

**CURRICULUM VITAE  
PERSONAL DATA**

NAME: Adel M. Sharaf

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RANK & DEPT/FACULTY: Professor, Electrical and Computer Engineering

INITIAL APPOINTMENT AT UNB: Assistant Professor, July 1981 (Tenure Track)

DATE OF PROMOTION TO ASSOCIATE PROFESSOR: July 1983

DATE TENURE GRANTED: July 1986 (tenured)

DATE OF PROMOTION TO FULL PROFESSOR: July 1, 1987

SABBATICAL LEAVES: \* July 1987 Kuwait (one year)  
\* July-December 1992 Singapore (six months)  
\* January-June 30, 1993 Visiting Professor, Nanyang Technological University, (six months) Singapore  
\* July-December 2003 (six months) Egypt and Canada

LEAVE OF ABSENCES:

- \* September 1996 to May 1998 Visiting Professor & Department Chairman, EE Department, UAE University, Al-Ain, United Arab Emirates (without pay)
- \* September 1998-June 2000, Chairman, EE Department - UAE University

**ACADEMIC QUALIFICATIONS**

October 1979 PhD, Electrical Engineering, University of Manitoba, Winnipeg, MB, Canada

October 1976 M.Sc., Electrical Engineering, University of Manitoba, Winnipeg, MB, Canada

June 1972 Egypt Air, Boeing B707 - Maintenance Training Certificate, Control and Instrumentation Engineer

May 1971 B.Sc. Electrical Engineering, Cairo University, Cairo, Egypt (Electric Power Systems and Machines Section) – Project (very good)

Dated: June 1, 2006

Signature: \_\_\_\_\_

Revised June 2006

## **SPECIALIZED TRAINING COURSES, SEMINARS AND WORKSHOPS**

- 1 Work place Supervisory and Communication Skills, UNB Workshop April 19&20, 2006.
- 2 Image Builder Software UNB CS Workshop, March 12, 2004.
- 3 Illustrator Software UNB CS Workshop, March 19, 2004.
- 4 Dream Weaver Software UNB CS Workshop, March 24, 2004.
- 5 Transition to Supervision Workshop April 29-30, 2002, UNB
- 6 Scholarly Teaching Workshop, Effective Teaching Institute, April 2002, UNB
- 7 Intel Corp. "Introduction to Microprocessors" Workshop (4 days), January 1985.
- 8 Intel Corp. "IAPX 86, 88, 186 Microprocessors - Part 1" Workshop (5 days), January 1985.
- 9 IEEE PAS Course, "Digital simulation of electrical transient phenomena", 81 EH0173-5 PWR,(one day), 1981.
- 10 IEEE PAS Course "Power system reliability evaluation" 82EH0195-8-PWR, (1 day), 1982.
- 11 Attended five UNB Effective Teaching Workshops (1983, 1984, 1985, 1986, 1990)
- 12 Allan Crawford/Gould Seminar on measurement techniques, signal conditioning and waveform digitizers (one day), May 1985.
- 13 Allan Crawford seminar on Cybord-Data Acquisition and Control (one day), June 1985.
- 14 Intel Corp. "IAPX-286" Workshop (5 days), June 1985.
- 15 IEEE Fibre Optics Seminar, 1985, UNB.
- 16 IEEE Tutorial, Fibre optics applications in power systems, IEEE, PES, WPG, New York (one day), February 1986.
- 17 Eneroptions and Energy Management Seminar (one day), Moncton, NB, April 1986.
- 18 Texas Instruments new DSP-32020 Digital Processor Workshop (3 days), Ottawa, ON Canada, November 1986.
- 19 IEEE Expert Systems Workshop, 1987, UNB.
- 20 Transient Voltage Suppression Seminar, High Tech. Show, Ottawa, May 5, 1987.
- 21 Artificial Intelligence Seminar, High Tech. Show, Ottawa, May 5, 1987.
- 22 Desktop Publishing, Costs and Benefits Seminar, May 6, 1987.
- 23 Computer courses in Auto-Cad, Lotus 123, Database III software packages.
- 24 Artificial Intelligence IEEE Course, UNB, November 1988.
- 25 Neural Networks, IEEE Course, UNB January 1990.
- 26 Siemens - Simatic PLC Basic Step 5 Programming Course, July 1991.
- 27 Effective Teaching Workshops, course preparation and planning, student behaviour, April 1992.
- 28 Digital Signal Processing Course, NTU-Nanyang Tech. University, Singapore, Jan-Feb 1993.
- 29 Excel Spreadsheet Course, NTU, Singapore, June 1993.
- 30 UNB Effective Teaching Workshop November 1993.
- 31 UNB Effective Teaching Workshop, April 1994.
- 32 UNB Workshop on Active and Problem Based Learning, June 7, 1994.
- 33 Management Sciences Course, UNB Faculty of Administration, May 1994.
- 34 C Programming Language, UNB Faculty of Computer Science, May 1994.
- 35 Effective Teaching Workshop, UNB September 1994.
- 36 Microsoft Power Point, Presentation 2.0, Authorware, Mosaic, and Gofer Workshops, UNB Computer Science.
- 37 Educational Outcome Assessment Seminar, UAE University October 1998.
- 38 Authorware Multimedia Seminar, U.A.E., June 1999.
- 39 Effective Interpersonal Communications Workshops., UNB, November 2000.
- 40 Effective Teaching Workshop Scholarly Teaching, December 2000.
- 41 National Instruments Workshop, April 2001.
- 42 National Instruments Workshop, April 2001.
- 43 Transition to Supervision Workshop, UNB (1 day), November 2002.

- 44 Workplace Supervisory and Communication Skills Workshop, UNB November 6, 2002.  
 45 Avoiding Harassment Complaints: Mediation in the Workplace Workshop, UNB (4 days),  
 December 2002.

### **ACADEMIC HONOURS, MERIT AWARDS & RESEARCH FELLOWSHIPS**

- 1 Canada Natural Sciences and Engineering Research Council (NSERC), First Selected Engineering Research Assistant Professor, 1980-81, University of Manitoba.
  - 2 University of Manitoba Graduate Research Fellowships (1975, 1976).
  - 3 Egyptian Government Undergraduate Distinction Fellowships (1966-1970).
  - 4 Swiss National Research Council (NF) International Post Doctoral Fellowship (1984).
  - 5 Senior Member, Institute of Electrical and Electronics Engineers, Since 1984.
  - 6\*\* University of New Brunswick Merit Award (1985) for Excellence in Teaching, Research and Service at UNB.
  - 7 Visiting Research Fellow, Japan Society for the Promotion of Science (JSPS) and Central Research Institute of Electric Power Industry, Japan (1986).
  - 8 Visiting Research Fellow, Brown Boveri and Company, Baden Switzerland, Invited 1987-1988.
  - 9 Visiting Professor and Research Collaborator, Cairo University and Menofia University, Egypt, 1987 and 1988.
  - 10 Visiting Professor and Curriculum Consultant, Kuwait University, Kuwait, 1987-1988.
  - 11 Visiting Professor, Royal Institute of Technology, Sweden, May & June 1989.
  - 12 Visiting Professor and Consultant, Kuwait University, Kuwait and Menofia University, Egypt, April 1990 and August 1990, respectively.
  - 13 Visiting Professor, TU Delft University, Holland, June-August, 1990.
  - 14 University of New Brunswick Nomination for Merit Award, 1991
  - 15 Visiting Professor, Nanyang Technological University, Singapore, 1992-1993.
  - 16 Visiting Professor, Ainshams, Cairo and Menofia Universities, Egypt, June-July 1993, August-September 1994 and April-July 1995.
  - 17 University of New Brunswick Merit Award, 1995.
  - 18 Visiting Professor, Assiut University Egypt, May-June 1995, June 1996 (two months).
  - 19 Visiting Professor & Chairman, EE Department, UAE University, 1995-97 (20 months).
  - 20 Visiting Professor, Menofia University, Egypt, June-September 1998.
  - 21 Visiting Professor & Chairman, EE Dept, UAE University, September 1998-June 2000.
  - 22 Visiting Professor, Helwan University, Menofia University, Egypt, July-August 2004.
  - 23 University of New Brunswick Fourth Nomination for the Merit Award, 2004.
  - 24 University of New Brunswick Research Professorship (nominated 2002-2005; 3 times)
- \*\*:  
 Nominated four times for the Merit Award; Awarded UNB Merit Award twice.

### **FIELD OF SPECIALIZATION**

#### **Electric Power Utility, Power Electronics, Motor Drives and Electrotechnical Energy Systems**

Power apparatus and energy systems; power electronics and motor drives; A.I. technologies, smart engineering applications in power systems; power quality and harmonics; power system simulation; power systems control; intelligent sensors and computer monitoring systems; and non-invasive diagnostics and monitoring of power apparatus anomaly/failure; process drive control; energy management and conservation; renewable distributed electrical hybrid systems (wind, solar, mini-hydro); NUG-generators utilization and interface to electric utility systems; digital protection; soft computing; A.I. (Fuzzy, ES, neural network) applications in power systems and motor drives; electrotechnical systems; power electronics and FACTS; interactive multi-media; computer based education (CBE); computer based training (CBT); environmental devices for pollution abatement using electromagnetic/electrostatic systems and devices.

## **INDUSTRIAL and ACADEMIC EXPERIENCE**

-December 1971 - September 1974

Instrumentation and Controls Engineer, Egypt Air Company, Cairo, Egypt. Specialized in the Boeing 707 jet aircraft, electronic control autopilot and instrumentation systems.

-September 1974-February 1977

Research and Lab Assistant, Electrical Engineering Department, University of Manitoba, Winnipeg, MB Canada. Power systems, control, modeling and computer aided designs, integrated AC-DC systems, undergraduate laboratory assistants in electric machines, power systems and power electronics laboratories.

-February 1977-July 1979

Special Studies Engineer, economic feasibility and technical assessment studies; distribution and subtransmission systems planning, Manitoba Hydro, Winnipeg, MB.

-July 1979-December 1980

Electrical Coordination and System Planning Engineer. Power system planning and power quality engineer, Trans. Alta Utilities Corporation, Calgary, AB, Canada.

-December 1980-July 1981

Selected Research - Assistant Professor and NSERC Engineering Research Fellow (term appointment), Electrical Engineering Department, University of Manitoba, Winnipeg, MB.

-July 1981-July 1983

Assistant Professor (tenure track) - Electrical Engineering, University of New Brunswick, Fredericton, NB Canada. Undergraduate / graduate teaching, curriculum development, research and engineering consulting.

-July 1983-July 1987

Associate Professor - Electrical Engineering Department, University of New Brunswick, Fredericton, NB Canada. Teaching undergraduate and graduate level courses, student advising, sponsored research and engineering consulting.

-July 1986 Tenure Awarded

-July 1987

Full Professor awarded after six years of full time service at UNB.

-July 1987-present

Tenured Professor - Electrical Engineering Department, University of New Brunswick, Fredericton, NB. Teaching, consulting, curriculum development, research and development, engineering consulting.

-1996-1997 and 1998-2000 (two full 2-year terms)

Chairman - Electrical Engineering Department, United Arab Emirates University (UAE), Administrative duties and membership in Faculty Council and various university committees at UAE University. Chairing US-ABET Accreditation Drive Committee.

-1998-2000 - University Wide Committee member for ABET Accreditation Liaison

Committee for the Engineering Program at UAE University. Full ABET Accreditation for 6 years was awarded in 2000.

## **BUSINESS, INDUSTRY, ENGINEERING CONSULTING, R&D EXPERIENCES**

President and Technical Director of SES Inc. and IEES Inc., Engineering Consulting and Research and Development incorporated companies in New Brunswick, Canada.

Incorporated two R&D engineering companies and continued to work as the President and Technical Director of both Sharaf Energy Systems and Intelligent Environmental Energy Systems Inc. of Fredericton, New Brunswick Canada. An engineering, design, consulting and R&D companies in environmental and electrotechnical energy systems control, protection power systems, instrumentation, power quality (PQ) and harmonic mitigation, efficient variable adjustable speed (ASD) motor drives, demand side control, energy management and electric energy utilization and conservation, planning, technical feasibility studies, research and product development, renewable energy (wind, PV, hybrid renewable system) electric energy utilization, forensic engineering, intelligent fault diagnostic software systems, A.I. systems monitoring, diagnostics, specialized technical training courses, computer based education (CBE), multi-media interactive courseware development. The two companies are Engineering Consulting and R&D Innovation and Research Center and have overseas links for technology transfer of specialized smart energy management/power quality, environmental control equipment and renewable energy (wind, PV, small hydro, hybrid) hybrid distributed interface schemes. The two companies have a number of inventions and patent pending devices for environmental control/pollution abatement and electric energy efficiency / utilization enhancements.

