

## CURRICULUM VITAE



1. Name : K. Shanti Swarup
2. Designation : Professor
3. Office Address : ESB-245D, Department of EE, IITM Madras
4. Phone number : 2257 4440.
5. e-mail address : [swarup@ee.iitm.ac.in](mailto:swarup@ee.iitm.ac.in), [ksswarup@iitm.ac.in](mailto:ksswarup@iitm.ac.in)
6. Personal Home Page : <http://www.powersystem.iitm.ac.in/kss.html>  
<http://www.ee.iitm.ac.in/people/faculty/shantiswarup.new.html>
7. Education (highest Degree)
  - Degree : PhD
  - Year : 1991
  - University : Indian Institute of Science, Bangalore
  - Specialization : Electrical Power Systems

### 8. Most Recently Taught Courses (during last three years)

- EE1100: Basic Electrical Engineering
- EN2100: Electrical Machines
- EE5122: Computer Methods in Power Systems Analysis
- EE5257: Energy Management Systems and SCADA
- EE5540: Power Systems Optimization

### 9. Research Interests

1. Power System Computer Applications: Modeling, Simulation and Analysis.
2. Power System Operation and Control.
3. Optimization Techniques in Power systems.
4. Deregulation and Restructured Power Systems: Operation and Control.
5. Power System Automation, Digital / Numerical Protection and Web-based SCADA.
6. Computational Intelligence and Soft Computing Applications for Power Systems.
7. Energy Management Systems and Network Applications.
8. Distributed Artificial Intelligence and Multi Agents.
9. Distributed Computing and Processing for Power Systems.
10. Smart Grid Control, Demand Response, Restoration, Smart Micro Energy Grids
11. Information and Communication Technology (ICT) for Power Systems

10. Research Guidance

**MS and PhD COMPLETED**

**A. MS COMPLETED**

S.No.	Name of the Student	Thesis Title	Year
1	MSROHIT KUMARPANCHOLI (EE02S008)	<b>POWER SYSTEM OPTIMIZATION USING SWARM INTELLIGENCE</b>	May 2004
2	PRASAD REDDY K. V (EE02S0011),	<b>POWER SYSTEM SECURITY ASSESSMENT USING ARTIFICIAL NEURAL NETWORK BASED PATTERN RECOGNITION</b>	October 2004
3	Kalyan DasGupta (EE03S006),	<b>OBJECT ORIENTED MODELING AND IMPLEMENTATION FOR POWER SYSTEM STUDIES</b>	December 2005
4	C. Anuradha (EE06D007),	<b>INTELLIGENT AGENTS IN TRANSMISSION NETWORK PROTECTION</b>	July 2008
5	Devika Jay (EE10S034)	<b>SMART GRID DEMAND RESPONSE AND CONTROL</b>	June 2013
7	Yashwant (EE10S042)	<b>DEVELOPMENT OF AN IEC 61850 BASED LOCAL BREAKER BACKUP PROTECTION</b>	October 2013
8	S. Karthick (EE12S007)	<b>Study of Islanding Phenomena in Solar PV Systems</b>	June 2015

**PhD COMPLETED**

S.No.	Name of the Student	Thesis Title	Year
1	SELVAN M. P (EE01D006),	<b>OBJECT ORIENTED MODELING AND IMPLEMENTATION FOR POWER SYSTEM STUDIES</b>	December 2005
2	RAGHAVAN N (EE01D007),	<b>STUDIES ON SERIES HYBRID ACTIVE POWER FILTERS, (with Dr. Krishna Vasudevan)</b>	November 2005
3	SIMI VALSAN (EE05D012)	<b>WAVELET BASED PROTECTION OF POWER SYSTEMS</b>	December 2007
4	M. VARADARAJAN (EE05D007)	<b>OPTIMAL POWER FLOW USING DIFFERENTIAL EVOLUTION</b>	August 2008
5	M.MANOJ KUMAR (EE05D016)	<b>GRAPH THEORY ASSISTED CORRECTIVE STRATEGIES FOR OVERLOAD ALLEVIATION UNDER CONTINGENCIES</b>	December 2009
6	P. KANAKASABAPATHY (EE06D010)	<b>STRATEGIC BIDDING FOR PUMPED STORAGE PLANT IN RESTRUCTURED POWER MARKETS</b>	March 2010
7	S. KALYANI (EE07D015)	<b>A UNIFIED APPROACH FOR SECURITY ASSESSMENT OF POWER SYSTEMS USING PATTERN CLASSIFIERS</b>	October 2010
8	S. SIVASUBRAMANI (EE08D013)	<b>ECONOMIC OPERATION OF POWER SYSTEMS USING HYBRID OPTIMIZATION TECHNIQUES</b>	October 2011

