

K L University

Department of Electrical & Electronics Engineering

**Report**

Resource person : Dr. N D Sarma  
Date : 20-1-2017  
Event : Guest Lecture  
Topic : Role of Operators in Control Centers  
Time : 11.15AM -12.40PM  
Venue : C121, K L University  
Organized by : Dept. of EEE  
Faculty In charge : Ms. K SARADA

**Introduction to resource person:**

Dr. N D Sarma **Dr. Sarma (NDR) Nuthalapati** is working as Research Scientist in the Department of Electrical Engineering at Texas A&M University, College Station, TX, USA. He is currently involved in some of their research projects related to synchro phasors and demand response. He has been with Electric Reliability Council of Texas, Inc (ERCOT), USA, in the Advanced Network Applications Group of the Operations Support Department from August 2007 to 3rd March 2016.

He received BTech (Electrical Engineering) and MTech (Power Systems Engineering) degrees from National Institute of Technology, Warangal, (formerly called as Regional Engineering College, Warangal), India, in 1983 and 1986 respectively. He obtained his PhD degree from Indian Institute of Technology, Delhi, India, in 1995. He carried out his PhD work in the area of 'Network Reconfiguration in Distribution Systems' under the supervision of late Dr. K.S. Prakasa Rao. The research work involved developing new algorithms for various aspects of network reconfiguration such as reconfiguration for Service Restoration, Load Balancing and Loss Minimization in Distribution Systems. These methods are very useful in the context of Smart Grids and Distribution Automation.

He worked in the R&D Division of CMC Limited for about 8 years and was involved in several Technology Development Projects in the area of Energy Management Systems (EMS) and Distribution Automation for power utilities. He spent about 5 years at Texas A&M University, College Station, USA as a Post Doctoral Associate/Research Scientist and worked for several projects in the area of shipboard power systems, which were funded by the Office of Naval Research, USA. He worked as Associate Professor and Head of Power Systems Research Center

at International Institute of Information Technology (IIIT), Hyderabad, India from May 2003 to Feb, 2006, focusing on IT Applications to Power

**Event Description:**

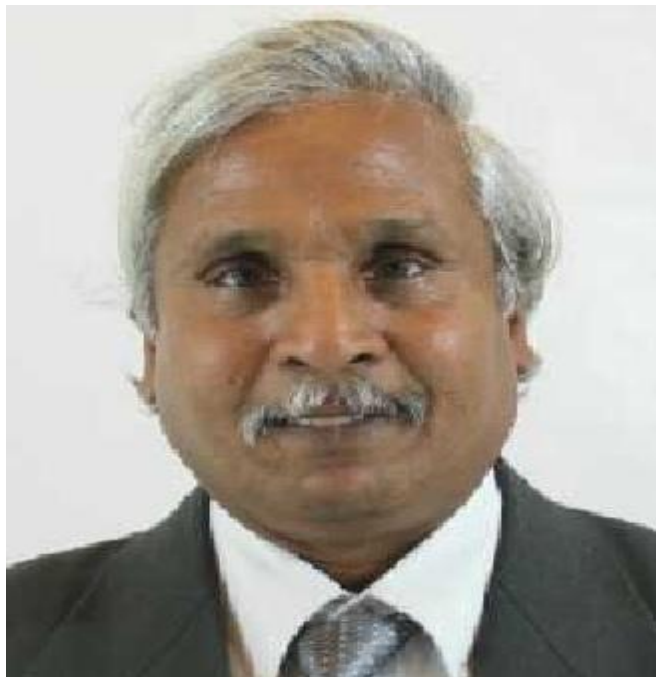
Guest Lecture is a activity organized by Dept. of EEE of K L University on 09-03-2016 from 11.15AM -12.40PM. The resource person is **Dr. N D Sarma, Professor , EEE from Texas A & M University.** , He delivered a lecture on “Role of Operators in Control Centers” for the III B-Tech (EEE) Students.

**Session Activities:**

It is scheduled in C121, Department of Electrical & Electronics Engineering, K L University. Attendance of all the faculty and the students is collected during the lecture .