### **RESEARCH GRANTS HELD**

2006 SEED Student Summer Research Grant	\$3,000.00
2006 UNB Research Grant (applied)	\$19,500.00
2005 UNB Research Grant	\$19,300.00
2004 UNB Research Grant	\$19,300.00
2003 Employment Canada SEED Grant	\$2,750.00
2003 UNB Research Grant	\$19,340.00
2002 UNB Research Grant	\$14,500.00
2001 UNB Research Grant	\$12,000.00
2000 UNB Research Grant	\$4,000.00
*1998/2000 U.A.E. University (group) Electromagnetic Based Germicidal Control of Camel Milk (Dhs) 200,000.00	
1998/1999 U.A.E. University (PI)	(Dhs) 27,500.00
*1998/1999 U.A.E. University Co-investigator 3 projects	(Dhs) 47,000.00
*1998-2000 U.A.E. University (group) Smart Building Interdisciplinary	(Dhs) 160,000.00
1998/1999 Egyptian Government Academic Link Grant (collaborative research)	(Dhs) 8,000.00
1995/1996 U.A.E. University (3 research projects) AWARDED	(Dhs) 45,000.00
1995 NB Research Grant (in lieu of salary)	\$12,000.00
1995 UNB Second Merit Award (in lieu of research)	\$3,500.00
1995 UNBRF Fund	\$1,550.00
1994 UNBRF Fund	\$1,800.00
1994 CEA Contract Group	\$20,000.00
1993/1994 NSERC Operating Grant	\$15,000.00
1993 Egyptian Government CO11 Academic Channel Grant	\$9,990.00
1993 NSERC Germany Bilateral (awarded)	\$14,000.00
1992 UNB Futures Fund	\$6,500.00
1992/1993 NSERC Operating Grant	\$15,750.00
1991 CEA Canadian Electrical Assoc., subcontract (wind diesel)	\$5,000.00
1991 NSERC Equipment (individual research support grant)	\$69,093.00
1991 EMR Canada (group) Energy Mines & Resources Canada	\$7,000.00
1991 Challenge Program (Employment & Immigration)	\$1,250.00

1991 EMR Canada (group), Second Instalment	\$7,200.00
1991/1992 NSERC Operating Grant	\$15,750.00
1990/1993 NSERC Operating Grant	\$15,750.00
1990 EMR Canada (group), First instalment	\$22,400.00
1990 NSEC Collaborative Research - Holland	\$4,500.00
1990 AUCC - CIDA Microfund I - Egypt	\$3,950.00
*1989/1990 EMR Grant (group)	\$20,000.00
1989/1990 NSERC (operating)	\$16,500.00
*1989/1990 CEA Grant (group)	\$59,900.00
1989 Challenge Program	\$2,773.00
1988 EMR Canada Contract (Project 3 Associated Research)	\$7,000.00
*1988/1989 EMR Canada, 2 <sup>nd</sup> instalment, Porject (1)	\$20,000.00
*1988/1989 EMR Canada, 2 <sup>nd</sup> Instalment, Project (2)	\$10,000.00
** 1987 NSERC Collaborative Travel Grant	\$3,950.00
**1987/1989 EMR Canada 2st instalment project	\$16,000.00
*1987/1989 EMR Canada 1 <sup>st</sup> instalment project	\$29,000.00
1987-1988 CEA Canadian Electrical Association Contract (group)	\$99,000.00
**1987/1988 Research Grant-Kuwait Unviersity /PV Solar Energy Schemes	\$11,500.00
**1987 EMR Canada Contract (supplementary funds)	\$7,500.00
1986-1987 UNBRF Research Fund	\$1,000.00
1986 Challenge Program, Employment Canada	\$2,432.00
**1986 NSERC Bilateral Collaborative Exchange Grant	\$2,700.00
**1986 JSPS Japanese Research Fellowship - Awarded	\$9,000.00
1986-1988 NSERC (individual) Operating Grant (3 years)	\$49,500.00
1985 UNB Merit Award (awarded)	\$1,500.00
*1985-1986 NSERC (Strategic Group) 3 <sup>rd</sup> Installment	\$41,976.00
1985-1986 NSERC (individual)	\$16,139.00
**1984-1985 Swiss National Research Council SF - Research Fellowship	\$3,600.00
1984-1985 UNBRF Research Fund Grant	\$1,000.00
1985 Challenge Program, Employment Canada	\$2,664.89
1985 Canadian Electrical Association (CEA) Group	\$47,541.00
1985-1986 UNBRF Research Fund	\$2,000.00
*1984-1985 NSERC (Strategic Group) second installment	\$41,976.00
1984-1985 NSERC Collaborative Scientific Exchange Grant	\$1,939.00
1984 CDEI Summer Internship, Dept of Employment	\$1,958.00
1984-1985 NSERC (individual)	\$15,370.00
1983-1984 UNBRF Research Fund Grant	\$2,500.00
*1983-1984 NSERC (strategic group) first installment (3 year)	\$31,200.00
1983-1984 NSERC (individual)	\$14,500.00
1982-1983 NSERC (individual)	\$12,700.00
1981-1982 NSERC (individual)	\$11,000.00
1980-1981 NSERC (individual)	\$10,000.00
Applied: CFCAS (2 years budget)	\$239,000.00
* = Principal Investigator (group)	
** = Invited Collaborative and International Reserach Fellowships	

### EXPERTISE AND RESEARCH AREAS OF INTEREST

- 1 Computer aided power system design and planning software.
- 2 Electric utilities load flow, stability, short circuit, feeder planning, load survey, switching transients, transformer load management, harmonic voltage induction, computer studies and digital simulation.
- 3 HVDC and flexible AC transmission systems: FACTS system simulation, system security, control, protection and operational experience.

- 4 AI-Applications in power system control, protection and digital relaying, load forecasting, planning of power apparatus and systems, economic operation of interconnected AC-DC power systems.
- 5 Distribution systems planning, automation and economic utilization.
- 6 Harmonic interference phenomena, noise mitigation, harmonic penetration studies, electrical coordination and harmonic model estimation.
- 7 Efficient solid state variable speed - variable frequency motor drives, industrial motor drive control and protection.
- 8 Electric energy conservation and efficient utilization electrotechnical systems.
- 9 Reliability assessment of power systems and components.
- 10 Control applications in power system and processes.
- 11 Energy conservation systems analysis, alternative and renewable (wind, PV, hybrid) energy systems, energy efficiency and demand-side sustainable management.
- 12 Robotics and microcomputer actuator position control.
- 13 Power quality (PQ), harmonics, inductive interference and EMC noise compatibility.
- 14 Non-invasive failure/anomaly diagnostics in power apparatus and protection systems.
- 15 Expert system (ES) applications in stability and security of electric energy systems.
- 16 Energy management, efficient utilization and energy conservation.
- 17 A.I. (ES, fuzzy logic, ANN, GA, elastic) applications in power system planning and electric utility operation.
- 18 Training courses and seminars in power system analysis, planning, computer aided design, renewable energy utilization, demand side management, energy conservation control, protection and economic studies.
- 19 Curriculum consultancy and engineering course development.
- 20 Environmental pollution abatement using electromagnetic and electrostatic control devices.
- 21 Computer based technical training (CBT) interactive multi-media technical training and courseware development.
- 22 A.I. smart engineering systems and applications in control, protection, decision making, logistics, predictive forecasting and diagnostic protection systems.
- 23 Environmental, water germicidal and air pollution control devices and electric energy efficient systems.
- 24 Engineering consulting in electric power quality, energy conservation, demand-side management, renewable energy, motor drives, power electronic converters and intelligent A.I. based control.
- 25 Fossil fuel efficiency enhancement devices for boilers and internal combustion engines.
- 26 Application of electromagnetic and electrostatic fields in biofilter technology and odour control using enhanced EM/ES zeolite adsorption filters.

### **MEMBERSHIPS**

1. Active member, Associations of Professional Engineers of Ontario and New Brunswick (P.Eng.). Formerly P.Eng. with the Provinces of Manitoba & Alberta Professional Associations (1977,1979).
2. Association of Professional Engineers of Egypt (since 1971).
3. Senior Member IEEE - Institute of Electrical and Electronics Engineers (since 1984).
4. Associate Member - "University" Canadian Electrical Association (CEA), since 1984.
5. Previous member of the Editorial Review Board of the International Association of Science and Technology for Development (IASTED), Canada, USA and Switzerland.
6. Previous memberships in Canadian Society of Electrical Engineers (CSEE), AMSE France, Engineering Institute of Canada (EIC), New York Academy of Sciences and numerous national and international engineering and research committees.

## SERVICES TO ENGINEERING

Technical and Engineering Services included:

- \*1. Services to International Technical Committees
  - a. Member of IEEE working group 80.2 "DC converters for storage systems and alternate power systems", IEEE Power Engineering Society (Substation Committee).
  - b. Member, University Academic Standards and Procedures Committee, 1994.
  - c. Session organizer and Chairman, MSC Conference, Pittsburgh, April 1987.
  - d. Member of IEEE Working Group on "Harmonic aspects of DC transmission"
  - e. Member of IEEE "Audible Noise" working group.
  - f. Member of IEEE "Power system harmonics" working group.
  - g. Member of IEEE Working Group 15.05.02 "Dynamic performance and modeling of DC systems"
  - h. Member of IEEE Working Group 15.05.04 "Multi terminal DC systems"
  - i. Member of IEEE SCC23 Working Group "IEEE utility test code for power conditioning units"
  - j. Member IEEE PES Induction Machinery Sub-Committee.
  - k. Member, IEEE Standards Development Committee
  - l. Member IEEE W.G. "Test code for power conditioning units".
  
- \*2. Service to Canadian Technical Committee
  - a. Member CEA Electrical Coordination Committee
  - b. Member CEA Distribution Committee
  - c. Member CEA Electrical Apparatus Committee
  - d. Member of Faculty Power System Planning and Operation Committee
  - e. Member CEA Engineering Education Committee
  
- \*3. Services to the University (1981-1994)
  - a. Member of UNB-TEP Teaching Excellence and Procedures TEP-Committee, 2005-2006.
  - b. Member-UNB Senate three year term (1994-1997) (resigned in 1995 due to an approved 20 month leave of absence without pay)
  - c. Senate Representative - Selection Committee Assoc. Dean of Business Admin.
  - d. Member Faculty Library Committee.
  - e. Electrical Engineering Department Bibliographer
  - f. Member of Department Committees (Budget, Planning, Graphics, Student, Undergraduate, Graduate, Assessment)
  - g. Member Search Committee for Chairman of Electrical Engineering Dept.
  - h. Member of University Academic Policy and Procedures (APP) Committee
  - i. Undergraduate Student Academic Counseling
  - j. IEEE Student Committee and IEEE-NB Chapter Liaison
  - k. Member, University Academic Standards and Procedures Committee (1994)
  - l. Chairman, Electrical Engineering Dept., UAE University, UAE (1996 & 1997)
  - m. Member of faculty wide Promotion Committee, UAE University.
  - n. Member of Awards Committee, UAE University, UAE (1996,1997).
  - o. Chair, Student Innovation Research Centre, UAE University, UAE (1996,1997).
  - p. Principal Coordinator and teacher of first year Freshman Lab I Course, UAE University, UAE (1996, 1997).
  - q. Member of Curriculum Committee, ABET Accreditation and self learning Committee at UAE University, UAE (1996, 1997).
  - r. Chairman Electrical Engineering Dept., UAE 1995-1997 & 1998-1999.
  