9	G. ANGELINE EZHILARASI (EE07D010)	<b>DECOMPOSITION AND COORDINATION APPROACH FOR LOAD FLOW AND CONTINGENCY ANALYSIS</b>	June 2012
10	K. JAMUNA (EE08D005)	<b>STATE ESTIMATION AND OBSERVABILITY ANALYSIS WITH SCADA AND PMU MEASUREMENTS</b>	July 2012
11	CHENDUR (EE03D014)	<b>PROBABILISTIC STUDIES FOR POWER SYSTEMS</b>	Aug 2013
12	C.VENKATESH (EE10D036),	<b>DESIGN AND DEVELOPMENT OF ADVANCED NUMERICAL DISTANCE RELAYING TECHNIQUES</b>	Feb 2015

### MS and PhD ONGOING

#### MS ONGOING

S.No.	Name of the Student	Thesis Title	Expected Year
1	Jayadev (EE12S005)	<b>Power System Studies for Micro Grid</b>	2015
23	P. Soumya (EE14S051)	<b>State Estimation in Smart Power Grid</b>	2017

#### PhD ONGOING

S.No.	Name of the Student	Thesis Title	Expected Year
1	RAJAN KUMAR MISHRA (EE12D012)	<b>POWER SYSTEM RESTORATION</b>	2015
2	P Balakrishna (EE13D002)	<b>POWER SYSTEM AUTOMATION</b>	2016
3	Simon Likin (EE13D030)	<b>INTEGRATION OF WIND ENERGY CONVERSION SYSTEMS WITH SMART GRID</b>	2016
4	Anoop E (EE13D030)	<b>PROTECTION OF ISLANDED OPERATION OF A PV-MICROGRID</b>	2017
5	Aneesha (EE13D030)	<b>PROTECTION OF SMART GRID</b>	2017
6	J Rupamathi (EE14D400)	<b>DISTRIBUTED COMPUTATIONAL INTELLIGENCE IN SMART GRID</b>	2018
7	P. Vidya sagar (EE14D030)	<b>DEREGULATION AND RESTRUCTURING OF POWER SYSTEMS</b>	2017
8	PRANAJ VERMA (EE14D045)	<b>DISTRIBUTION POWER SYSTEM PLANNING FOR SMART GRID</b>	2018
9	S T P SRINIVAS (EE14D038)	<b>Real Time Pricing and Computation of Dynamic Availability Transfer Capacity</b>	

## PROFESSIONAL EXPERIENCE (INDUSTRY)

### 1. INDUSTRY (JAPAN) 1992-1995]:



**ADVANCED R&D, MITSUBISHI ELECTRIC CORPORATION (MELCO), AMAGASAKI, JAPAN**  
[HTTP://WWW.MITSUBISHIELECTRIC.COM/COMPANY/RD/RESEARCH/LABS/ADVANCED\\_TECHNOLOGY/](http://www.mitsubishielectric.com/company/rd/research/labs/advanced_technology/)

[  
**Advanced R&D, Mitsubishi Electric corporation, Amagasaki, Japan.** Research Department.



### "INTELLIGENT SYSTEMS APPLICATION TO OPTIMIZATION, PLANNING AND SCHEDULING FOR ELECTRIC POWER INDUSTRY"

Consultancy and Software Development of Package to Kansai electric Power company. This project involves research into the identification of various knowledge based approaches / intelligent systems and study into those approaches suitable for planning and scheduling operations in an electric utility.

Development: 'C' on Sun Solaris II / HP-UX Ver 9.03.

Clients: Technical Research Centre, Kansai Electric Power Company.

Responsibility: Software development testing and implementation of the general purpose package for large scale optimization and scheduling of controllable power apparatus in power industry.

Patents:

AP138555: (1992) Genetic Algorithms Applications to Power Systems.

A-149206: (1994) Genetic Algorithms for Reactive Power Planning of Power Systems.

