

A Report On

**“vishwakarma yojana phase-v”
TECHNICAL WORKSHOP**

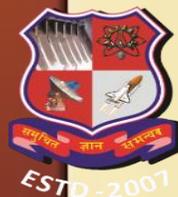
EMPOWERING RURAL AND SMART INDIA :



Date: 23rd March, 2018, 10.30 AM to 5.30 PM
Venue : B0-Conference Hall . GTU Campus.

Presented by:

Prof. (Dr.) Indrajit Patel
Ms. Darshana Chuhan



**GUJARAT TECHNOLOGICAL UNIVERSITY
Ahmedabad**

Gujarat Technological University, Ahmedabad, Gujarat.

Gujarat Technological University had organized a One Day Technical Workshop of Vishwakarma Yojana Phase-IV for the students of Civil Engineering on “**For Rural Villages & Smart Cities Sustainable Planning for Rural Area–Repair, Redevelopment, Redesign & Sustainable Water and Sanitation**” held on **23rd March, 2018** at GTU, Chandkheda Campus.

Prof.(Dr.)S.D.Panchal, Registrar, GTU welcomed Experts Faculty , all invitees & participants in the workshop, and given the insight of the Vishwakarma Yojana Project and its importance as a project.

Ms. Darshana Chauhan, OSD. given introduction of the Expert speakers **Mr.Harshal Parekh-L & T Construction, Prof. Dipsha Shah-CEPT University, Prof.(Dr.) C.D.Upadhaya-L.D.College of Engineering ,** 10 Nodal officers and 250 students from 32 Institutes affiliated with GTU were remain present. She explained that **Prof.(Dr.) Indrajit Patel**, Honorary Director-Vishwakarma Yojana Project, Principal-BVM Engineering College, Vallabh Vidhyanagar , who’s constant support making this project successful.

Technical Session has been clustered in Two core themes:

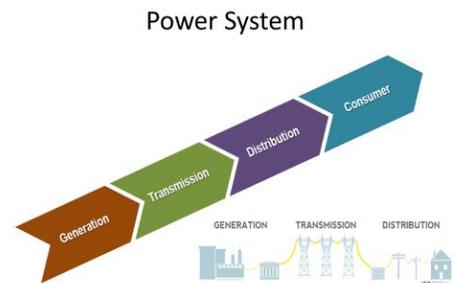
- (I) Recent Research Trends in Power Systems Protections & Electrical Machines
- (II) Expanding Electricity Energy Consumption mobilization



Technical Session I

Recent Research Trends in Power Systems Protections & Electrical Machines

The session was started with in depth need of energy generation, transmission, distribution and efficient electrical machines. The session was quite interactive with the students and with their individual interest – like; instrumentation, renewable and power system. Electricity generation with AC / DC and renewable / non renewable sources has been delivered with efficiency, pollution free, low cost and predictive maintenance schedule. The references sources for such research trends has been discusses with reference to IEEE transactions on sustainable energy. Distributed Energy Resources, Smart Grid and Insulation level has been shown in reference to April 2018 publications. A step ahead, Transmission of power has been delivered with interaction of participants on AC / DC transmission in context to less losses (higher efficiency), less components, maintenance free parameters. Transmisison research has been taken from the IEEE transactions on Power Delivery of the February 2018 publications. In which, HVDC transmission benefits, frequency control and protection of transmission line has been represented with latest research papers. The latest trends in distribution has been presented with LV/ MV / HV level distribution in various parameters like demand matching, power quality, cost effectiveness and efficiency of different levels discussed. Here, references are taken from the IEEE transactions on Smart Grid, March 2018. The curiosity led to the protection of the human being and machines in context to faster protection, smoother operation and timely response with due level of voltage and current. The references are from IEEE transactions on Dielectric and Electric Insulation, February, 2018 & transactions on Magnetics, April 2018. It is also discussed here that how the students can change the research area of the Insulation and Magnetics such that “Make in India” can easily promoted and research level for the new businesses. In the last hour, research trends on Electrical machines have been disclosed in reference to IEEE transactions on Industrial Electronics and industrial Application Society, July, 2018 (early access articles). The main three parts – conductive part, insulation parts and magnetic parts with their condition monitoring, signal conduction and efficiency improvement has been delivered. Dr. C. D. Upadhyay has concluded the session with necessary feedback.



Technical Session II

Expanding Electricity Energy Consumption mobilization

Electrical mobility in reference to rural area has been discussed by Dr. C. D. Upadhyay. On the participants need, the second session was completely focused on two things – how the participants can increase innovative projects in reference to rural area, especially, solar energy and automation in the rural area. The design steps has been delivered for the need of the solar power plant. With an example of a school and a home, the power demand has been calculated with necessary electrical load with approximate power consumption hours. The detail power demand curve has been plotted with expected load and generation and various schedule methods has been represented. The controller design for the same has been given with necessary reference to the participants. The solar module design and battery storage design has been discussed with their individual classification of the solar panels and batteries. The design for the battery storage has been done and solar plant with on line and off line grid has been discussed. The students and faculties participated has enjoyed the design session with the particular examples. Some suggestions has been given for the rural electrification for the energy audit, energy management and their improvement. Various steps for the energy audit at the school, rural milk dairy and panchayat office has been given with required measurements. The various references of Bureau of Energy Efficiency (BEE) has been provided by Dr. C. D. Upadhyay.

Conclusion:

Renewable Energy can play an important role with the plausible solutions to the present energy and environment crisis. This workshop covered theoretical and hands-on experience on Solar Photo-voltic, Solar Thermal Energy Conversion and Storage Devices, Smart Grid, Energy Management and Audit.

On behalf of GTU
Dr. Indrajit Patel
Ms. Darshana Chauhan

