

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

NPTEL Video Course - Mechanical Engineering - Metrology

Subject Co-ordinator - Dr. K. Sadashivappa

Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Introduction to Metrology

Lecture 2 - Metrology terminologies

Lecture 3 - Measurement errors

Lecture 4 - Linear measuring instruments Â 1 (Angle plate, steel rule, spring calipers)

Lecture 5 - Linear measuring instruments Â 2 (Combination set, Vernier calipers)

Lecture 6 - Linear measuring instruments Â 3 (Height gauge, Micrometers Â 1)

Lecture 7 - Linear measuring instruments Â 4 (Micrometers Â 2, Bore gauge)

Lecture 8 - Linear measuring instruments Â 5 (Dial indicators, thickness gauges, depth gauges)

Lecture 9 - Manufacturing tolerances and fits

Lecture 10 - Terminologies of limits fits and tolerances

Lecture 11 - Numerical problems on fit and tolerances

Lecture 12 - Selection of fits, Geometrical tolerances

Lecture 13 - Positional tolerances

Lecture 14 - Limit gauging - 1

Lecture 15 - Limit gauging - 2

Lecture 16 - Design of limit gauges

Lecture 17 - Measurement of straightness, flatness and squareness

Lecture 18 - Perpendicularity measurement

Lecture 19 - Basics of surface roughness

Lecture 20 - Surface finish parameters

Lecture 21 - Stylus type surface finish measuring instruments

Lecture 22 - Non-contact type surface finish measuring instruments

Lecture 23 - Screw thread production and terminology

Lecture 24 - Measurement of screw thread elements

Lecture 25 - Introduction to gears

Lecture 26 - Measurement of gear elements

Lecture 27 - Angle measurement - 1

Lecture 28 - Angle measurement - 2

Lecture 29 - Radius measurement, Contact angle measurement

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

- Lecture 30 - Basics of interferometry
- Lecture 31 - Interferometers
- Lecture 32 - Introduction to comparators, Mechanical comparators
- Lecture 33 - Electrical and electronic comparators, Optical comparators
- Lecture 34 - Pneumatic comparators
- Lecture 35 - Geometrical tests on lathe
- Lecture 36 - Geometrical tests on pillar type drilling machine
- Lecture 37 - Universal measuring machine (UMM) and Coordinate measuring machine (CMM)
- Lecture 38 - CMM probes and CMM software
- Lecture 39 - Feature measurement using CMM, Laser vision
- Lecture 40 - In-process gauging and control
- Lecture 41 - Stage position metrology
- Lecture 42 - Micro and Nano stages, Nano technology instrumentation
- Lecture 43 - Optical system design
- Lecture 44 - Complex opto- mechanical assemblies, Metrology testing and certification services