Technical Reports:

1. ORR 92: Machine Learning and Genetic Algorithms (GAs).
2. ORR 93: GAs for Optimization in Electric Power Systems.
3. ORR 93: GAs for Economic Load Dispatch of Power Systems.
4. ORR 94: GAs for Environment Constrained ELD.
5. ORR 94: GAs for Reactive Power Planning of Power Systems.
6. ORR95: Decomposition and Coordination approach using GAs.

Position: Visiting Research Scientist.

Responsibilities:

Consultancy and Software package development for Electric Power Industry.

*Specific Duties Include:*

- Theoretical Analysis and software programming for Electric Power Industry requirements for Planning, Scheduling & Control
- Project Appraisal, Proposal and Execution.
- Documentation and Technical Reports preparation and presentation during stages of development and presentation in conferences.
- Consultancy to Kansai Electric Power Company (KEPCO)

Accomplishments:

- Software Package developed for the client Kansai Electric Power Company, Japan.
- Intelligent Systems Package for Scheduling and Operation in Power Plants.
- Two patents (pending) for Industrial Research and Development.

Important Publications: Journal (1), Conference (10).

1. "**Genetic Algorithm Approach to Environmental Constrained Optimal Economic Dispatch**", by K. S. Swarup, M. Yoshimi, S. Shimano, Y. Izui, International Journal of Engineering Intelligent Systems (EIS), Vol. 4, No. 1, March 1996, pp.11-23.
2. "**Optimal Power Dispatch Using Genetic Algorithms**" K.S.S warup and Y.Izui, Second Intl. Conference on Neural Networks Applications to Power Systems ,Japan, April 1983.
3. K. S. Swarup and Y. Izui,"**Genetic Algorithms Approach to Reactive Power Planning in Power Systems**", IEE Japan Power and Energy Conference, pp. 119-124, July 1994.
4. K. S. Swarup M. Yoshimi, N. Nagai and Y. Izui "**Environmental Constrained Optimal Economic Dispatch using Genetic Algorithms**", , Intl. Conference on Intelligent Systems applications to Power Systems (ISAP), pp. 707-714, Paris, Sept. 1994.
5. K. S. Swarup and Y.Izui "**Optimization Methods using Genetic Algorithms for Reactive Power Planning in Power Systems**", , Power Systems Computation Conference (PSCC), pp. 483-491, Dresden, August 1996.

**2. INDUSTRY (INDIA) [1996 (Jan) – 1996(Aug)]**



**MACMET (INDIA), GACHIBOWLI, HYDERABAD; SCADA-IT DIVISION**  
**[HTTP://WWW.MACMET.COM/](http://www.macmet.com/)**

Position: Project Leader

Responsibilities: Development of Software for Energy Management Systems

Accomplishments:

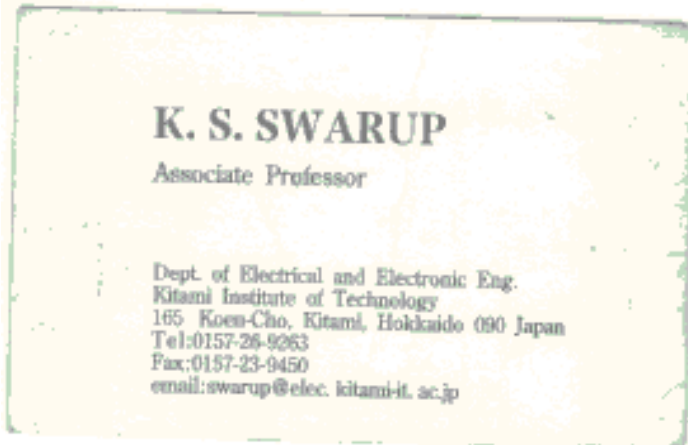
- Software Development for Clients in Aerospace / Power Industry
- Design Documentation, Testing of Software
- Program Organization and Development for System Stability Studies.

### 3. ACADEMIC (JAPAN) [1996 (Oct)-1999(March)]:



DEPARTMENT OF ELECTRICAL AND ELECTRONICS  
ENGINEERING, KITAMI INSTITUTE OF  
TECHNOLOGY, HOKKAIDO, JAPAN  
[HTTP://WWW.KITAMI-IT.AC.JP/](http://www.kitami-it.ac.jp/)  
[HTTP://WWW.ELEC.KITAMI-IT.AC.JP/ELEC2/](http://www.elec.kitami-it.ac.jp/elec2/)

Kitami Inst. of Tech., Hokkaido, Japan. Associate Professor.