- \*4. Service to Technical Journal and Conference Organizations



1. Guest Editor for the International Journal of Energy Technology and Policy IJETP, 2005, UK.
2. Invited Associate Editor of the special issue on Power Electronics for Distributed and CoGeneration of the IJETP-International Journal of Energy Technology and Policy, Interscience Publication, 2004.
3. Session Chair and Session Organizer, MEPCON 2003, Egypt.
4. International Conference Organizer and Session Chair, MEPCON 2001, Cairo, Egypt.
5. Conference Session Chair, 7<sup>th</sup> International Conference on Modeling Electronics Electrimacs 2002, Montreal, Quebec, Canada 2002.
6. Member of Organizing and Technical Committee ICE 2000, The First International Energy Conference, May 7-9, 2000, Al-Ain, U.A.E.
7. Member, Technical Organizing Committee International ICCCP & ICCPOI Conference, Sultan Qabeos University, SQU, 1998, 2001.
8. Conference organization and Technical Committee member of IACPS, UAE, Al-Ain, April 6-8, 1997 for the intelligent applications in communications and power systems conference, U.A.E.
9. Session Chair, Paper Reviewer and member of Technical Organizing Committee, MEPCON Conference, Assiut, Egypt, Jan 1996.
10. Session Chair, Canadian Conference on Electrical and Computer Engineering CCECE 1994, Halifax, September 1994.
11. Member, International Technical Committee, IEEE/IAS Intelligent Vehicles '94, October 24-26, 1994, Paris France.
12. Member, International Steering Committee PEMC'94, Power Electronics, Motion Control, Sept 20-22, 1994, Warsaw, Poland.
13. Member, International Program Committee, IASTED International Symposium, Wakayama, Japan, Sept 12-16, 1994.
14. Session Chairman, IEEE-MEPCON, Ciaro, Egypt, January 1994.
15. Session Chairman, IEEE-Power Tech, Athens, Greece, September 1993.
16. Session Chairman, ICEE'93, Tehran, Iran, May 1993.
17. Member, Technical Steering Committee, Session Chairman, IPEC 1991, Singapore, March 17-18, 1993.
18. Session Chairman, ICARV 1992, Singapore, September 15-18, 1992.
19. Session Chairman, National ISA Industrial Automation Conference, Montreal, June 1-3, 1992.
20. Session Chairman, IASTED May 4-6, 1992, Alexandria, Egypt.
21. Session Chairman, MEPCON January 1992, Assiut, Egypt.
22. Session Chairman, COMCONEL 90 Conference, Cairo, Egypt, Dec 1990.
23. Session Organizer and Chair, IASTED ASM-87 Santa Barbara, CA May 1987.
24. Session Organizer and Chairman, MSC April 1987, Pittsburgh, USA.
25. Conference Advisory, Session Organizer and Chairman, IEEE Regional Conference for Developing Countries, March 1987, Riyadh, Saudia Arabia.
26. Session Organizer and Chairman, MSC Conference, Pittsburgh, April 24-25, 1986.
27. Session Organizer and Chairman, Applied Simulation and Modeling, ASM Vancouver, BC, Canada June 4-6, 1986.
28. Session Chairman, IASTED MECO Measurement and Control Conference, Istanbul, Turkey, July 23-25, 1985.
29. Session Chairman, Modeling & Simulation ASME'84, Athens Greece, June 1985.

#### **INTERNATIONAL PARTNERSHIPS, COLLABORATION & ACADEMIC RESEARCH LINKS**

1. Guest Editor, Iderscience Enterprises Ltd. Publications, Power Electornics for Distributed and Co-generation, International Journal Energy Techynology and Policy, 2006.
2. Collaboration with the New Egypt ETRC – Helwan Energy Technologies Research Centre.

3. Negotiated four new College wide and University wide new academic links with Ain Shams, Tanta, Menofia and Alexandria Universities, Egypt (under consideration).
4. Established a University Wide Academic Agreements between UNB and Helwan University, Egypt, signed March 2003.
5. Established an academic research link with Tallin Technical University, TTU, Tallin, Estonia, 1998.
6. Established a new academic link with Technical University of Warsaw, Poland, 1998.
7. 1995 - established academic research link, UAE University, United Arab Emirates.
8. 1987 - established academic link with Technical Education and Vocational Training General Organization, Saudi Arabia.
9. 1987 - initiated an academic R&D link with University of Bologna, Italy, Prof. Dr. Gian Carlo Montanari, Institute de Electrotechnica Ind.
10. 1987 - initiated a research link with Warsaw University of Technology (Institute of Control and Industrial Electronics), Prof. W. Koczara, Chair.
11. 1988 - established collaborative research links with numerous Egyptian Universities (Menofia, Mansoura, Ainshams and Assuit Universities) for support of PhD student exchanges, research collaboration and community development.
12. 1989 - initiated academic research links with TU-Delft, Holland, Nanyang Technological University, Singapore and Technical University of Wroclaw, Poland (pending formal approval).
13. 1989 - established academic link with the technical university of Istanbul, Turkey, Prof. Dr. N.H. Yukseler.
14. 1991 - initiated academic research collaboration with Cairo University, Egypt with CIDA-Canada support (pending formal approval).
15. 1994 - started academic links with Tempere University, Finland, Prof. E. Lakervi.
16. 1995 - academic collaborative links and channels - Al Mansoura University, Egypt.
17. 1995 - academic collaborative links and channels, Electronics Research Institute, Cairo, Egypt.
18. 1995 - academic collaborative links and channels, National Technical University of Athens, Greece (initiated).
19. 1995 - academic collaborative links & channels, National Research Institute, Indonesia.
20. 1995 - academic channel links - Zagazig University, Egypt (initiated).
21. 1995 - academic channel link, Shoubra Faculty of Engineering, Egypt (initiated).
22. 1995 - academic and research link, Agency for the Assessment and Application of Technology (BPP Teknologi), Indonesia (initiated).

#### **Ph.D., M.Sc and B.Sc DEGREE DISSERTATIONS (Dr. A.M. Sharaf)**

- October 1979 (Ph.D.) "Modeling of Integrated Multi-Area Multi-Terminal DC-AC Systems and the Design of Stabilizing Loops in DC Controls", PhD Thesis, University of Manitoba, Winnipeg, MB, Canada.
- Oct.1976 (MSc.E.) "Harmonic Phenomena on the DC Side of HVDC Converter Schemes", M.Sc. Thesis University of Manitoba, Winnipeg, MB, Canada.
- July 1971 (B.Sc.) "Design of a DC Motor", B.Sc Thesis, Cairo University, Egypt.

#### **REFEREED JOURNAL PUBLICATIONS**

1. A.M. Sharaf and M. El-Moursi, "Novel Control Schemes for the SSSC for Dynamic Series Compensation and Voltage Regulation", Electric Power System Research Journal, 2006 (submitted).
2. A.M. Sharaf and Khaled Abo-Al-Ez, "Novel FACTS Based DDSC Compensator for Power Quality Enhancement of LV Distribution Feeder with Dispersed Wind Generator", the International Journal of Emerging Electric Power Systems, USA Berkley Press, 2006 (submitted).

3. M.S. El-Moursi and A.M. Sharaf, "Novel STATCOM Controllers for Voltage Stabilization of Stand Alone Hybrid (Wind/Small Hydro) Schemes", the International Journal of Emerging Electric Power Systems, Berkley Press, USA, 2006 (submitted).
4. M.S. El-Moursi and A.M. Sharaf, "Voltage Stabilization and Reactive Compensation Using Decoupled Controllers of the STATCOM and SSSC", IEEE Power System Trans., Nov. 2005, Volume 20, Issue 4, pp 1985-1997.
5. M.S. El-Moursi and A.M. Sharaf, "Novel Reactive Power Controllers for the STATCOM and SSSC" International Journal Electric Power System Research Trans. Jan 2006, Issue 4, Volume 76, pp 169-270.
6. M.S. El-Moursi and A.M. Sharaf, "Novel STATCOM Controllers for Voltage Stabilization of Wind Energy Scheme", International Journal of Energy Technology and Policy (IJETP) 2005 (special invited issue).
7. A.M. Sharaf and G. Wang, "Stand Alone Wind Energy Conversion System with Active Power Compensator Scheme", International Conference on Energy Technology and Policy, IJETP Special Edition (2005 special issue).
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  315. H. Hamed and A.M. Sharaf, "Design and implementation of a microprocessor- based robust optimal controller for variable speed self-controlled synchronous motor drives", Proceedings of the IECON 1986, Milwaukee, WI, October 1986.
  316. A.M. Sharaf, N. Naganathan and R.E. Burridge, "Microprocessor based low cost wind energy conversion scheme", Proceedings of the INTELEC Conference, Toronto, October 19-21, 1986.
  317. A.M. Sharaf, J. Martin and G. Bouzanne, "Harmonic models for transformers and synchronous machines in the audible frequency range", Proceedings of the second ICHPS, Winnipeg, MN, October 6-7, 1986, pp 164-174.
  318. S. Sivakumar, K. Natarajan, A.M. Sharaf, R. Balasubramanian, "Design of sub-optimal controllers using singular value analysis with application to induction motor drives", Proceedings of American Control Conference, ACC, Seattle, Washington, June, 1986.
  319. S. Sivakumar and A.M. Sharaf, "A frequency domain design of decoupling controllers for vv-vf induction motor drives", Proceedings of the 5th Power Electronics Conference,

- Budapest, Hungary, October 1985, Paper # 3.24, pp. 239-248.
320. S. Naganathan and A.M. Sharaf, "Microprocessor control of wind driven squirrel cage induction generator", Proceedings of the EPE European Conference on Power Electronics and Applications, Brussels, Belgium, October 1985, pp. 2.7-2.12.
  321. A. Saxena and A.M. Sharaf, "Microprocessor based efficient controller for a current source inverter fed synchronous motor drive", Proceedings of EPE European Conference on Power Electronics and Applications, Brussels, Belgium, October 1985, Conference proceedings, Vol. 3, Appendix, p. 6-11.
  322. Y. Xu, A.M. Sharaf, D. Luke, R. Doraiswami, "Microprocessor based controller for variable speed dc motor drives", Proceedings of the International IASTED Conference, June 24-26, 1985, Lugano, Switzerland, pp. 127-131.
  323. Y. Xu, A.M. Sharaf, R. Burrige, "Digital simulation of closed loop variable speed dc motor drive system", Proceedings of the IASTED Conference - Contributions to Computer Aided Design, PP 23-27, June 3-5, 1985, Montreal, Canada, p. 23-27.
  324. Y. Xu, A.M. Sharaf, and R.E. Burrige, "Optimal selection of dc link filters in variable speed dc motor drives", Proceedings of the IEEE Electronicom '85, Toronto, Canada, October 1985, pp. 352-355.
  325. A. Saxena and A.M. Sharaf, "Microprocessor implementation of a robust optimal controller for vv-vf synchronous motor drive", Proceedings of the IASTED International Conference EPES '85 Conference, Santa Barbara, California, USA, May 29-31, 1985, pp. 143-146.
  326. P. Gokul, Y. Xu, A.M. Sharaf and W.J. Smolinski, "Digital simulation of a solid state variable speed DC motor drive system under normal and faulted conditions", Proceedings of the IASTED International Conference, EPES '85 Conference, Santa Barbara, California, USA, May 29-31, 1985, pp. 133-137.
  327. S. Sivakumar and A.M. Sharaf, "Robust multivariable control strategies for current source inverter fed induction motor drives", Proceedings of the IEEE IAS Annual Meeting, Toronto, Canada, October 1985, pp. 510-523.
  328. Y. Xu and A.M. Sharaf, "A novel approach to efficiency maximization for a variable speed DC motor drive system", Proceedings of the 13th IASTED International Conference on Applied Simulation & Modelling ASM'85, Montreal, June 1985, pp.62-66.
  329. A. Saxena and A.M. Sharaf, "Digital simulation of a synchronous motor drive and development of efficiency maximization algorithms", proceedings of the 13th IASTED International Conference on Modelling and Simulation June 24-26, 1985, Lugano, Switzerland, pp. 196-199.
  330. S. Sivakumar, A.M. Sharaf and R. Burrige, "A frequency domain design of controllers for current fed induction motor drives", Proceedings of the IASTED International Symposium, Measurement and Control MECO '85, held in Istanbul, Turkey, July 23-25, 1985, pp. 131-135.
  331. Y. Xu, A. M. Sharaf, R. Burrige, "Digital simulation of closed loop variable speed DC motor drive system under unbalanced system conditions", Proceedings of the IEEE Electronicom '85, Toronto, Canada, October 1985, pp. 348-351.
  332. M. Mobarak, A.M. Sharaf, E.F. Hill, "Application of a direct search optimization technique in optimal load flow solution", Proceedings of the International Communications and Energy Conference, Montreal, October 1984, pp. 79-85.
  333. D. Luke, A.M. Sharaf and M. Bin Awan, "A microprocessor based power system harmonic analyzer and application in harmonic model identification", Proceedings of the International Symposium on 'Harmonics on Power Systems', Worcester, MA, October 1984, pp. 199-202.
  334. Y. Xu, A.M. Sharaf, R.E. Burrige, "A novel digital simulation program for the three phase six-pulse thyristor bridge converter", Proceedings of the IECON 84, Tokyo, Japan,

