A REPORT ON SMART GRID TECHNOLOGY WORKSHOP

A two days workshop was held on 22-23 February 2018 at Electrical Engineering Department, L. D COLLEGE OF ENGINEERING on "SMART GRID TECHNOLOGY".

Under this subject few topics related to smart Grid Technology are taken by professional faculties from well known industries. With a prompt introduction to workshop by Head of the Department, Prof. Dr. M. C. Chudasama, the workshop started with motivation and enthusiasm on 22nd February, 2018. There were total 83 participants of which 13 faculty members and remaining students are from various branches like EC, IC of both UG and PG level.

22nd February 2018 (Day 1)

In the first session at 10:45 am, Prof. Tushar Champaneria from Computer department has delivered the expert talk on Internet of Things. He has included: "What is IoT? The goal of IOT is not only just connecting things such as machines, devices and applications but also allows the things to communicate, exchange data, control data and other necessary applications information while applications toward machine goal. IoT growth : 26 billion devices will be connected by 2020 with IoT". Applications of IoT: IoT as SCADA is a step beyond SCADA that has been in use from earlier days. It integrates the individual devices, machines, sensors and other parts of electrical equipment with internet by realising the functionality of supervision and control. Smart Metering , smart City, Health area Building Automation, connected public lighting, and in Smart Grid.



After a lunch, the session was delivered by Dr. Chetan D. Upadhyay on various case studies which included the Indian Smart Grid Forum Project for the UGVCL and Smart Meter Installation by Torrent Power and UGVCL. The session has been full of interaction and made the participants curious. The next session with introduction to Phasor Measurement Unit and its Architecture was delivered by the PG research student Viral Rathod and it has been very

informative.It's a microcontroller that governs power function of digital platforms. PMU use for measuring phase angle so that generator do not cut off the load automatically. Due to large change in phase Functions : motoring power connection and battery charges, charging power to other integrated circuits, controlling sleep and power function.

After a tea break at around 3:30 pm, the session was conducted by Prof. Tejas Patel on "Power Quality issues for the Smart Grid Technology". He has overviewed the problems of the Power Quality with specific problem and detailed reasons for the same. The session was ended with practical demonstaration on the power Quality issues – Harmonics observation on various appliances. The participants were made aware about the use of power analyzer and its applications.

23rd February 2018 (Day 2)

The first session of the second day was started on time at 10:45 am. It was delivered by Deputy Engineering Shri N. M. Makwana sir from SLDC (State Load Dispatch Center), Gotri, Vadodara. He has introduced the various activity done by SLDC. He made the session more alive by his communication skill and made the session completely interactive between him and the participants. The need of Demand side management, the tariff rates and various punishment rules to suppliers and consumers were represented. How the National grid and Western grid are communicated for the power demand, power expectations and the power transmission are thoroughly explained by him. The presentation also covered the architecture of the SLDC and its methods for communication. Sir has also shared his experiences for the data management at SLDC, data theft and its security. The session ended with the Renewable power generation prediction methods used at SLDC and their rules and regulations.



Rtd. Wg. Cdr. Shri C. G. Pandya sir has given overview of the need of the Wind Integration. He shared his experiences with Russian expert and Denmark Companies. He has also given the important area of research available for the Smart Grid. He motivated the students to do more surveys on Energy and do research in the latest trends.

After lunch around 2:00 pm, the Retired Executive Engineer from GEB, Shri A. N. Makwana sir has made the participants laugh on the experiences of himself during his duty. He easily

explained about the need of the latest technology in Smart Grid – like Artificial Intelligence, Quantum computer, Energy Storage System and Smart Meters. He also instructed the students from various tips on how to carry out research and understand the topic. He very nicely imposed the young participants on "Plant your work & work your plan".

The last session was started after tea break at around 3:40 pm. It was full of information for the Grid Integration on the Solar, Wind and the Storage system, Dr. C. D. Upadhyay has conducted the session upto 5:50 pm and made the participants aware about the Vehicle to Grid, Grid to Vehicle and Vehicle to Home integration technology. The session had included some codes of Electric Vehicle and motivated the students to do research on the Grid Integration issues. He presented the issues with Solar Integration at our campus and explained the various possible solutions for the same.

The workshop was ended by Vote of thanks from Dr. C. D. Upadhyay.