#### "COMPUTATIONAL INTELLIGENCE APPLICATION TO OPTIMIZATION, SCHEDULING AND PREDICTION PROBLEMS IN ELECTRICAL POWER SYSTEMS"

This research project involves identification and implementation of various computational intelligent systems to optimization, scheduling and prediction problems encountered in power systems. Genetic Algorithms and Neural Networks were identified as two promising tools and are applied to the problems of optimization and prediction problems. Operational scheduling of power generating units using GAs and Neural networks were carried out in detail. Short term load forecasting and prediction using neural networks were carried out as other associated research project. prediction of the load for 24 hours using past historical data of 72 hours was used for training the neural network off-line.

Position: Visiting Professor

Implementation: 'C' on HP-UX; MATLAB NN toolbox, etc.

Responsibilities: Teaching, Project Research, Seminar, Supervision and Guidance.

Specific Duties Include:

- Graduate/Post-Graduate Teaching, Course in Computational Intelligence.
- Supervision of Under Graduate and Post-Graduates in Soft Computing.
- Executing Independent Research.

Accomplishments:

- Development of software package for optimal scheduling for power industry.
- Best Paper award in the 2<sup>nd</sup> International Conf. on Electrical Engg. Japan July 1997.
- Initiated / Developed a course/seminar/research project in computational Intelligence and Soft Computing (Neural Networks, Fuzzy Systems and Genetic Algorithms) for Scheduling and Prediction.

Important Publications:

1. K. S. Swarup and S. Yamashiro, "A Genetic Algorithm Approach To Generator Unit Commitment", *International Journal of Electrical Power and Energy Systems*,



November 2003, 25(2003). Pp. 679-687.

2. K.S.Swarup and S. Yamashiro "**Unit Commitment Solution Methodology Using Genetic Algorithm**", , IEEE Transactions on Power Systems, February 2002, pp 87-91.

3. "**Unit Commitment Solution Using a Genetic Algorithm**", by K. S. Swarup and S. Yamashiro, Intl.Conf. on Electrical Engineering, Matsue, Japan, pp. 37-40, July 1997.

#### 4. INDUSTRY (INDIA) [1999 (Aug) – 2000(Feb)]



COMPUTER MAINTENACE CORPORATION (CMC),  
GACHIBOWLI, HYDERABAD; SCADA– IT DIVISION  
[HTTP://WWW.CMCLTD.COM/](http://www.cmcltd.com/)

The responsibility involves the identification and application of Information Technology to Electric Systems form an Indian Industry point of view. Potential application areas and feasibility of implementation within the framework of available resources and requirements forms the basis of the project / assignment.

Energy Management Systems (EMS) and Supervisory Control and Data Acquisition (SCADA) for Power Systems Operational Control and Substation/Distribution Automation. Distribution Automation of Power Systems and remote switching.

Network Analysis Studies for Real time operation of power systems including State Estimation, On-Line Power Flow, Contingency Analysis and Security Constraint Optimal Power Flow studies.

Power System Operational Studies under deregulation and restructuring. Publications: Conference (3)

Position: IT Consultant

Responsibilities: Development of Software for Energy Management Systems and SCADA

Accomplishments:

- Conducted Courses for WRLDC Engineers.
- Developed Optimal Power Flow Software for WRLDC running on UNIX.
- SCADA Development for APTRANSCO

#### EDUCATION

1. **Ph.D.** in Electrical Engineering, (Power Systems) Knowledge Based Systems and Artificial Intelligence, Indian Institute of Science, Bangalore, Dec. 1991. [1987-1992].

2. **M.Tech.** in Electrical Engineering (Power Systems and Control) in First Class from Regional Engineering College, Warangal, in August 1986. [1984-1986].

3. **B.Tech.** in Electrical and Electronics Engineering in First Class with Distinction from Jawharlal Nehru Technological University, Kakinada, in April 1983. [1979 - 1983].

#### INDUSTRY INTERNSSHIPS PROJECTS DURING STUDY

I. **Bharat Heavy Electricals limited (BHEL), Industry Sector, New Delhi, India**

(May-June 1984). *Industrial Trainee*

### **"Electrical System Studies in Industry"**

The research topic includes the analysis, study and application of various power system studies for industry. Examples include Power Flow Stability: Short and Long duration, Planning, Operation and Control.