- October 1984, pp 716-720.
335. M. Mobarak, A.M. Sharaf and E.F. Hill, "Modelling valve-loop rates in the optimal dispatching of thermal plants", Proceedings of the International Association for the Advancement of Modelling and Simulation Techniques in Enterprises 84 AMSE, Athens, Greece, June 1984, Vol. 4.4, pp. 59-72.
  336. M. Mobarak, A.M. Sharaf, and E.F. Hill, "Application of phase shifters in optimal power flow control and economic operation of interconnected power systems", Proceedings of the 1984 Annual Conference of the Canadian Society of Electrical Engineers, May 20-25, 1984, Halifax, Nova Scotia, Canada, pp.211-228.
  337. S. Sivakumar and A.M. Sharaf, "Damping torsional oscillations using static phase shifters", Proceedings of the 1984 Annual Conference of the Canadian Society of Electrical Engineers, May 20-25, 1984, Halifax, Nova Scotia, Canada, pp. 259-276.
  338. S. Sivakumar, A.M. Sharaf and D.M. Luke, "A micro-processor controller for an adjustable speed vv-vf induction motor drive". The proceedings of the International IEE Conference on Power Electronics and Variable Speed Drives, May 1-4, 1984, London, England.
  339. A.M. Sharaf and C. Goodman (1984), "A computer simulation model of thermal ratings of overhead conductors", Proceedings of the 15th Annual Pittsburg Conference on Modelling and Simulation, April 19-20, 1984, Pittsburgh, PA, USA.
  340. A.M. Sharaf, F. Zhuang, G. Hickey, "Harmonic reduction using optimum simultaneous control of multi-staged static converters", Proc. of the International Electrical, Electronics Conf. and Exposition, IEEC & E, Toronto, Canada, September 26-28, 1983, pp 238-241.
  341. A.M. Sharaf, D. Luke, R. Gagnon, R. Doraiswami, "A microcomputer based controller for a static phase shifter", Proceedings of the International Electrical, Electronics Conference and Exposition, IEEC & E, Toronto, Canada, September 26-28, 1983, pp 504-507.
  342. A.M. Sharaf, S. Sivakumar, R. Doraiswami, "A robust controller design for stability enhancement using static phase shifters", Proceedings of the 3rd IFAC International Symposium on Control, Lausanne, Switzerland, September 12-14, 1983, pp 721-728.
  343. A.M. Sharaf, S. Sivakumar, "Steady state stability enhancement using static phase shifters in multi-machine power systems", Proceedings of the Second IASTED International Symposium ASM-83, San Francisco, May 16-18, 1983, pp 144-148.
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  345. S. Sivakumar and A.M. Sharaf, "Static phase shifter models in power system studies", Proceedings of the 14th Annual Pittsburg Conf. on Modelling and Simulation, April 22-23, 1983, U. of Pittsburg, pp 6-11.
  346. A.M. Sharaf, S. Sivakumar and R. Doraiswami, "Dynamic simulation of static phase shifters and investigation of control strategies", Proceedings of the IEE/1983 International Power Electronics Conference, IEPC, Tokyo, Japan, March 27-31, 1983, pp 1653-1664.
  347. A.M. Sharaf and R. Doraiswami, "Control strategies for static phase shifters in integrated AC power systems", proceedings of the IASTED International Symposium, Applied Simulation and Modelling, ASM'82, July 1982, San Diego, pp 31-34.
  348. A.M. Sharaf, 1982, "A dynamic stability assessment model for integrated AC systems", Int. Symposium on Large Engineering Systems, June, 1982, Calgary, Canada.
  349. A.M. Sharaf, Z. El-Razaz, "Digital simulation of phase-shifting action in dynamic stability assessment models", Proceedings of The International Thirteenth Pittsburg Modelling and Simulation Conference, Pittsburg, April 1982, pp 885-890.
  350. R.M. Mathur, A.M. Sharaf and A.S. Rao, "Thyristor controlled phase shifters",

- Proceedings of the International Conference on Thyristor and Variable Static Equipment for AC and DC Transmission, London, November 30-December 3 1981.
351. A.M. Sharaf and R.M. Mathur, "DC-side harmonics on SCR converters due to unbalanced supply voltages", Proceedings of the 13th Midwest Power Symposium, Urbana, Illinois, October 1981.
  352. A.M. Sharaf and R.M. Mathur, "Abnormal voltage harmonics on SCR converters due to unbalanced system conditions", proceedings of the IEEC & E, Toronto, October 1981, Paper No. 9.4.
  353. A.M. Sharaf, R.M. Mathur, "A relay type stabilizer design to improve the dynamic stability of multi-area multi-terminal AC-DC system", proceedings of the IEEC & E Toronto, October 1981.
  354. A.M. Sharaf and R.M. Mathur, "Bang-bang stabilizers for integrated ac-dc systems", Proceedings of the International Energy Symposium, IASTED Journal, San Francisco, May 1981, pp 178-182.
  355. A.M. Sharaf, R.M. Mathur, "Dynamic simulation of large scale integrated systems", Proceedings of International Symposium on Large Engineering Systems, July 11-12, 1980, St. Johns, Newfoundland, pp 199-204.
  356. \*A.M. Sharaf, et al, "Calgary Power System approach to inductive coordination", CEA Meeting, Montreal, March 17-21, 1980.(Invited Paper)
  357. \*A.M. Sharaf, et al, "Interference from 180 Hz and 540 Hz triplet harmonic currents", CEA Meeting, Montreal, March 17-18, 1980.(Invited Paper)
  358. A.M. Sharaf and R.M. Mathur, "Modelling of integrated multi-area multi-terminal dc-ac systems for the design of stabilizer loops in dc controls", Proceedings of the Midwest Power Symposium, Columbus, Ohio, October 1979, Paper No. 2.4., 1979.
  359. H. Hamed, A.M. Sharaf, "Design and microprocessor implementation of robust controllers for variable speed self-controlled synchronous motor drives", Proceedings of the PESC IEEE Conference, June 23-27, 1986, Vancouver, BC, Canada, 1986.
  360. A.M. Sharaf, Le Canh and T. Quach, "Microprocessor based controller for efficiency improvement of single phase induction motors", Proc. of North American Power Symp., Oct. 13-14, 1986, Cornell University.
  361. A.M. Sharaf, M. LeBlanc and P. Chiasson, "Microprocessor based controller for residential applications", Proceedings of North American Power Symposium, Oct. 13-14, 1986, Cornell University.
  362. A.M. Sharaf and R.M. Mathur, 1979, "Design of stabilizer loops for HVDC controllers of multi-terminal multi-area dc-ac systems", Proceedings of The IEEC & E, Toronto, Canada, October 1979, pp 46-47.Cornell University, New York, 1986.
  363. \*A.M. Sharaf, "Inductive coordination problem in Manitoba Hydro", Invited Paper, CEA Meeting, Montreal, March 1977 (Invited Paper), 1977.

#### **EXTERNAL & INTERNATIONAL RESEARCH PROJECTS (United Arab Emirates)**

1. "A Photovoltaic Power Electromagnetic Desalting/Descaling Water Filtration System for Desert Agriculture Use", UAEURF, Principal Investigator, 1998-2000. (Dhs 16000)
2. "Short Term Load Forecasting of KAE Power System Using Neuro Fuzzy Modeling and Estimation", Co-investigator with Dr. AbdAlla Ismail, UAEURF 1998-2000 (Dhs14000)
3. "Measuring and Investigating Electromagnetic Emission and Strength from Power Line and Electric Home Appliances and Mitigative Solutions", Co-investigator with Dr. Mousa Eissa, UAEURF, 1998-1999. (Dhs12,500)
4. "Novel Fault/Anomaly Signal System Digital Protection Relaying", Co-investigator with Dr. Farhad Kesserian, UAEURF 1998-2000 (Dhs 11,500)
5. "Power System Transient Stability Enhancement Using Novel Control Strategies", UNB (Canada) - Egypt Academic Link Agreement, 1998-2000. (\$9,000)

6. Development of "Sustainable Camel Production System", Interdisciplinary research (milk sterilization using EM/EM electromagnetics) ortho-ripplefield with Faculty of Agriculture, UAE University, 1998-2000. (Dhs 200,000)
7. "Smart Building Management", Interdisciplinary Research U.A.E. University jointly with Department of Agriculture Group, UAE University, 1999-2000. (Dhs 163,000)

**TECHNICAL CORRESPONDENCE & JOURNALS PUBLISHED  
TECHNICAL DISCUSSIONS (IEEE-PAS PUBLICATIONS)**

1. Discussion of paper #89 WM 020-9 EC "Optimal Solar Array Configuration and DC Motor Field Parameters for Maximum Annual Output Mechanical Energy", by M.M. Saied and G. Jaboori, IEEE PES transactions Energy Conversion, September 1989.
2. Discussion of paper #83 SM 477-7, "Steady state performance analysis of static controlled induction motors: a closed form solution", by L.X. Le and G.J. Berg, To be published in full in IEEE Power Apparatus & Systems, Vol. PAS-103, No. 3, March 1984, p 611.
3. Discussion of paper #83 SM 384-5, "Coordinated stabilization of multimachine power system", by O.H. Abdalla, S.A. Hassan and N.T. Tweig, IEEE Trans. PAS Vol. 103, No. 3, March 1984, p 492.
4. Discussion of paper #83 SM 383-7, "Coordination of static var compensators with long distance radial transmission system for damping improvements", by B.T. Ooi and M.H. Banakar, IEEE Transactions on Power Apparatus and Systems, Vol. PAS 103, No. 2, February 1984, pp 274.
5. Discussion of paper #83 SM 404-1, "Choice of model and topology for external equivalent systems", by M.A. El-Sharkawi, IEEE Transactions on Power Apparatus and Systems, Vol. 103, 1984.
6. Discussion of paper #83 SM 444-7, "Three phase transmission system modelling for harmonic penetration studies", by T.J. Densem, P.S. Bodger and J. Arrillaga, IEEE Transactions on Power Apparatus and Systems, Vol. PAS-103, No. 2, Feb. 1984, p 316.
7. Discussion of Paper #82 WM 037-0, 1982, "On the interaction between power system configuration and industrial rectifier harmonic interference", by B. Szabados. IEEE, PAS Vol. 101, No. 8, August 1983, p 2768.
8. Discussion of paper #83 WM 036-1, "Fast periodic solution for twelve-pulse converter", by G. Berube and B.T. Ooi, Transactions on Power Apparatus and Systems, Vol. PAS-102, No. 7, July 1983, p 2003.
9. Discussion of #82 SM 437-2, "State of the art techniques for power system stabilizer tuning", by R.G. Farmer and B.L. Agrawal, IEEE PAS, Vol. PAS-102, No. 3, March 1983, p 708.
10. Discussion of paper #82 SM 309-3, "Tuning of stabilizers in multi-machine power systems", by S. Lefebvre, IEEE Trans. PAS, Vol. PAS-102, No. 2, February 1983, p 299.
11. Discussion of paper #82 SM 333-3, "Laboratory test and feasibility study of two countermeasures to sub-synchronous resonance", IEEE Trans. PAS., Vol. PAS-101, Nov. 2, February 1983, p 309.
12. Discussion of paper #82 SM 302-8, "Power system stabilizer applications in two-unit plant, analytical studies and field tests", by M.L. Crenshaw, J.M. Cutler, G.F. Wright and W.J. Reid, IEEE Trans. PAS, Vol. PAS-102, No. 2, February 1983, p 273.
13. Discussion of Paper #82 WM 006-5, "A novel approach to the torsional interaction and electrical damping of the synchronous machine-part I theory", by I.M. Canay, IEEE, Trans. PAS, Vol. PAS-101, October 1982, p 3639.
14. Discussion of Paper #82 WM 007-3, 1982, "A novel approach to the torsional interaction and electrical damping of the synchronous machine-Part II. Application to an arbitrary network", by I.M. Canay, IEEE Trans. PAS, Vol. PAS-101, October 1982, p 3644.
15. Discussion of Paper #82 WM 063-6, 1982, "Control algorithm for a static phase shifting

transformer to enhance transient and dynamic stability of large power systems", by R. Baker, G. Guth, W. Egli, and P. Eglin. IEEE Trans. Vol. PAS, No. 9, Sept. 1982, p 3532.

