NPTEL Video Course - Electrical Engineering - NOC:Fundamentals of Electric Vehicles: Technology and Economics

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Co-ordinating Institute - IIT - Madras

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

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

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