II. **Central Power Research Institute (CPRI), Bangalore, India** (August 1984 to June 1985). *Post Graduate Trainee*

### **"MICROPROCESSOR BASED HVDC SENDING END CONTROLLER"**

MICROPROCESSOR (INTEL 8085) BASED CONTROL, HVDC CONVERTER CONTROL, HARDWARE DEVELOPMENT, CONTROL SYSTEM INTERFACE AND SOFTWARE PROGRAMMING. R&D WAS CARRIED OUT AT THE CENTRAL POWER RESEARCH INSTITUTE (CPRI), BANGALORE, INDIA FOR MASTER'S DISSERTATION PROJECT. (AUGUST 1984 TO JUNE 1985).

This research involves the Design, Development and Implementation of both hardware and software aspects of the microprocessor (8085) based power electronic controller replicating the operation of an HVDC power transmission system. The project involves hardware development (for the 12 pulse thyristor converter and firing circuits) and software programming (on the microprocessor for different control strategies and operating conditions (normal and abnormal). Testing and implementation of the IPC (Individual Pulse Control) and EPC (Equidistant Pulse Control) strategies with control signals internally generated within the micro-processor. Waveforms tested and verified for the converter operating with different types of loads (R-X, R-C, L-C).

**PhD (IISc)** Indian Institute of Science (IISc), Bangalore, India, 1987-1991

### **"KNOWLEDGE BASED SYSTEMS FOR DIAGNOSTIC PROBLEM SOLVING OF ELECTRICAL POWER SYSTEMS AND HVDC NETWORKS"**

The thesis consists of feasibility study, analysis and implementation of various knowledge based approaches like artificial intelligence, expert systems, pattern recognition, neural networks and machine learning for diagnostic problem solving and their application to electrical power systems and hvdc systems. Problem formulation, modeling and representation and solution procedure are described for general problem solving with different inference procedures and their application to power systems. Feasibility of application of these approaches for diagnostic problem solving of two case studies of ac and dc power networks is described. Design and development of several procedures for diagnostic problem solving are also presented.

#### **BOOK CHAPTER:**

1. **"Fault Diagnosis of HVDC Systems using Artificial Neural Networks"**, by K. S.Swarup. H.S.Chandrasekhariah, L.Lai, Springer Verlag, 1993.



## Recent Publications [2015 to 2013]

2015

### Journal[2]

1. Venkatesh Chakrapani & K. Shanti Swarup, "Estimation of Electronic Suppression Circuit Resistance for Protective Relaying Applications", *Electric Power Components and Systems*, Volume 43, Issue 3, Jan 2015, pages 282-297 ([available on-line](#))
2. Venkatesh Chakrapani & K. Shanti Swarup, "Secured Distance Relay Operation Using Adaptive Blocking Logic - Implementation and Validation". Paper accepted in INAE letters, Jan 2015.

### Conference[2]

1. Annesha Farhaan and K. S. Swarup "Developments in Microgrid protection: Issues and techniques". National conference on Power System Protection, 27-28 February 2015.
2. Lavanya, V. L and K. S. Swarup "Smart Grid Integration For Protection using Substation". National conference on Power System Protection, 27-28 February 2015.

2014

### Journal[5]

1. Venkatesh. C and K. S. Swarup, "Performance Assessment of Distance Protection fed by Capacitor Voltage Transformer with Electronic Ferro-resonance Suppression Circuit", *Electric Power System Research*, vol. 112, pp.12-19, Jul. 2014
2. Venkatesh. C and K. S. Swarup, "Steady State Error Estimation in Distance Relay for Single Phase to Ground Fault in Series- Compensated Parallel Transmission Lines", *IET Generation, Transmission & Distribution*, vol. 8, no. 7, pp. 1318-1337, Jul. 2014
3. Balakrishna. P, Rajagopal. K and Swarup K.S, "*Analysis on emerging trends and challenges in smart grid automation technology from generation to utilization*", *CIGRE (The International Council on Large Electric Systems) India Journal*, pp. 7-15, Vol. 3, No. 1, May 2014.
4. Balakrishna. P, Rajagopal. K and Swarup K.S, "*Distribution Automation and Advanced Metering Infrastructure Systems Convergence – A Conceptual Analysis & Case Study*", *International Journal of Engineering Research & Technology*, ESRSA Publication, Vol. 3, Issue. 07, July 2014.
5. Balakrishna. P, Rajagopal. K and Swarup K.S, "*Load Segmentation for Convergence of Distribution Automation and Advanced Metering Infrastructure Systems*", *International Journal of Emerging Electric Power Systems*, DEGRUYTER (Berkeley Electronic Press), Vol. 15, Issue. 06, November 2014.