### **TECHNICAL BOOK REVIEWS, ENGINEERING STANDARDS CONTRIBUTIONS AND TECHNICAL PAPER REVIEWS**

1. Reviewed a technical paper, "A Fuzzy Logic Based Excitation Controller for a Stand Alone Synchronous Generator", Ismail H. Atlas, Journal of Intelligent and Fuzzy Systems; Editor Dr. R. Langarai, May 2006.
2. Reviewed a technical paper, "Optimal Design of Self Excited Cage Induction Generator Using Particle Swarm Optimization", Iranian Journal of Electrical and Computer Engineering, Feb 2006.
3. Reviewed a paper titled, "Improved Genetic Algorithm for Voltage Security Constrained Optimal Power Flow Problem", International Journal of Energy Technology and Policy (IJETP) Editor: Dr. Waldir Freitas, May 2006.
4. Reviewed a technical paper, "A Novel Approach for ATC Computation in Deregulated Environment", Editor: Dr. Lalit Goel, EPSR Journal of Electric Power Systems Research, May 2006.
5. Reviewed a technical paper, "A Novel DC link Voltage Control of PWM Switched Cascade Cell Multi Level Inverter Applied to STSTCOM", IEEE IAS Transactions, Editor: Dr. Urak Ozpineci, April 2006
6. Reviewed a Technical Paper, "Identification of Three Phase Transformer Abnormal Conditions Using Wavelet Entropy", W. Abu-Elhaija, M. Alomoush and A. AlZaban, IASTED-ACTA, Press Publications, May 2005.
7. Reviewed a Journal Paper, "A Novel Approach for ATC Computation in Deregulated Environment", Electric Power System Research EPSR, May 2005.
8. Reviewed a Journal Paper, "Performance Analysis of Self Excited Induction Generator using Artificial Neural Network", Iranian Journal of Electrical and Computer Engineering, Iran.
9. Reviewed a technical paper, "Design of a Fuzzy Logic Controller for a Radar Tracking System", I.H. Atlas and H.I. Okumus for the AutoSoft Journal, Editor International Journal on Intelligent Automation and Soft Computing.
10. Reviewed a technical paper, Giuseppe Tina, "Operation Planning Optimization for Small Size Integrated Generation Systems by Fuzzy Logic Based Management", IEEE Transactions on Energy Conversion, paper TEC-00196-2003.
11. Reviewed a technical paper "A Robust Adaptive Voltage and Speed Regulator for Multimachine Power Systems" by Francis A. Okou, Louis A. Dessaint and Q. Akhrif. CEEJ Canadian Electrical and Computer Engineering Journal Editor Dr. Ashoka K.S. Bhat, 2003.
13. Reviewed Draft Textbook "Energy Conversion and Motor Control", Pearson Publishers - Higher Education (Mr. A. Luengo, Editor, Toronto, Ontario, Canada).
14. Reviewed a technical paper for the International Journal Control & Power Editor Dr. M. Jamshidi, New Mexico, "On Efficient Variable Voltage Linear Power Supplies", by K. Natarajan.
15. Reviewed a technical paper for the Journal of King Saud University [Engineering Sciences] entitled "New Recursive Formulas for Eigenvalue Sensitivity Analysis", July 1996, Editor Prof. M. Alhaider.
16. Reviewed a technical paper entitled "A Fast and Accurate Load Forecasting System Using Fuzzy Logic and Neural Networks", by P.K. Dash and S. Rahman, Journal of Intelligent Systems, Editor Professor M.J. Wright.
17. Reviewed a technical paper entitled "Analysis and Implementation of a Tubular Motor with Halbach Magnet Array", for IEEE Transactions on Industry Applications" Electrical Machines Committee Editor IAS - Chairman Nady Boules, July 1996.

18. Reviewed a technical paper entitled "Dynamic Analysis of LCC-Type Parallel Resonant Converter Operating in Discontinuous Current Mode", Canadian Electrical and Computer Engineering Journal, Editor Prof. O.P. Malik (July, 1996).
19. Reviewed two papers for the IEEE-PES - Induction Machinery Committee Publications, Sept. 1994. Editor J. Glenn Karoly:
  - "Pseudo locked-rotor test for induction motor parameter measurement", by C.L. Chen, Y.N. Lin.
  - "Dynamic analysis of induction motors with saturable inductances", by J. Faiz and A.R. Serifi
20. Reviewed IEEE std 252-1994 "IEEE Test Procedure for Polyphase Induction Motors Having Liquid in the Magnetic Gap", Sponsored by the Electric Machinery Committee of the IEEE Power Engineering Society.
21. Reviewed two papers, December 1993 for the Canadian Electrical and Computer Engineering Journal
  - "An Expert System for Long and Short-Term Voltage Control and Loss Reduction in a Radial Distribution System", by J.R.P.R. Laframboise, A. Y. Chikani, G. Ferland, D.R. Smith and M.M. Salama"
  - "Modelling the Interaction of Multiple Small Harmonic Current Sources in an Isolated Power Distribution System", by R. Hudson, A.Y. Chikani, G. Ferland and D.R. Smith"
22. Reviewed twenty papers for the Int'l Power Electronics Conf., IPEC'93, Singapore, 1993.
23. Reviewed six papers for the 3rd International Symposium on Electricity Distribution and Energy Management, ISEDEM'93, October, 1993.
24. Reviewed eleven abstract papers for the IEEE Southeastern Symposium on System theory, March 20-22, 1994, Athens, Ohio.
25. Reviewed a paper entitled, "Intelligent Hierarchical Control of Traffic Networks" for the American Control Conference, ACC, 1994.
26. Reviewed two papers for the Canadian Electrical and Computer Engineering Journal
  - "Modeling the Interaction of multiple small harmonic current sources in an isolated power distribution system"
  - "An expert system for long and short-term voltage control and loss reduction in radial distribution systems"
27. Review of NSERC Operating, Equipment and Conference Grant Applications.
28. Reviewed and contributed to IEEE Guide "IEEE standard for the measurement of audible noise from overhead transmission lines", issued as a full standard by IEEE Standards Committee.
29. Contributed to the newly issued IEEE 519 Guidelines & Standards. Guide for Harmonic Control and Reactive Compensation of Static Power Converters, 1992.
30. Reviewed a number of NSERC - Canada Natural Sciences and Engineering Research Council Conference and research partnership application grants, during 1990, 1991.
31. Reviewed a textbook entitled "introduction to Electrical Science", by R. Findlay, Prentice Hall, Canada, Publishing company, Editor, D. Wolf.
32. Reviewed a technical paper, "Speed controller design of a vector-controlled permanent magnet synchronous motor drive with parameter variations", for IEEE-IAS Society, M. Rahman, Editor, September, 1990.
33. Reviewed a technical paper, "A procedure for the Design of Motor and Coupling for DC Servo Applications" by N. A. Shneydor, July 1989, IEEE, IAS, M. A. Rahman, IEEE T-C paper reviews.
34. Reviewed a technical paper, "A Novel Control Scheme for A Brushless DC Motor Fed From A Current Source Inverter: July 1989. IEEE, IAS, M. A. Rahman, Chairman, T. C. paper reviews.
35. Reviewed a technical paper, "The Protection of Broken Bars In The Cage Rotor of An Induction Machine" by N. M. EL Kasabgz. A. R. Eastham and G. E. Dawson, July 1989. IEEE, IAS, Editor, M. A. Rahman, Chairman, T. C. Paper reviews.

36. Reviewed a technical paper, "An interactive power system simulator with enhanced features", by A. Semlyen and D. Corovic, CECEJ, Editor O.P. Malik. (April 1989).
37. Reviewed a technical paper, "Microprocessor controlled tuned fault current limiter", by M. Salama, et al., The International Journal of Microcomputer Applications, Editor M. Hamza. (April 1989).
38. Reviewed a technical paper, "Microprocessor controlled tuned fault current limiter" by M. Salama, et al., IASTED Journal, Editor M. Hamza, March 1989.
39. Reviewed a technical paper entitled, "An interactive power system simulator with enhanced features" by A. Semlyen and D. Corovic, Canadian Electrical and Computer Eng. Journal, Editor O. Malik, March 1989.
40. Reviewed a technical paper, "Stability problem in induction motor drive systems", IEEE-IAS Transactions, IEEE-EMC Committee, Dec. 1988.
41. Reviewed a technical paper, "Design of a clamped series inverter for induction heating", CEEJ Journal, Editor O.P. Malik, Dec. 1988.
42. Reviewed a technical paper, "More exact method for determining the weighting matrix for micromachine laboratory implementation", IASTED Journal, Editor T. Teskey, Nov. 1988.
43. Reviewed a technical paper, "Steady state torque components of current-source inverter-fed induction machines by means of 1-2-0 coordinate system", IEEE IAS Committee, Nov. 1988.
44. Reviewed a technical paper "Single phase induction motor with an electronically controlled capacitor", by T.M. Lettenmaie, W. Novotny, T.A. Lipo, Electric Machines Committee, IEEE, 1988, EMC Committee.
45. Reviewed a book "The General Theory of AC Machines by R. G. Harely, Chapman & Hall, London, Editor Ms. M. Dunn, 1987.
46. Reviewed the Scientific Publication Grants Application for Natural Sciences and Engineering Research Council for the International Journal of Modelling and Simulation, February 1987.
47. Review paper # 87SM07 "Reduced order model for single and double cage induction motors during start up" for IEEE, IM Committee Chairman, S.B. Kuznetsov, 1987.
48. Reviewed a total of fifteen (15) papers for the first IEEE-Region 8 Conference on Power Systems in Developing Countries, Riyadh, Saudi Arabia, March 1987 (Conference Organizing Committee).
49. Reviewed a research project No. C3-1-3 for the West Virginia University Energy Research Center entitled "Active and reactive power modulation controllers for multi-terminal ac/dc power systems" by Dr. M.A. Choudhry, January 1987.
50. Reviewed a technical paper entitled "Analysis of the audible noise of three phase squirrel cage induction motors supplied by inverters", by R. Bellman, et. al. for IEEE Industry Applications Society IAS, Editor: Dr. D.W. Novotny, September 1986.
51. Reviewed proposed new textbook "Static power converters and their applications by M.H. Rashid, Purdue University, Publisher, J.S. Green, Longman House, Essex, England, May 1986.
52. Reviewed a research project for the Energy Research Center, West Virginia University, USA, proposal number D3-1, "Stability enhancement in multi-terminal AC-DC power systems", M.A. Choudhry, G.D. Galanis, December 1985.
53. Reviewed a technical paper for Canadian Electrical Journal CEEJ, Editor Dr. V. Ramachandran, Nov. 1985, "Long term operation of series-parallel reservoirs for critical period with specified monthly generation", by S. A. Soliman and G. Christensen.
54. Reviewed a technical paper for the IEEE, PES Engineering Society, September 1985, "The concept of figure of merit applied to protection system coordination", by J. Juves, R. Johnson, E. Mayer, S. Waters.
55. Reviewed a Research Project for the Energy Research Center, West Virginia University, USA, proposal number 7 - Power Electronics Research Center, August, 1985.



