

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

NPTEL Video Course - Electrical Engineering - NOC:Electrical Machines-II

Subject Co-ordinator - Prof.Tapas Kumar Bhattacharya

Co-ordinating Institute - IIT - Kharagpur

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

- Lecture 1 - Inductance, Self and Mutual
- Lecture 2 - Relationship of Inductances in Transformer
- Lecture 3 - Equivalent Circuit from Circuit KVL Equations
- Lecture 4 - Co-efficient of Coupling , Energy Stored in Coupled Coils
- Lecture 5 - A Single Conductor Generator and Motor
- Lecture 6 - Analysis of Single Conductor Generator and Motor
- Lecture 7 - Analysis of Single Conductor Generator and Motor (Continued...)
- Lecture 8 - Flux Density Distribution in Space and Nature emf
- Lecture 9 - Flux Density Distribution in Space and Nature emf (Continued...)
- Lecture 10 - From Linear to Rotating Machine
- Lecture 11 - From Linear to Rotating Machine (Continued...)
- Lecture 12 - Basic Underlying Principle of Operation of Rotating Machine
- Lecture 13 - Basic Underlying Principle of Operation of Rotating Machine (Continued...)
- Lecture 14 - Flux Density Distribution along the Air Gap
- Lecture 15 - Flux Density Distribution along the Air Gap (Continued...)
- Lecture 16 - Induced Voltage in a Coil in a Rotating Machine
- Lecture 17 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 18 - Induced Voltage in a Coil in a Rotating Machine (Continued...)
- Lecture 19 - Induced Voltage due to Fundamental and Harmonic Components of Flux Density Distribution
- Lecture 20 - Distributed Coils Connected in Series Resultant Voltage
- Lecture 21 - Distribution Factor
- Lecture 22 - Pitch Factor and Winding Factor
- Lecture 23 - How to decide about Short Pitch Angle  $\tilde{\alpha} \cdot \hat{\mu}$
- Lecture 24 - Double Layer 3-phase Winding - An Introduction
- Lecture 25 - Winding Table for 3-phase Distributed Winding
- Lecture 26 - Winding Table for 3-phase Distributed Winding with Examples
- Lecture 27 - Winding Table for 3-phase Distributed Winding with Examples (Continued...)
- Lecture 28 - 120 degree Phase Spread Winding with Examples
- Lecture 29 - Winding Table of 120 degree Phase Spread Coils and Group Connection

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

- Lecture 30 - Introduction to Rotating Magnetic Field
- Lecture 31 - Rotating Magnetic Field (Continued...), Mechanical and Electrical Speed
- Lecture 32 - Speed and Direction of Rotating Field
- Lecture 33 - Synchronous Speed and How to Calculate Induced Voltage in a Coil
- Lecture 34 - Introduction to Induction Motor
- Lecture 35 - Introduction to Induction Motor (Continued...)
- Lecture 36 - General Expression of Torque in Terms of Stator and Rotor Fields
- Lecture 37 - Torque Angle and Torque Expression
- Lecture 38 - How to Fix Up Positions of Net Field, Rotor Field and Stator Field
- Lecture 39 - Slip
- Lecture 40 - Equivalent Circuit of 3-Phase Induction Motor
- Lecture 41 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 42 - Equivalent Circuit of 3-Phase Induction Motor (Continued...)
- Lecture 43 - Expression for Electromagnetic Torque in terms of Equivalent Circuit Parameters
- Lecture 44 - Maximum Electromagnetic Torque and Slip at Which it Occurs
- Lecture 45 - Typical Torque Slip Characteristic and Operating Point
- Lecture 46 - Change in Torque-slip Characteristic as Supply Voltage and Rotor Resistance are Varied
- Lecture 47 - Types of Induction Motor - Slip Ring Type
- Lecture 48 - Introduction to Cage Induction Motor
- Lecture 49 - Cage Motor Can Operate for Different Stator Poles
- Lecture 50 - Core Loss in Induction Motor and Simplified Equivalent Circuit
- Lecture 51 - Torque Expression from Simplified Equivalent Circuit and Introduction to Circle Diagram
- Lecture 52 - Circle Diagram (Continued...)
- Lecture 53 - Exact Power Flow Diagram and Circle Diagram
- Lecture 54 - Circle Diagram (Continued...)
- Lecture 55 - Circle Diagram
- Lecture 56 - Circle Diagram from Test Data
- Lecture 57 - Starting of 3 Phase Induction Motor - Introduction
- Lecture 58 - DOL and Reactor Starting
- Lecture 59 - DOL and Auto Transformer Starting
- Lecture 60 - Introduction to Speed Control
- Lecture 61 - Idea of VVVF Speed Control of Induction Motor
- Lecture 62 - Speed Control Using Two Motors
- Lecture 63 - Electrical Braking of 3 Phase Induction Motor
- Lecture 64 - Braking (Continued...)
- Lecture 65 - Introduction to Single Phase Induction Motor - Sequence Currents
- Lecture 66 - Development of Equivalent Circuit
- Lecture 67 - Development of Equivalent Circuit (Continued...)
- Lecture 68 - Torque-slip Ch. of 1 ph. I-M Running on Single Winding

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- Lecture 69 - Introduction to Starting of 1ph. Induction Motor
- Lecture 70 - Expression for Starting Torque and Need for Phase Splitting
- Lecture 71 - Resistor Split 1 ph. Induction Motor
- Lecture 72 - Capacitor Split 1 ph Induction Motor
- Lecture 73 - Starting of 1 ph. Induction Motor (Continued...)
- Lecture 74 - Synchronous Machine Construction
- Lecture 75 - Synchronous Generator - Introduction
- Lecture 76 - Synchronisation
- Lecture 77 - Expression for Induced Voltage and O.C. Phasor Diagram
- Lecture 78 - Loaded Synchronous Generator - Resultant Field
- Lecture 79 - Armature Reaction and Synchronous Reactance. Basic Phasor Diagram
- Lecture 80 - General Mode of Operation - Retro Field, Stator Field and Resultant Field
- Lecture 81 - Complete Phasor Diagram and Expression for Complex Power
- Lecture 82 - Synchronous Motor Operation, Phasor Diagram and Power Expression
- Lecture 83 - Effect of Variation of Field Current in Generator
- Lecture 84 - Effect of Variation Field Current in Synchronous Motor, Introduction to Salient Pole Machine
- Lecture 85 - Analysis of Salient Pole Synchronous Machine
- Lecture 86 - Phasor Diagram of Salient Pole Synchronous Machine for Generator and Motor Mode
- Lecture 87 - Expression for Load Angle and Expression for Power
- Lecture 88 - Phasor Diagrams of Salient Pole Synchronous Generator under Various Conditions
- Lecture 89 - Phasor Diagrams of Salient Pole Synchronous Motor under Various Conditions
- Lecture 90 - O.C and S.C Test on Synchronous Generator