different processes - 2
Lecture 14 - Mechanics of bulk metal forming
Lecture 15 - Mechanics of sheet metal forming - 1
Lecture 16 - Mechanics of sheet metal forming - 2
Lecture 17 - Heat transfer and thermomechanical processing
Lecture 18 - Fusion welding processes - 1
Lecture 19 - Fusion welding processes - 2
Lecture 20 - Physics of welding and metal transfer
Lecture 21 - Heat source model in fusion welding
Lecture 22 - Heat transfer and material flow
Lecture 23 - Solidification in welding - 1
Lecture 24 - Solidification in welding - 2
Lecture 25 - Solid state welding - 1
Lecture 26 - Solid state welding - 2
Lecture 27 - Hybrid welding, residual stress and distortion
Lecture 28 - Cooling and solidification at different casting processes
Lecture 29 - Powder metallurgy

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- Lecture 30 - Principle of surface and coating technologies
- Lecture 31 - Principle and development of additive manufacturing technologies - 1
- Lecture 32 - Principle and development of additive manufacturing technologies - 2
- Lecture 33 - Fundamentals of heat treatment
- Lecture 34 - Evaluation of microstructural properties and residual stress
- Lecture 35 - Down-scaling of conventional manufacturing processes and Micro-to-nano manufacturing
- Lecture 36 - Packaging, micro-finishing and micro-manufacturing processes
- Lecture 37 - Processing and shaping of non-metals and bio-materials
- Lecture 38 - Principle of glass and ceramics processing and their shaping