56. Reviewed a new text book, "Principles of electric machines with power electronics applications", by M. El-Hawary, Reston Publishing Company, Editor: Mr. E. Ennamorati, May 1985, to be published in 1986.
57. Reviewed a technical paper for Canadian Electrical Engineering Journal CEEJ, Editor: Dr. V. Ramachandran, May 1985, "New analytical approach for long-term optimal operation of a parallel multiservoir power systems based on functional analysis".
58. Reviewed technical paper for Canadian Electrical Association Journal DEEJ, Editor Dr. Ramachandran, Nov. 1985, "New analytical approach for long-term optimal operation of a parallel multireservoir power system Based on Functional Analysis" by /G.S. Christensen and S.A. Soliman.
59. Reviewed technical paper #W85-12 for IEEE PES Committee September, 1984, "Decomposed, reduced order model of double cage induction machines".
60. Reviewed technical paper #W85-11 for IEEE PES Committee September 1984, "Speed control system for brushless cascade induction motors in control range  $S_1 \geq 1$ ,  $S_2 \geq 1$ ".
61. Reviewed technical paper for the International Association for Science and Technology for Development IASTED, February 1984, "Digital computer simulation and modulation of multi-terminal hvdc systems", by M.A. Choudhry and A.S. Emarah. Editor: Dr. M. Hamza, Publisher: ACTA Press, Calgary, Alberta, Canada.
62. Reviewed technical paper for Canadian Electrical Engineering Journal CEEJ, November 1983, "Optimum load frequency control of multi-area interconnected power systems", by A. Abdel-Halim, G. Christensen, D. Kelly. Editor: Dr. V. Ramachandran, Publisher: CSEE Canadian Society of Electrical Engineers, Montreal, Canada.
63. \*Reviewed and contributed to the CEA Distribution Manual, "A guide for ferroresonance, harmonics and inductive coordination in distribution systems", (Issued to Canadian Electric Utilities 1982). Guide issued to Canadian and North American Electric Utilities.
64. Reviewed the "IEEE hvdc harmonic induction test system", Dr. F.S. Prabhakara for IEEE Working Group 05.09, (To be issued).

\* Contributions to Books, Standards, Guidelines

### **SABBATICAL LEAVES & VISITING PROFESSORSHIPS**

1987-1988	Visiting Professor and Research Fellow, Kuwait University, Kuwait
1992-1993	Visiting Professor and Research Fellow, Nanyang Technological University, Singapore
1995-1997	Self Directed 20-Month leave (without pay) Research and R&D Development of patents of Novel Environmental and Energy Efficient Devices (Egypt, UAE, Canada)
1996-1997	Visiting Professor and Department Chair, Collaborative Research, United Arab Emirates University, Al-Ain, UAE
1998-2000	Visiting Professor and EE Department Chair, United Arab Emirates University, Al-Ain, UAE
2003 (6 months)	July 1-December 31, 2003 - Egypt (Helwan and Menofia Universities)
2007 (6 months)	July 1-December 31, 2007 – Egypt and Canada ( <u>applied</u> )

## **RESEARCH – LEAVE OF ABSENCE (without pay)**

- i. September 1998-June 2000  
Self directed leave of absence without pay. Research R&D in electric energy efficiency enhancement devices and electromagnetic based environmental devices, as well as Chair, Department of Electrical Engineering, United Arab Emirates (UAE, Egypt, Canada).
- ii. September 1, 1995 - May 31, 1997 ;(20 months)  
Self directed leave of absence without pay to develop a number of patented R&D environmental devices for Sharaf Energy Systems Inc of Fredericton, NB, Canada.

## **CURRICULUM CONSULTANT & REVIEWER EXAMINER**

- a. External Reviewer for DSC Award for Professor Dr. P.K. Dash, awarded by Controller of Examinations Utkal University, Indian, May 2003.
- b. Registered IEEE Reviewing for PES Publications (toward, PESL, and Central Publications).
- c. External Reviewer/Referee - Promotion for Dr. Andrew M. Knight from Assistant Professor to Associate Professor, August 2002, ECE, University of Alberta.
- d. External Reviewer/Referee - Promotion for Dr. D. Thukaram from Associate Professor to Full Professor, August 2002, Indian Institute of Science, ECE Department, Bangalore, India.
- e. External examiner and program consultant for the Universiti Sains Malaysia, Perak, Malaysia.
- f. Curriculum consultant for Electrical Engineering, Kuwait University.
- g. Curriculum consultant and academic examiner for Ain Shams, Menofia and Assuit Universities, Egypt.
- h. Curriculum development, "Knowledge Technology Program" NBCC Miramichi, NB new program.
- i. Referee, Faculty Promotion, King Saud University, Riyadh, Saudi Arabia.
- j. Curriculum and program consultant, UAE University, United Arab Emirates (1995, 1996).
- k. Referee, faculty promotion - Sultan Qaboos University, Muscat, Oman.
- l. Reviewed faculty promotion of Dr. D. Thukaran's promotion from Associate Professor to Full Professor, Indian Institute of Science, Bangalore, India (Chair/Head - Dr. H.P. Khincha).

## **COLLABORATIVE RESEARCH AND JOINT RESEARCH DEVELOPMENT**

1. Collaborative Research with Egyptian Universities (Cairo, Ain-Shams, Mansoura, Tanta, Menofia, Assuit).
2. Collaborative Research with Helwan University on renewable/sustainable electric energy systems.
3. Collaborative Research with Universities of Waterloo and Lakehead, Ontario Canada.
4. Research collaborations, Electrical Engineering Department, with Professors Hill, Smolinski, Burrige, Tranquilla, Luke, Doraiswami. This collaboration resulted in joint research contracts and a number of published refereed papers as well as graduate student co-supervisions.
5. Research collaboration with mechanical Engineering Department, Professors Venart and Sousa. Resulted in a number of strategic research submissions and research contract applications in the area of energy conservation and efficiency enhancement.
6. Research Collaboration with Cairo, Helwan and Menofia Universities in Egypt in Renewable Energy PV and wind utilization for new remote communities.

7. Research Collaboration, U.A.E. University, United Arab Emirates, 1995-1997, 1998-1999.
8. Research Collaboration & R&D development with Electronics Research Institute ERI Cairo, Egypt, Ministry of Scientific Research, 1995.
9. Research Collaboration with University of United Arab Emirates, Al-Ain, 1995-1996.
10. Technical consulting and research collaboration on A.I. technologies (fuzzy logic and neural network applications) in power systems, control protection and motor drives, Nanyang Technical University, NTU, Singapore 1992-1993.
11. Collaborative Research with Ain-Shams, Mansoura and Menofia Universities, Egypt on A.I. applications in electric power systems and renewable wind energy utilization.
12. Technical University of Delft-TU, The Netherlands, June-August, 1990. Research on "Expert system based power system stabilizers".
13. Menofia University, August 1990. Collaborative Research on renewable wind and solar energy utilization.
14. Royal Institute of Technology KTH, Stockholm, Sweden, 1989. Research on "Harmonic Instability In Interconnected HVAC/DC Systems.
15. Kuwait University, Kuwait, 1988, Research on efficient motor drives, solar systems interfacing and curriculum development.
16. ASEA-Brown Boveri, Baden, Switzerland, 1988, Consulting on "Field Acceleration Method FAM-voltage controllers for asynchronous motor drives".
17. ASEA-Brown Boveri, Baden, Switzerland, 1987, Consulting on "FAM-current controllers for asynchronous motor drives".
18. Kyushui Institute of Technology, Tobata, Japan. Consulting in microcomputer controlled motor drive systems, August 1986.
19. CRIEPI, Central Research Institute of Electric Power Industry, Japan. Consulting on Integrated AC-HVDC Systems Control and Protection, from June-August 1986.
20. Canadian Electrical Association, from July, 1985 to January 1986, Consulting on power system harmonics and harmonic standards development, Contract 415-0474, Final report with Hill, Smolinski and Luke.
21. Brown Boveri & Company, Baden, Switzerland, (July-August 1984). Technical consultations on harmonic over voltage instabilities in interconnected AC-HVDC power systems.
22. New Brunswick Electric Power Commission NBEPCC (June-August 1983). Technical consultations on negative-sequence over-voltages and harmonic interference problems.
23. New Brunswick Electric Power Commission (May-August 1982). Technical consultations on Techniques in power system simulation, tuning of excitation-control systems, over-voltages and harmonics interference.
24. Registered member of the IEEE Standards Activities Office

**SPONSORED NATIONAL/INTERNATIONAL ENGINEERING COURSES,  
SEMINARS & WORKSHOPS**

- I. Soft Computing, "A.I. Applications in Power Systems",. Seminar, UAE IEEE/Professional Engineers, United Arab Emirates, 1999.
- II. "Power Quality Problems and Solutions", invited Seminar/Workshop, Mansoura University, Egypt, June 1995.
- III. "Renewable Energy (wind, PV) Schemes for Developing Countries", invited Seminar/Workshop, Assuit University, May 1995.
- IV. "A.I. Applications in Power Industry and Electrotechnical Systems", Seminar/Workshop, IEEE, Singapore Section, June 25, 1993.
- V. Power System Harmonics and Power Capacity Workshop (3 days) sponsored by Canadian Electrical Association, 1990.
- VI. Power System Harmonics Workshop (3 day course) sponsored by Canadian Electrical

- Association, 1989.
- VII. Power Systems Planning & Harmonics Seminar, 2 days, Kuwait University, Kuwait, 1988.

### INVITED LECTURES AND SHORT COURSES

1. Invited Lecture, "Wind Energy Stand Alone Utilization Schemes", Arab Conference on Energy, October 5, 6, 2005, Cairo, Egypt.
2. Invited Lecture, "Electrotechnology in Energy and Environment, Acadia University, Wolfville, NS Canada, April 2005.
3. Invited Lecture, "Novel High Impedance Arc-Fault Detection and Relaying Schemes", Menofia University, Egypt, December 2003.
4. U.A.E. University, United Arab Emirates, "ANN based power system stabilizers", Invited Lecture, 1996.
5. Nanyang Technological University, NTU and IEEE-Singapore Chapter, Singapore. Invited speaker - Seminars on fuzzy logic and rule based control applications in motor drives and renewable energy systems, 1992.
6. Ain Shams University, Menuofia University, Assiut University, Invited Speaker, December 1991 - January 1992 and July 1993.
7. Technical University of Delft-TU, The Netherlands, June 1990 - August 1990. Presentation/Workshop, "Expert system based power system stabilizer designs", August 16, 1990.
8. Royal Institute of Technology KTH, Stockholm, Sweden, May - June 1989. Two Presentations:
  - (i) Static Phase Shifter Applications In Power System Stability Enhancement.
  - (ii) "Wind Energy Interface Schemes for The Induction Generators."
9. ASEA Brown Boveri, July 1987, July 1988, three seminars.
  - (i) FAM-field acceleration methods for control of asynchronous motors.
  - (ii) Wind-energy schemes utilizing the asynchornous (induction) generators.
10. Kuwait University, 3-day Workshop, April 1988, "Power system planning & operation", Kuwait University Sponsored Course for Utilities Practicing Engineers.
11. Kuwait University, March 1988, a seminar entitled "Controller schemes for wind energy conversion using induction generators".
12. Kuwait College for Technological Studies, Kuwait, Feb. 1988, two seminars.
  - (i) FAM-field acceleration method principles.
  - (ii) Application of fan-current controller to asynchronous motor drives.
13. King Abd-Aziz University, December 1987, a seminar entitled "Wind energy conversion schemes".
14. Warsaw Institute of Technology-Power Electronics Department. Seminar on "Effective control designs for wind energy interfacing, June 1987.
15. Kyushui Institute of Technology, Tobata, Japan, two seminars on
  - (i) "Digital implementation of robust linear multivariable controllers for current fed induction motor drives", August 6, 1986.
  - (ii) Modelling, Design of induction generator based wind energy scheme, August 6, 1986.
16. Central Research Institute of Electric Power Industry CRIEPI, Japan, two seminars on
  - (i) "Electric power industry in Canada", August 21, 1986
  - (ii) "Applications of static phase shifters in power systems", August 21, 1986.
17. Seminar on "Negative sequence problems - causes and effects", Presented twice to NBEPC Engineering staff, September and October 1983.
18. Presented a short course to New Brunswick Electric Power Commission, NBEPC, - Training School, "High voltage direct current transmission", June 18-22, 1982.

19. Seminar on "Harmonic instability in integrated HVDC-AC Systems", BBC Brown Boveri & Company, August 20, 1984, Turgi, Switzerland.