### Conference[9]

1. Venkatesh. C and K. S. Swarup, "Faulty Line Identification by Distance Relay In Series-Compensated Parallel Transmission Lines", *IEEE Power and Energy Society General Meeting 2014*, Washington, USA, July 2014
2. Rajan kumar Mishra and K. S. Swarup, "Power System Restoration in Smart Grid Environment", 18th National Power Systems Conference (NPSC), December 2014, IIT Guwahati
3. S. Karthick and K. S. Swarup, "Power A Novel Islanding Detection Based On Coupling in Control Action Between Real and Reactive Current Components", 18th National Power Systems Conference (NPSC), IIT Guwahati, 18-20 December, 2014, Vol. 1, No 1, pp 1- 6, Vol. 1, No 1, pp 1- 6, 2014-12-18.
4. P. Balakrishna, K. S. Swarup and K. Rajagopal, "AMI/GIS based Distribution System Load Flow for Extended Situational awareness Paper No: 1569971955, 18th National Power Systems Conference, IIT Guwahati, 18-20 December, 2014, Vol.1, No 1, pp 1- 6, 2014-12-19.
5. Balakrishna. P, Rajagopal. K and Swarup K.S., "*Sustainable grid for 21st century based on IEC Automation – A comprehensive analysis*", *Proceedings of International Conference on Power & Energy Systems*, March 2014, IEEE PES Chapter, Bangalore.
6. Balakrishna. P, Rajagopal. K and Swarup K.S., "*Convergence of Distribution Automation & AMI Systems: A step towards Smart Distribution Grid*", *Proceedings of International Conference on Smart Grid Ecosystem*, March 2014, Utility Automation Research Center, IEEE Bangalore Section.
7. Balakrishna. P, Rajagopal. K and Swarup K.S., "*Communication Method & Architecture for Convergence of Distribution Automation (DA) and Advanced Metering Infrastructure (AMI) Systems*", *Proceedings of PAC World Americas International Conference*, September 2014, North Carolina, Raleigh, USA.
8. Balakrishna. P, Rajagopal. K and Swarup K.S., "*Analysis on AMI system requirements for convergence of DA & AMI systems*", *Proceedings of 6th IEEE Power India International Conference (PIICON)*, December 2014, New Delhi, IEEE Delhi Section.
9. Balakrishna. P, Rajagopal. K and Swarup K.S., "*AMI/GIS based distribution load flow for extended situation awareness*", *Proceedings of 18th National Power Systems Conference (NPSC)*, December 2014, IIT Guwahati, IEEE Kolkata Section.
- 10.

2013

### Journal[1]

1. S. Kalyani, K.S. Swarup "Pattern analysis and classification for security evaluation in power networks" in *International*

#### Conference[8]

1. V. Jayadev and K. S. Swarup, "Optimization of Micro grid with Demand Side Management using Genetic Algorithm", IET International Conference in Power in Unity: 16-17 October 2013, London UK.
2. S. Parvathi and K. S. Swarup, "Novel Scheme for Load Shedding and Identification of Critical tie-lines in WAMS Emergency Control", IET International Conference in Power in Unity: 16-17 October 2013, London UK.
3. Venkatesh, C. ; Swarup, K.S. "Smart Trip Logic for Smart Grids to Block Distance Relay Maloperation - Implementation and Validation", Paper under review for IEEE Innovative Smart Grid Technology (ISGT) Conference, Bangalore October 2013.
4. Yashwant, K, Venkatesh, C. ; Swarup, K.S. "An Open Source Framework for IEC 61850 based Protection and Automation Schemes", Paper under review for IEEE Innovative Smart Grid Technology (ISGT) Conference, Bangalore October 2013.
5. Karthick Sekkappan and K. S. Swarup, "A cross coupling method to detect islanding instant distributed generation", 40<sup>th</sup> Western Protective Relay Conference Spokane, Washington, USA, 15-17 October 2013.
6. Devika Jay and Swarup K.S, " A Game Theoretic Approach To Automatic Generation Control Under Deregulation", International Conference on Power systems (ICPS), Khatmandu, Nepal, Dec 2013.
7. Vikrant Majarikar and K. Shanti Swarup, "Fast and Simple Digital Fault Detection Algorithm for Micro-grid System", International Conference on Power systems (ICPS), Khatmandu, Nepal, Dec 2013.
8. Parvathi S and K Shanti Swarup, "Optimal Load or Generation Shedding Schemes For WAMS Emergency Control", International

