

KURUKSHETRA

Kurukshetra is described as DHARAMKSHETRA, with historical and religious importance. Here, the battle of Mahabharata was fought, and Lord Shree Krishna preached the philosophy of "KARMA" as enshrined in the holy book "Shrimad Bhagwad Gita." It is one of the premier pilgrimage center attracting devotees all round the year. Kurukshetra is very well connected by Rail, Delhi-Ambala section, by Road (NH1, connecting Delhi-Chandigarh-Amritsar-Jammu) and by Air (Delhi 160 km and Chandigarh 80 km). The NIT Kurukshetra campus is situated about 10 km from Pipli, Bus stand located on NH1 and about 4 km from Kurukshetra railway station.

NATIONAL INSTITUTE OF TECHNOLOGY KURUKSHETRA

NIT Kurukshetra, formerly known as Regional Engineering College, Kurukshetra was founded in 1963. It was conferred upon the NIT status, with Deemed University on June 26, 2002. The Institute offers several courses, in various disciplines of B.Tech., M.Tech., MBA and MCA and Ph.D. with an annual intake of about 1500 students. Institute also provides excellent facilities for advanced research in the emerging areas of Engineering, Science, and Technology. The institute has well qualified and dedicated faculty along with supporting staff, laboratories and other infrastructure. The infrastructure is geared to enable the institute to produce technical personnel of high quality.

Centre of Computing and Networking (CCN), NITK

Centre of Computing and Networking was established in the year 1997, as a project funded by MHRD. It is a Central facility for the Institute connecting all the buildings, Departments, Hostels and residential area through Local Area Network (LAN). The Centre aims to integrate networking and computing facility for service to the students, scholars, faculty and community with an effort to automate institute offices and sections. The CCN maintains Campus Wide Network with more than 4000 nodes with state-of-art-networking, infrastructure. It also maintains the institute's mail server and hosts institute website.

PATRON

Padma Shri Dr. Satish Kumar,
Director, NIT Kurukshetra

COURSE ADVISOR

Dr. Sathans
Professor EED and TEQIP-III Coordinator,
NIT Kurukshetra

COURSE CONVENER

Dr. Ashwani Kumar
Prof. in-Charge CCN & Professor, EED

COURSE COORDINATORS

Dr. Jagan Nath
Officer in-Charge, CCN

Dr. Atma Ram Gupta
Assistant Professor,
Electrical Engineering Department

IMPORTANT DATES:

- Last date for submission of registration form: **19th September, 2020.**
- Intimation of selection (on website or by email): on or before **21st September, 2020.**

List of selected participants will also be displayed on the institute website.

Address for Correspondence:

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TEQIP-III Sponsored
Online
Short Term Course
on

Security Challenges,
Objectives and Issues in IoT
enabled Smart Grid

(SCOISG-2020)

(23 September – 27 September 2020)



Organized by

Centre of Computing and Networking,
National Institute of Technology
Kurukshetra
Kurukshetra-136119, Haryana, India

INTRODUCTION AND BACKGROUND

Electrical Power System with the increasing load and consumption has increased electricity complications, such as voltage sags, black outs, and overloads. The operation of the power system should be secure, interoperable, and cost-effective while the technology and innovation continue to modernize electric power system. Such an electric infrastructure called a “smart grid” and is a promising power delivery infrastructure integrated with two-way communication and electricity flows. With advanced sensing technologies and control methods, it can capture and analyse data regarding power usage, delivery, and generation in near real-time. The smart grid may provide predictive information and corresponding recommendations to all stakeholders (e.g., utilities, suppliers, and consumers) regarding the optimization of their power utilization and may also offer services like intelligent appliance control for energy efficiency and better integration of distributed energy resources (DERs) to reduce carbon emissions. The information technologies with bi-directional communication and electricity flow has enabled both utilities and customers to monitor, predict, and manage energy usage and environmental sustainability through the integration of distributed energy resources. Deploying such a green electric power system has enormous and far-reaching economic and social benefits. Nevertheless, increased interconnection and integration also introduce cyber vulnerabilities into the grid and there is a need to address these problems in order to build a reliable, secure, and efficient smart grid. Specifically, the grid can be subject to physical attacks by a human being, by malicious software that can harm the control system, or by using up the systems’ resources to perform the attacker’s own tasks. Any of these forms of disruption occurring to the grid can be highly dangerous. Threats such as fiddling with billing information of particular users can cause a major economical disturbance, if these are not monitored carefully. The power grid, on the other hand, are a major resource to the national defence, and any form of attack on these can cause havoc. In this regard, this STC will provide

a platform to learn the aspects of issues, challenges and solutions of the cyber security in smart grid domain.

COURSE OBJECTIVES

The course aims to address the following issues related to security of smart grid, but not limited to them.

- **To discuss the new communication requirements in terms of protocols, delay, bandwidth, and cost as essential in smart grid security development.**
- **Since, there are many legacy devices used in power automation systems for decades and most of them only focus on a certain functionality and lack sufficient memory space or computational capability to deal with security problems. This course will discuss the Integration of the existing legacy equipment into the smart grid without weakening their control performance.**
- **To discuss the standards, protocols, secure standards for automation and communication for maintaining cyber security.**
- **IoT applications in smart grid for security, Advanced Metering Infrastructure Security, PHEV, Use of phasor measurement units (PMUs) to ensure accurate time information.**
- **To discuss the risk factors**

COURSE CONTENTS/TOPICS TO BE COVERED

- Device: Smart Meter, Advanced Metering Infrastructure Security (AMI-SEC), Cyber attacks on smart meters, Customer Interface, PHEV
- Networking: Internet, wireless network, sensor networks
- Dispatching and management: Asset management, Data encryption and digital signatures, Real time operations, Smart Grid cyber security threats
- Anomaly Detection: Temporal Information, Data & Service, Use of phasor measurement units (PMUs) to ensure accurate time information, fraud detection algorithms and models
- Protocols & Standards, secure standards for automation and communication, Demand Response, Tampering

with information of real time pricing (RTP), security and networking architecture for T&D S/Ss

RESOURCE PERSONS

Eminent experts from Industries and premier Institutions of India like IITs, NITs, IISC will deliver lectures.

WHO SHOULD ATTEND?

Faculty members/ research scholars/ students from academic institutes approved by the AICTE/ UGC/ MHRD and Scientists/ Engineers working in Private/ Public/ Govt. organizations/ industries etc. can attend the course.

REGISTRATION

The application should be made on the registration form and should accompany registration fee as below:

Participant’s category	Registration fee*
Students/ Research Scholars	Rs. 300/-
Faculty	Rs. 500/-
Industry/ R&D / Govt. Organization	Rs. 1200/-

* **Registration fee is non-refundable**

Registration fee includes course e-certificate.

Registration fee is to be paid in advance through Online in Director, NIT Kurukshetra A/c No. 10116885013; IFSC: SBIN0006260. **Please write the short name of STC (SCOISG -2020) in remarks during online payment. The SBI icollect facility will be opened from 04th September 2020.** Registration can be done by filling the google form (link or QR code given below). The soft copy of the payment receipt should be uploaded. Selection will be made on a first come first serve basis as seats are limited.

<https://forms.gle/pykqq1FM2zvdbkc99>