### **CURRICULUM UPDATING AND COURSE DEVELOPMENT AT UNB**

1. Updated and modified the new Drexel Model-Engineering Freshman Lab I course for engineering students at UAE University.
2. Developed a new senior course "Special Topics in Power Systems Engineering" UAE University, United Arab Emirates, 1996.
3. Developed a new course, EE3633 "Electric Machines" for the Electrical Engineering, Computer Option.
4. Updated Electric Machines and Electrical Engineering course EE3611, EE3622 and EE2683 mainstream Electrical Engineering students.
5. Developed two new courses in High Voltage Direct Current Transmission HVDC, EE6473, EE6483.
6. Developed a new course, Solid State Power Modulators, EE6623.
7. Developed a course in Rectifiers and Inverters, EE4652.
8. Developed a new course "Electric Machine Dynamics" EE6613, as a senior technical elective and graduate level course.
9. Modified and updated a course in "Electrical Design' EE4641.
10. Updated a technical elective course in "Power System Operation" EE4422.
11. Developed two new graduate courses: Design and Control of Low Voltage Electric Circuits (EE6633); and Transients in Electric Power Circuits (EE6643).
12. Developed two training workshop courses for electric utility practicing engineers (Kuwait, Canada): harmonic and reactive compensation on electric utility systems; and harmonics, sources, effects and mitigation.
13. Developed a new graduate course "AI Applications in Electrotechnical and Electric Power Utility Systems", introduced September 1995.
14. Developing a new project based learning (PBL) technical elective course, EE4653, Power Electronics, Winter term 2004..
15. Developed two project based learning courses (PBL) EE4411, EE 4422.
16. Developed two graduate project based learning courses – EE6633, EE6644 "Design of Low Voltage Systems" and "Electric Transients in Power Systems"– Project Based Learning format.

### **TEACHING and COURSE DEVELOPMENT**

#### **Undergraduate Courses**

1. Power Systems Analysis course and special topics in power systems, UAE University; taught two technical elective courses.
2. Electric Machines courses (U. Of Manitoba, 24-352; UNB EE3611, EE3622, EE3633).
3. Rectifiers and Inverters (EE 4652).
4. Electric Circuits (EE1713).
5. Power System Operation (EE4422).
6. Electrical System Design (EE4641).
7. Electric Circuits and Machines (for non-electricals) (EE2683).
8. Electric Circuits (E2001, NTU, Singapore).
9. Electric Machines, Power Systems & Power Electronic Courses (Kuwait 1988).
10. Power Electronics (EE4653).
11. Electrical Engineering for Non-Electrical (EE2683).

#### **Graduate Courses**

1. High voltage direct current transmission I, II (EE 6473, EE 6483).
2. Power modulators (EE 6623).

3. Design and control low voltage electric circuits (EE 6633).
4. Transients in electric power circuits (EE 6643).
5. Rotating machine dynamics (EE 6613).
6. Power system load flow studies and transient stability (EE6443, EE 6445).
7. Power system transients (EE 6633).
8. Load flow and power system stability (EE6443, EE6453).
9. Power system protection (EE6433).
10. Power system dynamics (EE6463).

**\*\* INVENTIONS (Canada, Egypt, U.A.E.)**

(\*\* Prototypes are awaiting marketing and patenting)

1. Smart electrical energy economisers/misers and Green Plug. Switched power filters for air conditioning and inrush current-motorized mechanical loads.
2. CNG/diesel/gasoline electromagnetic polarization fuel misers polarizers, ionizers.
3. Electrical energy miser/saver for residential and commercial buildings (5 $\phi$ , 2 $\phi$ , 3 $\phi$ , -3 $\omega$ , 3 $\phi$ , -4 $\omega$ )
4. Water germicidal and disinfectant units for residential, commercial and industrial applications with cyclical loads.
5. Zeolite based exhaust gaseous adsorption filters and mufflers for ICE - engines and air filtration systems.
6. Harmonic based insect/rodent repellent systems for agricultural and warehouse storage use.
7. Skin magnetic germicidal therapeutic systems.
8. Magnetic disinfectant systems for meat/poultry/milk and food processing industry (e-coli, coliform, cysts, etc.).
9. Smart power modulated filters for power factor/power quality (PQ) enhancement.
10. Electric fire hazard warning relay for commercial/residential systems using waveform distortion.
11. Magnetic belt (magi/belt) for weight loss and weight control.
12. A Novel desert (combined evaporation germ disinfectant) water cooling system for potable water tanks.
13. Electric machines (harmonics/power quality, PQ) monitoring system and relaying.
14. Novel pattern based electric utility distribution/utilization protection relaying schemes for HIF/Arc (high impedance faults) faults.
15. Fish attraction - beacon - systems using EM/ES ripple fields.
16. Biofilter and germicidal control using EM/ES/UV field technology.
17. EM/ES/UV surgical disinfection systems.
18. Foot power electrostatic/electromagnetic electricity source.
19. Three phase, four wire (3 $\phi$  - 4w) Neutral Current Trap (NCT) for electric fire sentry and shock voltage reduction (residential/commercial/milk farm applications).
20. Smart Modulated-Active Power Filter and Green Plug for household residential and commercial applications.

**UNDERGRADUATE SUPERVISION & SENIOR THESIS PROJECTS**

- 2005 "EM/EM/ES Excited Gaseous Adsorption Zeolite Based Automotive Muffler Filter for Sox, Nox, CO and CO<sub>2</sub> Gaseous Adsorption" – Samer Arkhagha.
- 2005 "Household Green Plug: Modulated/Switched Dynamic Filter Capacitor Compensator for Energy Efficiency and Savings" - Rene Rioux. (Energy Ambassador Award 2005)
- 2005 "A Novel Foot Power Generator Using EM/ES Variable Reluctance Piezo Electric Energy Storage System" - Paul Lennox and Martin Robichaud.

- 2005 2 students “Electric Foot Power Generator (EFPG)”.
- 2004 Jehad Gader, “ELFS Electric Load Fire Sentry”
- 2004 Perry Jason Hughes, “EM/ES Electromagnetic/Electrostatic Zeolite Based Biofilter”
- 2003 Xuesong Nie, “Electrical Energy Miser/Economiser (Green Plug)”
- 2002 Raman Verma and Boris Kosanic, “Photovoltaic Energy Conversion Schemes”
- 2000 Andrew Griffith, “EM/EM/ES Desalting Descaling Water Filter”
- 1998 5 students, “an Electromagnetic/Electrostatic Desalting/Descaling Irrigation Well Water Filters”, UAE University
- 1998 5 students, “Smart Power Quality Based Relaying Schemes”, UAE University
- 1997 5 students, “Neurofuzzy Controllers for Industrial DC Motor Drives, UAE University
- 1996 5 students, “Smart Electrical Modulated Electric Power Filters and Energy Economizers Misers, UAE University, EE Department
- 1995 “Electromagnetic Based Germicidal Unit for Potable Water Filtration, UAE University
- 1994 2 students, “A High Power (500W-5000W) Commercial Rodent/Insect Repeller for Warehouse and Agricultural Use (UNB)
- 1992-1993 Sabbatical Leave (Singapore) (no senior thesis supervision)
- 1991 4 Students: “Application of Optimization Techniques in Power Systems Filter Design”; and “Expert System Failure Diagnostics for Induction Motor Drives.
- 1990 (total 10 students)
  - Solar Photovoltaic powered air conditioner (2 students).
  - Electric radiant heating mat design and control (2 students)
  - Dynamic models of power system components (1 student)
  - Loss identification using three phase adaptable load flow program for radial electrical networks (2 students).
  - Design of a MOSFET battery charger (1 student).
  - 3 Phase load flow software development (2 students).
- 1987 (5 students)
  - Paul Carrol, “Microprocessor based induction heating system”.
  - Tom Hicks “A microprocessor based controller for a single phase induction motor”
  - Jeff Stewart, “Signal acquisition and control”.
  - K. Lau, “An efficient PID microcomputer based controller for the three phase induction motor”
  - V. Green, “Microcomputer based efficient induction heating system”.
- 1986 (11 students)
  - Idowu O. Adelbubi, “Efficient microprocessor based voltage controller for low power induction motor”
  - Greg Anderson, “Microprocessor based efficiency enhanced controller for an electric home heating system”
  - Gary Bouzanne, “Harmonic modelling of AC machines”.
  - Pierre O. Chiasson, “Microprocessor based controller for residential electric heating system”.
  - G. Howard, “Energy management study at a small industrial plant”.
  - Rejean Lanteigne, “Microprocessor based efficiency controller for an electric home heating system”.
  - Canh Le, “Microprocessor based single phase induction motor efficiency control”
  - Marc LeBlanc, “Microprocessor based controller for residential electric heating system”.
  - Eric Martin, “Harmonic modelling of AC machines”.
  - Tai Quach, “Microprocessor based single phase induction motor efficiency control”.
  - King Sung Wong, “Software development for microprocessor based temperature

- controller".
- 1985 (2 students)
  - G. McFarlane, "Microprocessor controlled firing circuit for AC variable speed drive systems".
  - R. Savard, "Microprocessor digital controller for a variable speed synchronous motor drive".
- 1984 (3 students)
  - M.C. Thomas, "Harmonic model estimation techniques".
  - R.J. Tremblay, "Microprocessor control of DC motor".
  - A.N. Larlee, "Transient stability improvement in power systems using modulated resistance and reactance".
- 1983 (3 students)
  - R.T. Gagnon, "A digital controller design for static phase shifters".
  - H.C. Spyrou, "Use of capacitors to improve the voltage profile of a feeder".
  - J.F. Steynor, "Applications of microprocessors in speed control of AC motors".

**National Student Competition Awards** (students supervised): \*

1. Rene Rioux, "The Household Electric Green Plug", recipient of a 2005 NRC Canada Energy Ambassador Award, Ottawa, Ontario.
  2. Robert LeBlanc, "The Energy Economizer-DSM Management Scheme", recipient of a 2006 NRC Canada Energy Ambassador Award, Vancouver, March 2006.
- (\* Note: Both designs are based on Dr. Sharaf's inventions.)

**GRADUATE THESIS SUPERVISION (Total 40)**

**(A) Supervised a total of 28 M.Sc. and M.Eng. students since joining Academia in 1981**

1. Senaka Jayawardhane, "Novel Stand Alone Small Hydro Renewable Energy System", M.Eng. Report, UNB October 2005.
2. Liang Zhao, "Stand Alone Wind Energy Utilization Scheme and Novel Control Strategies", M.Sc.E., UNB, May 2005.
3. Liang Yang, "Low Cost Stand Alone Renewable Photovoltaic/Wind Energy Utilization Schemes", M.Sc.E., UNB, May 2005.
4. Senaka Jayawardhane, "Novel Stand Alone Small Hydro Renewable Energy System", M.Eng., UNB (pending).
5. Bo Yin, "Dynamic Filter Compensator Schemes for Monitoring and Damping Subsynchronous Resonance", M.Eng., UNB, September 2004.
6. Guosheng Wang, "Novel Control Strategies and Interface Converters for Stand Alone Wind Energy Conversion Schemes", M.Sc.E., UNB, May 2004.
7. Subramanian Kanthi Murugan, "Novel Switched Dynamic Power Filter/Voltage Compensator for Distribution/Utilization of Non-Linear Loads", M.Sc.E., UNB, May 2004.
8. Syed Saleem, "Artificial Intelligence (AI) based Detection Schemes for Arc-type High Impedance Faults", M.Sc.E., UNB May 2004.
9. P. Kreidi, "Electric Power Quality Harmonic Reduction and Energy Saving Using Modulated Power Filters and Capacitor Compensators", M.Sc.E., April 2003, University of New Brunswick
10. A.R.N.M. Reaz Haque, "Novel Maximum Power Tracking for Photovoltaic Energy Utilization Schemes", M.Sc., UNB November 2004.
11. Amir Nourizi, "Flexible ACV Transmission Systems: Theory, Control and Simulation of the STASTCOM and SSCC", M.Sc.E., University of New Brunswick, April 2003
12. R. Chalet, "Single Phase Adjustable Power Filter for Motorized Nonlinear Loads", MScE 1998, The University of New Brunswick.



