

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

NPTEL Video Course - Metallurgy and Material Science - NOC:Welding Processes

Subject Co-ordinator - Prof. Murugaiyan Amirthalingam

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to the course
Lecture 2 - Classification of welding processes and definition of welding arc
Lecture 3 - Physics of welding arc - Part 1
Lecture 4 - Physics of welding arc - Part 2
Lecture 5 - Physics of welding arc - Part 3
Lecture 6 - Physics of welding arc - Part 4
Lecture 7 - Fundamentals of ionisation in welding arc
Lecture 8 - Electrical conductivity of welding arc
Lecture 9 - Electrical resistivity of welding arc
Lecture 10 - Heat transfer inside the arc
Lecture 11 - Arc ignition mechanisms Part - I
Lecture 12 - Arc ignition mechanisms Part - II
Lecture 13 - Principles of Gas Tungsten Arc Welding
Lecture 14 - Shielding gases for arc welding
Lecture 15 - Selection of shielding gases for engineering alloys
Lecture 16 - Arc welding power sources - Part 1
Lecture 17 - Arc welding power sources - Part 2
Lecture 18 - Arc welding power sources - Part 3
Lecture 19 - Variations in GTAW process
Lecture 20 - Square wave, variable polarity, GTAW with filler, hot wire GTAW
Lecture 21 - Dual gas GTAW and Plasma Welding processes
Lecture 22 - Multi cathode GTAW and Activated GTAW
Lecture 23 - Buried GTAW and Rate controlling parameters of GTAW
Lecture 24 - Introduction to consumable welding processes
Lecture 25 - Melting rate of consumable wires
Lecture 26 - Physics of droplet transfer in consumable welding
Lecture 27 - Modes of droplet transfer - Part 1
Lecture 28 - Modes of droplet transfer - Part 2
Lecture 29 - Modes of droplet transfer - Part 3

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- Lecture 30 - Shielded Metal Arc Welding
- Lecture 31 - Flux cored arc welding - Introduction
- Lecture 32 - Electrode fluxes and process characteristics of flux cored arc welding
- Lecture 33 - Flux cored arc welding - Process characteristics
- Lecture 34 - Advances in gas metal arc welding - Pulsed GMAW
- Lecture 35 - Advances in gas metal arc welding - Controlled dip short circuiting processes
- Lecture 36 - Submerged arc welding
- Lecture 37 - Resistance welding - Fundamentals
- Lecture 38 - Resistance spot welding - Part 1
- Lecture 39 - Resistance spot welding - Part 2
- Lecture 40 - Resistance spot welding - Part 3
- Lecture 41 - Resistance spot welding - Part 4
- Lecture 42 - Variants in resistance welding - Part 1
- Lecture 43 - Variants in resistance welding - Part 2
- Lecture 44 - Laser welding process - Introduction - Part 1
- Lecture 45 - Laser welding process - Part 2
- Lecture 46 - Laser welding process - Part 3
- Lecture 47 - Laser welding process - Part 4
- Lecture 48 - Electron beam welding process
- Lecture 49 - Other welding processes - Electroslag welding
- Lecture 50 - Magnetically Impelled Arc Butt (MIAB) welding
- Lecture 51 - Aluminothermic (thermit) welding
- Lecture 52 - Introduction to solid state welding processes - Friction welding
- Lecture 53 - Friction stir welding - Part 1
- Lecture 54 - Friction stir welding - Part 2
- Lecture 55 - Other solid state welding processes
- Lecture 56 - Joining processes for Plastics - Part 1
- Lecture 57 - Joining processes for Plastics - Part 2
- Lecture 58 - Adhesive bonding of plastics
- Lecture 59 - Welding nomenclatures