



ONLINE PROGRAM

PROFESSIONAL MASTER CERTIFICATION EV POWERTRAIN ARCHITECTURE and ENERGY STORAGE SYSTEM





ABOUT ISIEINDIA

ISIEINDIA is the most popular and favorite E-mobility Motor sports, Education and Research Publication organization in India among engineering institutes and green energy research organization. ISIEINDIA has become one of the epicenter of green energy concept development in India. We are motivating people (Engineers + Future Engineers) to work on New and Renewable Sources of Energy. We provide the platform to new start-ups, Innovative ideas and passionate people, who really want to contribute to society.

We are giving our innovative services to more than 50,000 + peoples. Our services and product have been appreciated and noted by delegates from 22 countries. We are an associate member of FMSCI. We have been awarded by National Youth Award by Ministry of Youth Affairs, and recommended by Ministry of New and Renewable Energy. ISIEINDIA is the 1st society in India which is motivating engineering students to work on commercial green Mobility.



Program Delivered

The Skill Development Cell of Imperial Society of Innovative Engineers was established in 2015. Since, then we have delivered training in multiple domains of engineering such as - automobile, electric vehicle, computer science, electrical, electronics, etc. Since, its inception we have skilled and re-skilled more than 2.5 lac youths and professionals, helping them launch into a successful career in their desired domain.

SINCE 2015

ABOUT PROGRAM

Professional Master Certification Programs are long term programs with 6 months of duration. These programs have been designed in order to make you employable and help you achieve that dream job. The courses under this program covers the in depth understandings of the topics covered, with 20+ case studies with mini and major projects.

The lectures will be provided on our Online platform, which can be accessed at any time as per your convenience. On each weekend we will be having a Live doubt clearing session in order to clarify your doubts, to help you gain better understanding of the subject.

We at ISIEINDIA believe that any lesson learnt is not useful unless you get to apply it in real time. Thus we have placed mini projects through out the course to help you get a proper understanding of the subject. The mini project will be briefed at the beginning of the subject and by the end of it you would have to submit the project. Apart from the mini projects you will also be provided with a major project that you would have to submit at the end of the course.



SKILL YOURSELF ANYTIME, ANYWHERE

With quality content delivered at your screen, you can up-skill yourself anytime, anywhere. It could be during evening coffee, at night before bed, morning tea, during daily transit, you choose when to learn.



EV POWERTRAIN ARCHITECTURE and ENERGY STORAGE SYSTEM

In the age of development when the demand for electric vehicles is growing rapidly in the market, the need for jobs will also increase in the near future in the EV domain. The growing demand means continuous increase in production and continuous increase in production means the demand for good skilled engineers will also increase. As per the recent reports of a government organization, the Indian government is going to invest a much larger amount of money in the EV sector in near future which will lead to an increased large number of jobs in the market. The EV Market is projected to generate about 5.8 million jobs in upcoming time, as per the report by Reuters.

In order to be able to fulfill that demand our engineers and graduates would have to be well equipped with knowledge and skill in compliance with Electric Vehicle, and with the Govt. pushing the idea of Make in India, we must have the ability to work on the EV components at R&D level and help achieve the goal.

Keeping this in mind, our experts from the industry have come forward to help us design this upcoming course-Electric Vehicle Architecture Design and Selection.

The course will start with the EV industry perspective in the market through the rise and fall of the electric vehicle industry and followed by the futuristic growth of EV industry in India. Followed by the motor design and selection parameters used in the electric vehicle industry, accompanied by various recent case studies of challenges being met.

The course will be helpful in understanding the battery pack design and EV charging technique used in the electric vehicle. This will majorly benefit the aspiring engineers, professionals looking for job change and the entrepreneurs looking to make a change in this direction.

The course is fully Online mode, with live lectures and doubt clearing sessions and it includes 06 modules for the 170 learning hour. The course includes 20 assignments in total and it also includes assessments after completion of each module, based on which you will be provided with a global certificate.

COURSE DETAILS









Subject	Units
Electrical Machines Design and Industry	About EV Industry and Market Study
Prospects	Electric Vehicle Powertrain Selection
	Electrical Machines in EV
	Electrical Machine Design and Simulation
	Energy Consumption of an EV – Model
	Based Simulation
Battery Design and Modelling	Cell Types and Characteristics
	Cell Sorting and Assembly
	Battery Pack Design
	Battery Safety and Testing
	Range of an EV – Model Based
	Simulation
BMS and BTMS	Battery Safety and Management
	BMS Design and Architecture
	ESS Communication
	Battery Thermal Loading and Safety
	Heat Management of a Battery Pack
Control Methods	Control Systems and Types
	Power Electronics and Motor Drives
	EV Powertrain Tuning
	Traction Motor Drive Circuit
	Control Unit of an EV and Communication
EV Charging	EVSE Systems and Types
	Battery Charging Characteristics
	Charging Protocols
	Charging Systems and Integration
	Charging Station and Challenges
Homologation and Testing	Introduction to Homologation and
	Testing
	CMVR Types Approval
	Electrical Machine – Tests and Approval
	Battery Pack – Types and Approval
	EV Charging Types and Approval

MAJOR CASE STUDIES



EV Operating Cost and Infra Challenges

Perform basic calculations pertaining to various challenges faced by the industry in terms of - cost, charging, battery pack size, etc. to understand the on ground scenarios. These will be accompanied by market data and studies to give a wider perspective and view into the industry.



BLDC vs PMSM vs Axial Flux Motors

Different motor options available and their comparative study with respect to important decisive parameters as - cost, efficiency, performance, size, etc. Understand which one would be better for your vehicle and what different scenarios can be considered for different prototypes or models.



EV Charging Station and Cost

What are the different ways of charging the vehicle. If you are someone planning for charging setup as entrepreneur/ govt employee/ a corporate professional, this case study will give you insight into how charging can be different for different setups.



Battery Pack Thermal Management

Battery pack thermal management strategy and methods used in different vehicles as per the applications. The optimization on the basis of cooling efficiency, of the system and power management.

CASE STUDY

The course is filled with case studies at every unit, explaining real world scenarios and their solutions. The studies mentioned above are the major case studies, associated with which are multiple minor case studies to help you gain more insight into the industry,



elearning@isieindia.com

+91-7048915605 | +91-9971621588

PROJECTS



Motor Design and Simulation

Perform the calculation for different types of motor on the basis of motor efficiency, motor power, electromotive force parameter for all the three different types of motors. Perform the calculation for selection of motor for the products already existing in the market, defining the design criteria and references based on consumer requirements.



Battery Pack Design and Model

Model a battery pack as per the desired range of the electric vehicle given. The model needs to be verified under the MIL test for range as per the cycle provided.



EV Charging Setup

Selection of suitable charging system based on the calculation parameter such as charging time taken by battery with same input supply, Load calculation for grid.



EV Architecture Design

Perform the MIL simulation of a complete EV Architecture with all the components designed and selected by you. This subject vehicle will be an already existing 4 wheeled EV product in the market with customer requirements and needs statement given.

COURSE SCHEDULE



ELIGIBILITY



PAYMENT OPTIONS



- Yes Bank

- Standard Chartered Bank
- RBL Bank
- IndusInd Bank
- CITY Bank
- Axis Bank
- ICICI Bank - Kotak Bank
- HDFC Bank
- Bank of Baroda

WalletsWalletsCredit/ Debit CardImage: Comparison of the temperature of temperature of

CERTIFICATE

ISIEINDIA GLOBAL CERTIFICATE



ASDC CERTIFICATE





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www.isieindia.com
elearning@isieindia.com
+91-7048915605 | +91-9971621588

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