

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

NPTEL Video Course - Mechanical Engineering - NOC:Joining Technologies for Metals

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Co-ordinating Institute - IIT - Roorkee

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

- Lecture 1 - Introduction: Manufacturing and Joining
- Lecture 2 - Fundamental mechanisms of Joining
- Lecture 3 - Classification of Joining Processes
- Lecture 4 - Heat Generation in Welding
- Lecture 5 - Protection of Weld Metal
- Lecture 6 - Principle of Fusion Welding Processes: Gas Welding
- Lecture 7 - Fundamentals of Welding
- Lecture 8 - Physics of Welding Arc
- Lecture 9 - Shielded Metal Arc Welding
- Lecture 10 - Gas Tungsten Arc Welding
- Lecture 11 - Newer variants of Gas tungsten arc welding
- Lecture 12 - Gas metal arc welding
- Lecture 13 - Submerged arc welding
- Lecture 14 - Electro-slag and Electro-gas welding
- Lecture 15 - Laser beam welding
- Lecture 16 - Brazing
- Lecture 17 - Soldering and braze welding
- Lecture 18 - Fundamentals of resistance welding
- Lecture 19 - Resistance welding processes: spot and seam welding
- Lecture 20 - Flash butt welding
- Lecture 21 - Adhesive joining
- Lecture 22 - Weld bonding
- Lecture 23 - Solid state joining technologies: Fundamentals
- Lecture 24 - Ultrasonic welding
- Lecture 25 - Diffusion welding
- Lecture 26 - Explosive welding
- Lecture 27 - Magnetic pulse welding
- Lecture 28 - Weld thermal cycle
- Lecture 29 - Heat affected zone and weld thermal cycle - I

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- Lecture 30 - Heat affected zone and weld thermal cycle - II
- Lecture 31 - Solidification of weld metal
- Lecture 32 - Metallurgical transformations in weld and heat affected zone of steels
- Lecture 33 - Residual Stresses in Weld Joints
- Lecture 34 - Solidification cracking and their control
- Lecture 35 - Cracking of Welded Joints II - Cold Cracks
- Lecture 36 - Understanding Weldability Introduction - I
- Lecture 37 - Understanding Weldability Introduction - II
- Lecture 38 - Metal Properties and Weldability - I
- Lecture 39 - Metal Properties and Weldability - II
- Lecture 40 - Weldability of Work Hardenable Metals
- Lecture 41 - Weldability of Work Hardenable and Precipitation Strengthened Metals
- Lecture 42 - Weldability of Precipitation Strengthened Metals
- Lecture 43 - Weldability of Metals Strengthened by Grain Refinement and Transformation Hardening
- Lecture 44 - Weldability of Transformation Hardening Metals
- Lecture 45 - Weldability of Metals - Combination of Strengthening Mechanisms
- Lecture 46 - Weldability Consideration
- Lecture 47 - Weldability of Carbon and Alloy Steel - I
- Lecture 48 - Weldability of Carbon and Alloy Steel - II
- Lecture 49 - Weldability of Carbon and Alloy Steel - III
- Lecture 50 - Weldability of Low Carbon Steel and Mild Steel
- Lecture 51 - Weldability of Medium Carbon Steel and High Carbon Steel
- Lecture 52 - Weldability of High Strength Low Alloy Steels
- Lecture 53 - Weldability of HTLA Steel - I
- Lecture 54 - Weldability of HTLA Steel - II
- Lecture 55 - Weldability of Cr-Mo Steel - I
- Lecture 56 - Weldability of Cr-Mo Steel - II
- Lecture 57 - Weldability of Pre-coated Steel - I
- Lecture 58 - Weldability of Pre-coated Steel - II
- Lecture 59 - Weldability of Stainless Steel - I
- Lecture 60 - Weldability of Stainless Steel - II