

Resume of Prakash R. Damshala, Ph.D, P.E

Name Prakash R. Damshala

Academic Rank Director of Graduate Studies, and Professor, Department of Mechanical Engineering, CECS, UTC

Education

Georgia Institute of Technology, Ph.D. (M.E.), September 1978

University of Miami (Florida), M.S. (M.E.), January 1972

Sri Venkateswara / Osmania University (India), B.E. (M.E.), January 1970

Academic Experience

Professor, M.E Department, CECS, University of Tennessee, Chattanooga (8/88 – Present)
Director of Graduate Studies in Mechanical Engineering at UTC (2014- present), served as Chair for P/T Committee for the CECS and serving as a Chair for Faculty Promotion and Tenure Committee for the M.E Department. Worked on Design and Second Law Analysis of Air-Conditioning Systems, Cogeneration, CHP, Energy Recovery Systems, Solar Energy Systems for Zero-Energy Buildings and Communities. Worked on Analysis of Energy Efficiency and Energy Storage Technologies. Developed Computer Software for Efficient Design and Analysis of Thermal Systems and for Evaluation of Carbon Footprint for Industrial Institutions and Products.

Text Books

1. “Thermal Science Laboratory Manual “ by Prakash R. Damshala.
2. “Design and Analysis of Thermal Components and Systems” by Prakash R.Damshala, Document Center, The University of Tennessee, Chattanooga, January 2003
3. “A Modern Approach to Design of Air Conditioning and Refrigeration Systems” by Prakash R. Damshala and P.V. Kadaba, Part of the manuscripts is under completion.

Software Development

1. “Heat” software developed by Prakash R. Damshala to accompany the Thermal ScienceLab Manual. It is also designed to be used in other thermal science Courses, 1991.
2. A Research Tool to Perform Transient Thermal and Economic Analysis of Building Energy Costs using hourly weather data, 1998.
3. A software to assist in selection of insulation for replacement of Asbestos on Steam Lines of Fossil Fuel Power Plants developed for an EPRI project, 1988.
4. A software to perform Thermoeconomic Analysis of CHP (Combined Heat and Power) Systems, 1999.
5. “TERSA, Transient Energy Recovery Systems Analysis”.
6. A software to determine the Carbon Footprint of an Industrial Company and its Products.

Associate Professor, CECS, University of Tennessee, Chattanooga (8/81 – 88)
Taught a Variety of M.E courses, Advised on M.S Theses. Consulted with TVA on several engineering projects (1986-2000) related to fossil power plants and secured a grant.

Assistant Professor, M.E Department, Youngstown State University (9/77 – 81)
Taught a Variety of M.E courses, Advised on M.S and undergraduate Theses.

Visiting Assistant Professor, M.E Department, New Mexico State University (1/77 – 7/77)
Taught a Variety of M.E courses, and wrote a research proposal for a grant.

Professional Registration

Professional Engineer, State of Tennessee (To be Reactivated soon)
Professional Engineer, State of Ohio (Not Active)

Professional Societies

Member of ASHRAE Handbook (Systems & Equipment) Committee, (2004-'08), (2016-'20)
Member of ASME
Member and Faculty Advisor of ASHRAE Student Chapter
Vice-Chair for ASHRAE Handbook Chapter 5.5 Air-To-Air Energy Recovery

Awards

1. Nominated for the University Distinguished Professor Award by the Dean of Engineering at YSU.
2. Received special award for scoring the highest grade in the P. E. examination for the state of Ohio.
3. Listed in Who's Who Among America's Teachers in 2000, 6th Edn, Volume 2.

Service Activities

Serving as a Faculty Advisor to ASHRAE Student Chapter, as a Vice-Chair of ASHRAE T.C 5.5 Committee, served for four years as member of ASHRAE Handbook Committee, one year as a member of ASHRAE Professional Development Committee, served as member of Faculty Senate, member of university academic standards committee, as a member of school's graduate curriculum committee, as a member of school's rank and tenure committee, as a board member of Tennessee Valley Chapter of ASHRAE for the last five years and offered F.E refresher courses.

