

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

NPTEL Video Course - Mechanical Engineering - NOC:Robotics and Control: Theory and Practice

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Co-ordinating Institute - IIT - Roorkee

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

Lecture 1 - Introduction
Lecture 2 - Coordinate Frames and Homogeneous Transformations - I
Lecture 3 - Coordinate Frames and Homogeneous Frames - II
Lecture 4 - Differential Transformations
Lecture 5 - Transforming Differential Changes between Coordinate Frames
Lecture 6 - Kinematic Model for Robot Manipulator
Lecture 7 - Direct Kinematics
Lecture 8 - Inverse Kinematics
Lecture 9 - Manipulator Jacobian
Lecture 10 - Manipulator Jacobian Example
Lecture 11 - Trajectory Planning
Lecture 12 - Dynamics of Manipulator
Lecture 13 - Dynamics of Manipulator (Continued...)
Lecture 14 - Manipulator Dynamics Multiple Degree of Freedom
Lecture 15 - Stability of Dynamical System
Lecture 16 - Manipulator Control
Lecture 17 - Biped Robot Basics and Flat Foot Biped Model
Lecture 18 - Biped Robot Flat Foot and Toe Foot Model
Lecture 19 - Artificial Neural Network
Lecture 20 - Neural Network based control for Robot Manipulator
Lecture 21 - Redundancy Resolution of Human Fingers in Cooperative Object Translation - I
Lecture 22 - Redundancy Resolution of Human Fingers in Cooperative Object Translation - II
Lecture 23 - Fundamentals of Robot Manipulability
Lecture 24 - Manipulability Analysis of Human Fingers in Cooperative Rotational Motion
Lecture 25 - Robotic Exoskeletons
Lecture 26 - Introduction to Robotic Hand Exoskeleton
Lecture 27 - Design and Development of a Three Finger Exoskeleton
Lecture 28 - Force Control of an Index Finger Exoskeleton
Lecture 29 - Neural Control of a Hand Exoskeleton

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- Lecture 30 - Neural Control of a Hand Exoskeleton Based on Human Subject's Intention
- Lecture 31 - Robot Assisted Percutaneous Interventions
- Lecture 32 - Experiments on Robot Assisted Percutaneous Interventions
- Lecture 33 - Sliding Mode Control
- Lecture 34 - Higher Order Sliding Mode Control
- Lecture 35 - Smart Needles for Percutaneous Interventions - I
- Lecture 36 - Smart Needles for Percutaneous Interventions - II
- Lecture 37 - Flexible Link Kinematics - I
- Lecture 38 - Flexible Link Kinematics - II
- Lecture 39 - Model Based Control of Robot Manipulators
- Lecture 40 - Simulation of Robot Manipulators