13. Caixia Guo, "Self-Adjusting Power Filter for Industrial Nonlinear Loads", MSCE, 1997, The University of New Brunswick.
14. R. B. Griffith, "Ultraviolet electromagnetic (UV/EM) enhanced germicidal unit, M.Eng., May 1997, The University of New Brunswick in collaboration with Civil Engineering Dept..
15. M. R. Dehbozorgi, "Smart modulated passive filter" Sept. 1995, The University of New Brunswick.
16. M. Pothier, (with Prof. D.M. Luke) "Analysis and design of FAM and chopper based controllers for induction motor drives", May 1993, The University of New Brunswick.
17. M. Wang, "DC (AC) motor drive system using photovoltaic source", MSCE, October 1992, University of New Brunswick.
18. Y. Farag, "An expert system software for planning loss minimization of electric utility radial distribution feeders", October 1992, University of New Brunswick.
19. M.M. Halim, "A universal power semiconductor converter scheme", MSCE, January 1991, University of New Brunswick.
20. M.K. Fahim, "Design and simulation of a PWM inverter for induction motor drive control applications", MSCE, January 1991, University of New Brunswick.
- 21.\* Mr. M. Ryan, "Induction motor modelling and control for efficient power/energy operation", M.Eng., May 1988, Kuwait University.
22. Mr. Y. Yao, "A General Analysis For the Harmonics Generated By Line-Commutated Power Convertors" University of New Brunswick, M.Sc., May 1987.
23. Mr. S. Naganathan, "Microprocessor control of wind driven squirrel cage induction generator", University of New Brunswick, January 1986.
24. Mr. P.L. Gokul, "Microprocessor based protection of variable speed drives", University of New Brunswick, January 1986.
25. Mr. A. Saxena, "Design, simulation and implementation of a lqg controller for a synchronous motor drive", M.Sc., University of New Brunswick, September 1985.
26. Mr. R. Prakash, "Design and implementation of a digital optimal controller for an induction motor drive system", University of New Brunswick, M.Sc., August 1985.
27. Mr. Y. Xu, "Microprocessor-based control of a solid state variable speed dc motor to be finalized as a complementary course with the Faculty of Computer Science (Dr. B. Nickerson). drive system fed from a thyristor controlled six-pulse converter", University of New Brunswick, M.Sc., June 1985.
28. Mr. S. Sivakumar, "Power system control applications of static phase shifters", University of New Brunswick, M.Sc., July 1983.

\* Sabbatical Leave - Kuwait University, E.E. Dept. M.Sc. Supervision

**(B) Supervised a total of 12 PhD students since joining Academia in 1981**

1. Mohamed Shawki El-Moursi, "Flexible AC Transmission FACTS Technology and Novel Control Strategies for Power System Stability Enhancement", Ph.D., UNB May 2005.
2. \*\* A M Hemeida, "Power System Transient Stability Enhancement Using Novel Control Strategies", Ph.D., July 2000. Assiut University, Egypt Academic Link - Joint Academic Channel.
3. \*\* E.A. Ibrahim, "Advanced Control Techniques Based Power System Stabilizer", Ph.D., July 1996, Assiut University, Egypt, Academic Link - Joint Channel.
4. Timothy Little, "Optimal use of energy storage for wind/diesel grid", Ph.D. (Cosupervised with Dr. R.E. Burrige), Nov. 1995, The University of New Brunswick.
5. \*\* Gaber El-Saady Taha, "New techniques for controlling three phase induction motors", Ph.D., May 1995, Assiut University, Academic link with Egypt.
6. \*\* H.M. Mashaly, "MicroComputer based artificial intelligent control strategies for wind and photovoltaic solar energy conversion and utility interface schemes", Ph.D., Dec.

- 1994, Ain-Shams University - Academic Link with Egypt.
7. \*\* F.M. El-Khouly, "Speed and position digital control strategy for direct current motor drives and robotic manipulators", Ph.D., Dec. 1994, Menuofiya University, Academic Link with Egypt.
  8. I. Helal, "A fuzzy logic based model for power system reliability evaluation", Ph.D., May 1995, University of New Brunswick, Joint Supervision with E.F. Hill.
  7. \*\* Hussein Fahried El-Sayed Soliman, "Adaptive and predictive A.I. based control for DC motors", PhD, August 1994, Ain Shams University - UNB Academic Channel Link.
  8. Ismail H. Altas, "Control strategies for maximum power tracking and energy utilization of a stand-alone photovoltaic energy system", PhD, May 1993, The University of New Brunswick.
  9. Rohin M. Hilloowala, "Control and interface of renewable energy systems", PhD, December 1992, The University of New Brunswick.
  10. \*\*Ezzel-Din S. Abdin, PhD, "Microprocessor control of wind driven induction generator", Menoufia University, Academic Channel with the Republic of Egypt, Dec.,1988.
  11. Mr. H.G. Hamed, PhD, "Microcomputer control of current-source inverter fed synchronous motor drive system", University of New Brunswick, March 1987.
  12. Mr. S. Sivakumar, Ph.D., "Analysis, design and digital implementation of energy efficient multivariable controllers for current source inverter fed induction motor drives", University of New Brunswick, December 1986.
- \*\* Academic-Channel Link Agreements with Egyptian Universities.

#### **GRADUATE STUDENTS ACCEPTED and/or CONFIRMED Sept 2006**

1. A.S. Maged Eldeib, PhD
2. Mohammad Reza Hesamzadeh, PhD
3. Yasser Ibrahim, PhD
4. Hassan Ali Mahasneh, PhD
5. Houssen Salh Ali Milad, M.Sc.E.
6. Abalbaset Mnider, M.Sc.E.
7. A. Hassan Yakout, PhD

#### **GRADUATE STUDENTS CURRENTLY UNDER SUPERVISION**

1. Khaled M. Abo-Al-Ez, M.Sc.E. (ongoing)
2. Atif Saleem, Ph.D. (ongoing)
3. Pierre Kreidi, Ph.D. (ongoing)
3. Hozouri, Ali, PhD, Jan 2003 (ongoing)
4. Abdulalah Aljankawey, M.Sc.E. (ongoing)
5. E. Salem Elbakush, PhD. (ongoing)
6. W. Wang, M.Sc.E. (ongoing)

#### **VISITING PROFESSORS, SCHOLARS - INTERNATIONAL COLLABORATIVE RESEARCH**

- i) Mr. Y. Chen, 1983, China
- ii) Professor P.K. Dash, 1986, India
- iii) Professor R.D. Begamudre India - now a NB Resident retired Professor
- iv) Professor P.K. Dash, 1989, India
- v) Dr. M. Abu El-Magd, Visiting Professor, Cairo University, August 1993
- vi) Prof. A. Abd Sattar, Ainshams University, Cairo, Egypt, Sept, 1993
- vii) Dr. M. Mansouer, Ainshams University, Cairo, Eypgt, Sept 1993
- viii) Dr. A. Shebl, Menofia Unviersity, Egypt, Sept-Oct, 1993
- ix) Drs. A. Shebl and S. Shokralla, Visiting Professors, Egypt Academic Channel, Menofia University, July-Sept 1994 (Egyptian Government Sponsorship)
- x) Professor Dr. S. A. Kandil, Ainshams University, Cairo, Egypt, April-May 1994

- xi) Prof. Dr. M. El-Sadek, Assuit University, July-Aug 1999.
- xii) Dr. Ismail Altas, Turkey, June 2006.

## SERVICES AS M.Sc. & PhD EXTERNAL AND INTERNAL THESIS EXAMINER & REVIEWER

1. "Power Systems Transient Stability Software Using Object-Oriented Design and Component-Based Development Methodology", Mr. Hadi Syuono, PhD, University of Malaya, Malaysia, May 2006.
2. "Load Flow Analysis and Planning of Radial Distribution Systems – A New Approach of Load Modelling Load Forecasting and Feeder Planning", Mr. Ashvini Chaturvedi, PhD., Multimedia University, Malaysia, Feb 2006.
3. "Power System Planning for Bhutan 2006-2020", Mr. Kinlay Dorjee, M.Eng., Jan 2006.
4. "A Unity Power Factor Three Phase Controlled Rectifier", Eka Firmansyah, M.Sc., Nanyang Technological University, Singapore, May 2005.
5. "Techniques for Power Quality Assessment and its Control", Mr. Ranjan Kuman Jena, PhD., Sambalur University, Orissa, India, May 2005.
6. "Damping of Inter-area and Torsional Oscillations Using Facts Devices", Ph.D., Mr. Amer Adel Eldamaty, University of Saskatchewan, May 2005.
7. "Some Aspects of Voltage Stability Improvement in Planning and Operation of Power Systems", Ph.D., Mr. K. Visakha, India Institute of Science, Bangalore, India Aug 2004.
8. "Techniques for Power Quality Assessment and Its Control", Ph.D., Mr. Ranjan Kumar Jenna, Sambalpur University, Jyoti Vihar, India.
9. "A Unity Power Factor – Three Phase Controlled Rectifier", M.Sc.E., Mr. Eka Firmansyah, Nanyang Technological University, May 2005.
10. "Vibration Control of Flexible Structure", M.Sc.E., Mr. Ruogu Wang, UNB, April 2005.
11. "Development of an Integrated Wind Turbine Controller", M.Sc.E., Mr. Jiyong (John) Lian, May 2005.
12. "Study of Bilateral Contracts in a Deregulated Power System Network", PhD, Mr. Ashikur Rahman Bhuiya, University of Saskatchewan, January 2004.
13. "Digital Protection and Artificial Intelligence Applications to Power Systems", D.SL, Prof. Dr. P.K. Dash Award of D.Sc. Degree, Utkal University, India, May 2003 (Regd. No-1-DSc (Electrical Engineering)).
14. "A Novel MRAS-Based Adaptive Observer for Sensorless Induction Motor Drives", PhD, Mr. Hossein Madadi Kojabadi, April 2003.
15. "A current-regulated voltage controlled scheme for DC to AC voltage-source static power supplies", Mr. Naser M.B. Abdel-Rahim, Ph.D., June 1995, Memorial University of Newfoundland, Canada.
16. "Power System Stabilizer Based on Fuzzy Logic", Mr. K.A.M. El-Metwally, PhD, June 1994, Calgary University, Calgary, Alberta, Canada.
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23. "Design and implementation of a real-time knowledge-based controller", by J. Jiang,

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  25. "Random superharmonic and subharmonic response of a duffing oscillator", Srivatsa Rajan, Ph.D., May 1987.
  26. "Optimal digital control systems analysis and design", C. Diduch, University of New Brunswick, Ph.D., March 1987.
  27. "A position control system with disturbance rejection using sliding mode", Mr. Mudit Kumar, McGill University, M.Sc., 1986 (External Examiner)
  28. "On the analysis of nonlinearities in power electronics circuits", Mr. Peter Sutherland, University of New Brunswick, M.Sc.E., 1986.
  29. "Optimal economic dispatch via a decomposition - coordination approach", Mr. M. Mobarak, University of New Brunswick, Ph.D., May 1986.
  30. "Optimal reactive power scheduling", Mr. O. Obadina, University of New Brunswick, M.Sc.E., Sept. 1983.
  31. "Microprocessor-based distance protection by transmission lines", Mr. B. Jeyasurya, University of New Brunswick, Ph.D., September 1983.
  32. "A microprocessor-based measuring instrument for investigation of the harmonic content of 3-phase ac systems", Mr. M. Bin Awan, University of New Brunswick, M.Sc.E., 1983.
  33. "An on-line two stage system identification scheme using time-varying filter", Mr. J. Jiang, University of New Brunswick, M.Sc.E., 1983.
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#### **INTERNATIONAL UNIVERSITY & INDUSTRY RESEARCH LINKAGE**

1. Consulting Services, Neill and Gunter Inc., Fredericton, NB Canada 2005.
2. Established a University-wide Academic Link with Helwan University, Cairo, Egypt, March 2003.
3. Established an Academic Research Link with the Technical University of Warsaw, Warsaw, Poland (1998)
4. Established an Academic Research Link with the Tallin Technical University TTU, Estonia (1998)
5. Collaborative Research, U.A.E. University, Pollution Abatement and Environmental Devices, United Arab Emirates, 1995/96.
6. Collaborative Research, Nanyang Technological University, Singapore, "A.I. technologies applications in power systems and motor drives", July 1992 - June 1993.
7. Research collaboration with Ainshams, Cario, Assiut, Mansoura, Zagazig and Menuofia Universities in Egypt, since 1986 - ongoing Academic Channels.
8. Technical University of Delft, TU-Delft, "Expert systems applications in power system stabilizer designs", June - August 1990.
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14. Zagazig University, Egypt, Research on Neural and Neurofuzzy Applications in Voltage Stability Detection of Interconnected Systems (Drs. Z. El-Razaz, A. Alily)
  15. Agency for the Assessment and Application of Technology (BPP Teknologi), Indonesia - Research on Renewable/Alternate Energy and Energy Conservation/Utilization (Dr. Rachwat Mulyadi)
  16. Faculty of Engineering (Shoubra), Research on Renewable Energy Novel Interface and Control Techniques, (Dr. M. Abou-Saad).

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10. A.M. Sharaf, Curriculum development and laboratory enhancement at Kuwait University", Consultant-Report, (18 pages), Kuwait University, May 1988.
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