Publications, Reports, Presentations, Thesis and Engineering Project Advisement

1. "Development of Numerical Model for Thermal Energy Storage Using Phase Change Material" Engineering Project, by Udbhav Reddy Kalva, Engineering Project Advisor, Prakash Damshala, December 2015

2. "Development of Numerical Model for Thermal and Desiccant Wheels" Engineering Project, by Phani Kumar Tangirala, Engineering Project Advisor, Prakash Damshala, May 2015
3. "Development of Numerical Model for DeVap System for a Zero Energy Building" Engineering Project, by Manoj Kadiyala, Engineering Project Advisor, Prakash Damshala, May 2015
4. "Comparative Analysis of the Levelized Cost of Energy (LCOE) for Photovoltaic Panels, Concentrative PV Panels and Parabolic Trough Collectors" Engineering Project, by Juan C. Sanchez, Engineering Project Advisor, Prakash Damshala, December 2014
5. "Alternate Cooling Methods in Electric Thermal Power Plants for Water Conservation" Engineering Project by William E. Webster IV, Engineering Project Advisor, Prakash Damshala, December 2014
6. "Assessment of Compressed Air Energy Storage System (CAES)" M.S Thesis by Patrick M. Johnson, Thesis Advisor, Prakash Damshala, May 2014
7. "Water Desalination and Purification Using Sustainable Energy Technologies" M.S Thesis by Michael Louis Broggi, Thesis Advisor Prakash Damshala, April 2013.
8. "Analysis of Solar Assisted Absorption Chiller for a Commercial Building" M.S Thesis by Gnananesan Antonyraj, Thesis Advisor, Prakash Damshala, December 2012
9. "Development of an Energy Storage Tank Model" M.S Thesis by Robert Buckley, Thesis Advisor, Prakash Damshala, December, 2012
10. "Combined Heat and Power, Technology Review and Analysis for a Residential Building", M.S Thesis by Nadine Reinert, Thesis Advisor, Prakash Damshala, November 2012
11. "Potential Energy Cost Savings by Use of Building Roofs as Thermal Storage of a Multi-Storage Building" M.S Thesis by Ahmed Shelbaya, Thesis Advisor, Prakash Damshala, December 2012
12. "Energy Efficiency's Role in a Zero Energy Building: Simulating Energy Efficient Upgrades in a Residential Test Home to Reduce Energy Consumption" M.S Thesis by Drew Frye, Thesis Advisor, Prakash Damshala, May 2011
13. "Economic Analysis of Using Gasifier to Meet the Building Loads of Light Commercial Building" presented by Prakash Damshala, SET International Conference, Shanghai, China, August 2010
14. "Dynamic Analysis of Grid Connected Hybrid System of PV Panels and Wind Turbines for a light Commercial Building" M.S Thesis by Bhavin Madhu, Thesis Advisor, Thesis Advisor, Prakash

Damshala, May 2010

15. "Economic Analysis of Biomass Fired Gasifier to Meet the Building Loads of a Light Commercial Building" M.S Thesis by Madan Nellore, Thesis Advisor, Thesis Advisor, Prakash Damshala, May 2010
16. "Assessment of Liquid Desiccant Cooling Systems" M.S Thesis by Shermanda S. Williams, Thesis Advisor Prakash Damshala, May 2007
17. "Economic Benefits of Advanced CHP Systems" by Prakash Dhamshala, Proceedings of CLIMA 2005 Congress" in Laussane, Switzerland, October, 2005
18. "Thermoeconomic Analysis of Cogeneration System for HVAC Applications in Commercial and Industrial Buildings " M.S Thesis by James Nathan Pugh, Thesis Advisor, Prakash Damshala, May 2004
19. "Energy Cost Savings with Use of DOAS Systems in Various Cities in U.S" by Prakash Damshala, Proceedings of ASME World Congress, Washington D.C, Nov 2003
20. "Energy Cost Savings due to Use of Energy Recovery System with Dedicated Outside Air Systems (DOAS)", by Prakash Dhamshala Seminar presented ASHRAE Annual Meeting in Kansas City, MO June 2003
21. "A Multi-Purpose Thermal Design Project that Works " by Prakash Dhamshala and Robert Bailey, published in The International Journal of Mechanical Engineering Education., Volume 30, Number 2, April 2002.
22. "A Computer Design Project for an Energy Recovery System" by Prakash R. Damshala, a paper presented at ASEE southeastern conference held at Charleston, SC in April 2001
23. "Numerical Analysis of Solar Storage (Trombe) Wall for Identifying Optimal Energy Recovery Conditions " by Prakash R. Dhamshala and Robert Bailey, a paper presented at ASEE southeastern conference, April 2000 at Blacksburg, Virginia.
24. "Electronic ASHRAE Handbook" by Prakash Dhamshala presented at the monthly meeting of ASHRAE regional chapter meeting for professional development credits, February 2001.
25. "Thermoeconomic Analysis of a CHP System by Iterative Numerical Techniques" by Prakash R. Dhamshala, Transactions of ASHRAE February 2000, Vol 106, Part 1.
26. "Evaluation of Centrifugal Chillers" by Prakash Dhamshala presented at the monthly meeting of the ASHRAE Regional Chapter for professional development credits, February, 2000
27. "Global Warming and Air Pollution" by Prakash Dhamshala presented to the Lion's Club Group, Hyderabad, India, June 1999

