**INTRODUCTION**

This one-week short-term course will concentrate on both varieties of EVs, which can be powered entirely or in part by electric power. Electric cars are particularly environmentally friendly because they consume little to no fossil fuels, have cheap operating costs due to fewer moving components that need to be maintained, and are also very fuel-efficient (petrol or diesel). It covers the EV battery management systems and the DC/DC converter that transforms higher-voltage DC power from the traction battery pack to the lower-voltage DC power required to operate the vehicle's accessories and recharge the auxiliary battery. It offers a summary of the Power electronics controller unit, which regulates the flow of electrical energy supplied by the traction battery while also dictating the speed and torque of the electric traction motor.

**OBJECTIVES**

* This course is aimed to give engineers and researchers an understanding of EV systems, battery management systems, different DC-DC converters, and power electronics control techniques.
* Hands-on practice of various recent computational tools such as Typhoon HIL, FPGA etc.
* Application of optimization techniques in Electrical Engineering.
* Organize the research academics and industry players to import the expertise of EV charging methods and battery management systems.

**SCOPE**

* To highlight the advances in DC-DC converters
& their applications in Electric Vehicles.
* To enhance the abilities of participants to understand the various control schemes of EV.
* FPGA application
* Hardware-in-loop-Introduction
* Hands-on Typhoon-HIL
* EV design using MATLAB
* Power Electronics Converter Design using PSIM

**SPECIAL NOTE**

The decision to run the course depends on the response and number of candidates. Therefore, candidates should be advised to join the course only on receipt of confirmation of admission.

**RESOURCE PERSONS**

Faculty from reputed institutions like IITs and experts from the auto-industry.

**TARGET AUDIENCE**

This course is open to Academician, Research Scholars, UG/PG Students, and persons working R&D Organizations and Industries.

**REGISTRATION FEE**

A registration form (google form/ offline) should be sent to prakashdwivedi@nituk.ac.in or rohit.kumar@nituk.ac.in on or before November 07, 2022. The google form link is <https://forms.gle/tfgCyPeFbXGejWkj8>. The payment to be made online /by RTGS to the NIT Uttarakhand Bank Account. Details are as follows:

|  |  |
| --- | --- |
| **A/C Name** | National Institute of Technology Uttarakhand |
| **Bank Name** | SBI, Srinagar-Garhwal |
| **A/c No.** | 37530566069 |
| **IFSC Code** | SBIN0003181 |

Categorywise registration fees for the course is as follows:

|  |  |
| --- | --- |
| **Delegates** | **Registration Fee (`)** |
| Academic / Industry / R&D organization | ` 1000/- |
| UG/PG/Ph.D. | ` 500/- |

**Note:** Registration fee (non-refundable) includes registration kit, course certificate. no fee for the participants of NIT Uttarakhand.

 **ACCOMMODATION & TRANSPORT**

Limited accommodation is available in the NITUK Hostels for outstation participants on nominal charges and on a first come, first serve basis. Charges of Institute Hostels and Guest rooms are approximately `250/- per day. No TA/DA will be provided to the participants.

**VENUE**

Department of Electrical Engineering,

National Institute of Technology, Uttarakhand,

Srinagar Garhwal.

**ABOUT NIT, UTTARAKHAND**

National Institute of Technology, Uttarakhand is located in the hilly terrain of Srinagar Garhwal, Pauri Uttarakhand. NIT, Uttarakhand was established in 2009 under the Act of Parliament of India by the Ministry of Human Resource Development and designated with the status of “Institute of National Importance”.

**ABOUT ELECTRICAL ENGINEERING DEPARTMENT**

The Department of Electrical Engineering was founded in 2010 at the same time the Institute was founded, and it features a fine blend of young and energetic professors. Currently, the department offers a B.Tech. in Electrical & Electronics Engineering and an M. Tech. degree in Electrical Engineering with two specialties, namely Power System & Control and Power Electronics & Drives. The department is also offering Ph.D. program in the emerging areas of Electrical Engineering for both full time and part time researchers. The significant areas of expertise of faculty of department are Power Systems, Power Electronics, and Control Systems. They have been actively researching cutting-edge technologies and routinely publishing their findings in prestigious international publications and conferences. The department is also running the IEEE student branch chapter.

**ABOUT SRINAGAR GARHWAL**

Nestled in the foothills of majestic Himalayas and on the banks of Alaknanda River sits the historic town of Srinagar. Srinagar is an important tourist attraction for its natural beauty and several temples. One of the important temples of Srinagar is Kamleshwar Mahadev, dedicated to Lord Shiva. Another important temple is Kilkileshwar Mahadev on the banks of the Alaknanda River. This temple was established by Adi Shankaracharya. The Dhari Devi temple is located 19 KM. from Srinagar on the Srinagar Badrinath Highway. Pauri (Pauri Garhwal) is one of the most famous towns in the Garhwal region, blessed by natural exquisiteness. Pauri is located 29 KM. from Srinagar Garhwal