#### Important Journal Publications

##### IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews

1. Kalyani.S, Shanti Swarup K , "Classification and Assessment of Power System Security Using Multiclass SVM ", IEEE Transactions on Systems, Man, and Cybernetics, Part C: Applications and Reviews, Volume: 41 , Issue: 5 , Publication Year: 2011 , Page(s): 753 - 758 (September 2011)

##### IEEE Transactions on Power Systems

1. Nagarjuna D. Swarup, K. S. "A Hybrid Interior Point Assisted Differential Evolution Algorithm for Economic Dispatch", IEEE Transactions on Power Systems, Vol. 26, No 2, May 2011, pp 541-549.

##### Electric Power Systems Research

1. S. Sivasubramani, K.S. Swarup, "Environmental/economic dispatch using multi-objective harmony search algorithm ", Electric Power Systems Research, Volume 81, Issue 9, Pages 1778-1785, September 2011

##### International Journal of Electrical Power & Energy Systems

1. R. Chendur Kumaran, T.G. Venkatesh, K.S. Swarup, "Voltage stability – Case study of saddle node bifurcation with stochastic 3 load dynamics ", International Journal on Electric Power and Energy Systems (IPEPES), Volume 33, Issue 8, Pages 1384-1388, October 2011.
2. K.Jamuna and K.S.Swarup, "Optimal placement of PMU and SCADA measurements for security constrained state estimation ", Electrical Power & Energy Systems , Volume 33, Issue 10, Pages 1658-1665, 2011
3. K. Jamuna, K.S. Swarup, "Biogeography based optimization for optimal meter placement for security constrained state estimation ", Swarm and Evolutionary Computation, Volume 1, Issue 2, Pages 89-96, 2011
4. Deepak Singhal, K.S. Swarup, "Electricity price forecasting using artificial neural networks ", Electrical Power & Energy Systems , Volume 33, Issue 3, Pages 550-555, March 2011
5. S. Sivasubramani, K.S. Swarup, "Multi-objective harmony search algorithm for optimal power flow problem ", Electrical Power & Energy Systems , Volume 33, Issue 3, Pages 569-576, March 2011
6. Kalyan Dasgupta, K.S. Swarup, "Tie-line constrained distributed state estimation ", Electrical Power & Energy Systems , Volume 33, Issue 3, Pages 745-752, March 2011

##### IEEE Transaction on Power Systems

1. Malpani R, Abbas Z, Swarup K. S., "High Precision Frequency Estimation Using Internet-Based Phasor Measurement Unit", IEEE Transactions on Power Systems, Vol 25, No. 2, May 2010, pp. 607-614

##### IEEE Transaction on Systems Man and Cybernetics

1. Kanakasabapathy P, Swarup K.S, "Evolutionary Tristate PSO for Strategic Bidding of Pumped-Storage Hydroelectric Plant", IEEE Transactions on Systems Man and Cybernetics, July 2010, pp 460-471.

##### Journal of Applied Soft Computing

1. S. Kalyani and K. S. Swarup, "Classifier design for static security assessment using particle swarm optimization", In Press, Corrected Proof, Available online 29 December 2009

##### International Journal of Electrical Power and Energy Systems

1. Kumar Maharana, K. S. Swarup, "Graph Theoretic Approach for Preventive Control of Power Systems", International Journal of Electrical Power & Energy Systems, Volume 32, Issue 4, May 2010, Pages 254-261

##### Energy Conversion and Management

1. P. Kanakasabapathy and K. Shanti Swarup, "Bidding Strategies for Pumped Storage Plant in Pool-Based Electricity

Market", International Journal on Energy Conversion and Management, Volume 51, Issue 3, March 2010, Pages 572-579

**International Journal of Artificial Intelligence**

1. S. Kalyani, K. S. Swarup, "Support Vector Machine Based Pattern Recognition Approach for Static Security Assessment", International Journal of Artificial Intelligence, ISSN 0974-0635, Volume 5, Number A10, Autumn 2010 (Nov 2010), pp. 17-36.

Indian Institute of Technology Madras India