28. "Thermodynamic and Thermo-economic Optimization of Combined Heat and Power System" M. Thesis by Zeeshan Khan, Thesis Advisor, Prakash Damshala, June, 1998
29. "Multi-Purpose Design Project for Engineering Students of Coming Century," by Prakash Dhamshala, a paper presented at ASEE Annual Meeting in June 1997, at Milwaukee, WI
30. "A Comprehensive Heat Transfer Design Experiment," by Prakash Dhamshala, a paper presented at ASEE Annual Meeting in June 1997 at Milwaukee, Wisconsin
31. "An Experimental Design Project in Fluid Mechanics," by Prakash Dhamshala, a paper presented at ASEE Annual Meeting in June 1997 at Milwaukee, Wisconsin
32. "Computer's Role in Efficient Design of Heat Exchanger for Energy Recovery" by Prakash Damshala, a paper presented at ASEE Annual Meeting in June 1997 at Milwaukee, WI
33. "Computer's Role in Effective Design in Electronic Cooling " by Prakash Damshala, a paper presented at ASEE Annual Meeting in June 1997 at Milwaukee, WI
34. "Investigation of Opportunities to Reduce Energy Consumption and Costs in a School Building Using Detailed Computer Simulation Program," M.S Thesis by Chinnakaruppan Sathappan, Thesis Advisor, Prakash Dhamshala May 1996
35. "Computer Modeling for Thermal and Stress Analysis of Slag Monitor for Utility Boilers," by Prakash Damshala, a report submitted to TVA March 1995
36. "Computer Modeling of Phase Change Materials for Optimum Results," M.S Thesis by Pornpimo Vongsansunee, Thesis Advisor, Prakash Dhamshala August 1995
37. "Development of ANSYS Model for Tube Failures Fossil Fueled Boilers," M.S Thesis by Z. Konziak, Thesis Advisor, Prakash Dhamshala August 1995
38. "Impact of Alternate Refrigerant on Evaporator Design and Analysis of Compact Heat Exchangers," M.S Thesis by Parag Dadeech, Thesis Advisor, Prakash Damshala April 1994
39. "Comparative Analysis of Four Different Heat Pumps for Maximum Energy Cost Savings," M.S Thesis by Abdulla Udaipurwala, Thesis Advisor Prakash Damshala April 1992
40. "Assessment of ASD Heat Pumps for Commercial Applications," by Prakash Damshala, a report submitted to TVA, February 1992
41. "Fabrication, Instrumentation and Development of Data Acquisition System for Thermal Experiments," M.S Thesis by B. H. Farlett, Thesis Advisor, Prakash Damshala April 1990.
42. "Components of Energy Conservation in Residential Buildings," M.S Thesis by Md.