The event was started by Ms. P Tripura, Professor, EEE by inviting the Guest of Honor **Dr. N D Sarma** on to the dais to start the lecture. He explained the Role of Operators in Control Centers

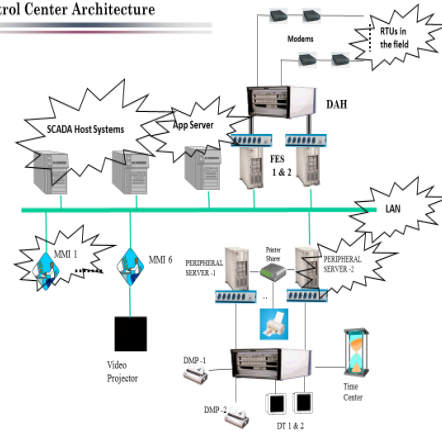
His talk explains Real-Time Contingency Analysis function that is used in ERCOT Control Center. It discusses how remedial action plans and schemes are handled in contingency analysis and how congestion is managed by the operators in the control center



## Levels of Automation

Substation Level Automation  
 Feeder Level Automation  
 Customer Level Automation

### Control Center Architecture



### Tangible Benefits

Substation Automation	Feeder Automation	Customer interface Automation
<b>Reduction in Capital Expenditure due to:</b> <ul style="list-style-type: none"> <li>Deferment of additional substation facilities</li> <li>Effective utilization of substation facilities</li> </ul>	<b>Reduction in Capital Expenditure due to:</b> <ul style="list-style-type: none"> <li>Deferment of additional feeders</li> <li>Effective utilization of existing feeders</li> </ul>	<b>Reduction in O&amp;M Costs of:</b> <ul style="list-style-type: none"> <li>Regular Meter Reading</li> <li>Reprogramming of Meters</li> <li>Service Connect/Disconnect</li> <li>Processing of Customer Claims</li> </ul>
<b>Reduction in O&amp;M Costs of Breaker switching for:</b> <ul style="list-style-type: none"> <li>Routine Operations</li> <li>Non-Routine Operations</li> </ul>	<b>Reduction in O&amp;M Costs of:</b> <ul style="list-style-type: none"> <li>Fault Location and Isolation</li> <li>Service Restoration</li> <li>Routine Switching Operations</li> <li>Recloser Setting</li> <li>Recloser Testing</li> <li>Data Collection</li> <li>Data Analysis</li> <li>Feeder Reconfiguration</li> <li>Capacitor Banks Inspection</li> </ul>	<b>Increased Revenue Due to:</b> <ul style="list-style-type: none"> <li>Reduction of System Peak Load</li> <li>Tamper Detection to Reduce Electricity Theft</li> <li>Reduced Payments for Customer Claims</li> </ul>
<b>Reduction in O&amp;M Costs of LTC Operation for:</b> <ul style="list-style-type: none"> <li>Routine LTC Operations</li> <li>Non-Routine Operations</li> </ul>	<b>Increased Revenue Due to:</b> <ul style="list-style-type: none"> <li>Loss Reduction due to Feeder Reconfiguration</li> <li>Loss Reduction due to Capacitor Banks Automation</li> <li>Faster Service Restoration</li> </ul>	
<b>Reduction in O&amp;M Costs for:</b> <ul style="list-style-type: none"> <li>Routine Relay Testing</li> <li>Relay Setting</li> </ul>		
<b>Reduction in O&amp;M Costs of:</b> <ul style="list-style-type: none"> <li>Routine Data Collection</li> <li>Non-Routine Data Collection</li> <li>Data Analysis</li> <li>Testing of Data Logging Devices</li> <li>Repair of Data Logging Devices</li> </ul>		



Dr. M Ramamoorthy, Chancellor, K L University, Faculty and III B-Tech Students of EEE have actively participated in this session. Ms K Sarada thanked the Guest of Honour. After the end of the lecture students have thanked the guest for sharing such valuable information and have expressed their queries and got clarified from him .