

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

NPTEL Video Course - Electrical Engineering - NOC:Electric Vehicles and Renewable Energy

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Co-ordinating Institute - IIT - Madras

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

Lecture 1 - Electric Vehicle Introduction  
Lecture 2 - The drive Torque, Power, Speed and Energy  
Lecture 3 - Energy Source  
Lecture 4 - Vehicle Auxillary, Petrol pumps and Charging stations  
Lecture 5 - Introduction to Electric Vehicles in India  
Lecture 6 - Can India Drive its EV program Innovatively and Differently and scale  
Lecture 7 - Battery Cost reduction strategy  
Lecture 8 - A bit about Batteries, Charging and Swapping Infrastructure  
Lecture 9 - Where will we get Lithium for batteries and EV Subsystems  
Lecture 10 - Forces acting when a vehicle move  
Lecture 11 - Aerodynamic drag, Rolling Resistance and Uphill Resistance  
Lecture 12 - Power and torque to accelerate  
Lecture 13 - Putting it all together - 1  
Lecture 14 - Putting it all together - 2  
Lecture 15 - Concept of drive cycle - 1  
Lecture 16 - Concept of drive cycle - 2  
Lecture 17 - Drive Cycles and Energy used per km - Part 1  
Lecture 18 - Drive Cycles and Energy used per km - Part 2  
Lecture 19 - EV Subsystem: Design of EV Drive Train - Part 1  
Lecture 20 - EV Subsystem: Design of EV Drive Train - Part 2  
Lecture 21 - Introduction to Battery Parameters - Part 1  
Lecture 22 - Introduction to Battery Parameters - Part 2  
Lecture 23 - Why Lithium Ion Battery? - Part 1  
Lecture 24 - Why Lithium Ion Battery? - Part 2  
Lecture 25 - Batteries in Future  
Lecture 26 - Li-Ion Battery Cells  
Lecture 27 - SoH and SoC estimation and Self Discharge - Part 1  
Lecture 28 - SoH and SoC estimation and Self Discharge - Part 2  
Lecture 29 - Battery Pack Development - Part 1

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Lecture 30 - Battery Pack Development - Part 2  
Lecture 31 - Computation of Effective cost of battery - Part 1  
Lecture 32 - Computation of Effective cost of battery - Part 2  
Lecture 33 - Charging Batteries  
Lecture 34 - Fundamentals of Battery Pack Design  
Lecture 35 - Electrical Design of Battery Pack - Part 1  
Lecture 36 - Electrical Design of Battery Pack - Part 2  
Lecture 37 - Electrical Design of Battery Pack - Part 3  
Lecture 38 - Mechanical Design of Battery Pack - Part 1  
Lecture 39 - Mechanical Design of Battery Pack - Part 2  
Lecture 40 - Mechanical Design of Battery Pack - Part 3  
Lecture 41 - Mechanical Design of Battery Pack - Part 4  
Lecture 42 - Thermal Design of Battery Pack - Part 1  
Lecture 43 - Thermal Design of Battery Pack - Part 2  
Lecture 44 - Thermal Design of Battery Pack - Part 3  
Lecture 45 - Thermal Design of Battery Pack - Part 4  
Lecture 46 - BMS Design and Embedded System - Part 1  
Lecture 47 - BMS Design and Embedded System - Part 2  
Lecture 48 - BMS Design and Embedded System - Part 3  
Lecture 49 - BMS Design and Embedded System - Part 4  
Lecture 50 - BMS Design and Embedded System - Part 5  
Lecture 51 - Cell Testing and Characterization - Part 1  
Lecture 52 - Cell Testing and Characterization - Part 2  
Lecture 53 - EV Motors and Controllers - Vehicle Dynamics - Part 1  
Lecture 54 - EV Motors and Controllers - Vehicle Dynamics - Part 2  
Lecture 55 - EV Motors and Controllers - Understanding Flow - Part 1  
Lecture 56 - EV Motors and Controllers - Understanding Flow - Part 2  
Lecture 57 - Power and Efficiency  
Lecture 58 - Torque Production - Part 1  
Lecture 59 - Torque Production - Part 2  
Lecture 60 - Torque Production - Part 3  
Lecture 61 - Speed and Back EMF  
Lecture 62 - The d-q Equivalent circuit - Part 1  
Lecture 63 - The d-q Equivalent circuit - Part 2  
Lecture 64 - Field-oriented Control  
Lecture 65 - Three phase AC - Part 1  
Lecture 66 - Three phase AC - Part 2  
Lecture 67 - Thermal Design - Part 1  
Lecture 68 - Thermal Design - Part 2

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- Lecture 69 - Thermal Design - Part 3
- Lecture 70 - Engineering Considerations - Part 1
- Lecture 71 - Engineering Considerations - Part 2
- Lecture 72 - Engineering Considerations - Part 3 and Future Frontiers
- Lecture 73 - EV Charger Introduction
- Lecture 74 - Charger Parameters and Types
- Lecture 75 - Slow Fast chargers and Swapping
- Lecture 76 - Swapping
- Lecture 77 - Standardization and on board chargers
- Lecture 78 - Public chargers
- Lecture 79 - Public charger economics in Indian Context
- Lecture 80 - Bulk Chargers, Swapping stations and data analytics
- Lecture 81 - Introduction to Energy Scenario in India - Part 1
- Lecture 82 - Introduction to Energy Scenario in India - Part 2
- Lecture 83 - A novel Approach towards 100% RE in India - Part 1
- Lecture 84 - A novel Approach towards 100% RE in India - Part 2
- Lecture 85 - Going Beyond solar, wind, Li Ion and chilled water storage
- Lecture 86 - Solar Photovoltaic
- Lecture 87 - Solar Cell and its Characteristics
- Lecture 88 - Solar Cells to Modules
- Lecture 89 - Wind Energy
- Lecture 90 - The War of Currents
- Lecture 91 - The Birth of Solar - DC
- Lecture 92 - Storage Options for Energy - Part 1
- Lecture 93 - Storage Options for Energy - Part 2
- Lecture 94 - Storage Options for Energy - Part 3
- Lecture 95 - Storage Options for Energy - Part 4
- Lecture 96 - The EV Ecosystem - Part 1
- Lecture 97 - The EV Ecosystem - Part 2