Kazemian, Thesis Advisor, Prakash Damshala, April 1989

43. "Broad-Based Assessment of Asbestos Insulation Substitutes for Steam Lines in Fossil Fuel Power Plants," by Prakash Damshala, EPRI Report, April 1989-RP1266-50.
44. "Modeling of Slag Monitor and Water Tubes in Utility Boilers," Prakash Damshala and G. P. Sasmal, a report submitted, TVA, May 1989
45. "Development of Numerical Model for Determination of Thermal Stresses Induced in the Water-Wall Boiler Tubes" M.S Thesis by Gyanendra Prasad Sasmal, Thesis Advisor Prakash Damshala, May 1988
46. "Industrial Insulation for Steam Lines of Fossil Fuel Power Plants," by Prakash. Damshala and Jerry D. Fourroux published in Power, May 1988 issue
47. "Introduction to Computer Era Through HVAC Education," by Prakash Damshala, published in ASHRAE Transactions 1987, Vol. 93, Pt. 1 and also presented in Winter Annual Meeting of ASHRAE in New York 1987
48. "Simulation of Solar Ponds with Simple Atmospheric Insolation Model." M.S Thesis by Tom Eldridge, Thesis Advisor, Prakash Damshala, April 1987
49. "Economic Impact of Ice Storage Systems on Building Energy Costs," M. Thesis by Bheroze Ghorbani, Thesis Advisor, Prakash Dhamshala, April 1986
50. "Evaluation and Simulation of Solar Augmented Heat Pump Water Heating System," M.S Thesis by Robert Steele, Thesis Advisor, Prakash Damshala, April 1986
51. "Optimization of Power Production from Salt Gradient Solar Ponds," M.S Thesis by C. Amin, Thesis Advisor, Prakash Damshala, April 1983
52. "Optimization of Point-Focusing Distributed Receiver Solar Thermal Electric System using a Simple Solar Insolation Model," M.S Thesis by M. Akbari, Thesis Advisor, Prakash Damshala, August 1983
53. "Influence of Rankine Fluid/Cycle and the Regional Solar Insolation on the Solar Rankine Systems," M.S. Thesis by Kaushik Choudhary, Thesis Advisor, Prakash Damshala, at Youngstown State University, April 1981
54. "Optimization of Heat Exchanger for Solar Concentrators," by Prakash Damshala presented at the National Forum of Solar Cooling and Heating, Miami Beach, Florida, Dec.1976, and also published in the proceedings of the conference.
55. "Experimental Solar Heat Supply System with Fixed Mirror Concentrators for the Heating and Cooling of Buildings," by J.R. Williams and Prakash Dhamshala the final report presented to ERDA, 1975.

Research Grants

1. " Survey of Literature for Development of Knowledge Based Expert System For HVAC Applications," Prakash Damshala, CECA Grant of \$2,500 in Summer of 1986.
2. " A Proposal for Preparing a Plan for UTC Operation of the TVA Non-Convection Solar Pond as an Energy Engineering Field Laboratory," James Cunningham, Prem Chopra, Prakash Damshala, James Hiestand, and Ron Cox. TVA Grant of \$10,000. Contract No. TV-48192A, Task No. UTC-86015.
3. " Development of Simple Model for Radiant Barrier Insulated Systems," Prakash Damshala, TVA Grant \$48,089 for 1986-87 academic year. Contract No. TV-48192A, Task No. UTC-86016.
4. Contractual work with TVA for research work on "Insulations, Thermal Storage, Desiccant Cooling, End-use Energy Storage Options. Refractories In Cyclone Boilers, and Numerical Modeling of Slag Monitor Probe," \$50,000 until the end of September 1988.
5. "Broad-Based Assessment of Asbestos Insulation Substitutes for Steam Lines In Fossil Fuel Power Plants," Grant from EPRI for \$39,820 contract 1988-RP1266-50.
6. Contractual work with TVA for graduate assistantships, \$10,000 January 1988.
7. "Assessment of ASD heat pumps for Commercial Applications," TVA Grant \$10,564 for 1991-92 Contract No. TV-85688V, Task No. UTC-394-536.
7. "Computer Simulations on Slag Monitor," TVA Grant \$23,922 for 1992-93, Contract No. TV-85688V, Task No. UTC-394-598.
8. "Design and Construction of Energy Recovery Demonstration Model" ASHRAE Grant for \$ 5000, 2007
9. "Development of Software to Estimate the Carbon Footprint of PlayCore Plant" PlayCore, Fort Payne, Alabama, \$ 24,000 , May 2014.

Professional Development Activities in the Last Five Years

Attended Professional Development Courses on Energy Management Practices, Combined Heat and Power, Building Demand Response and Coming Smart Grid Jan, 2015.

Attended ASHRAE's winter annual meetings for the last 18 years.