Brian Thomas

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TEACHING EXPERIENCE

Baylor University, School of Engineering and Computer Science
Title: Lecturer of Electrical and Computer Engineering
September 2001- to date

Courses Taught:
- Introduction to Engineering
- Introduction to Engineering Analysis
- Electric Circuit Theory
- Engineering Design I (Junior Design)
- Electronics I Laboratory
- Bioinstrumentation
- Appropriate Technology for Developing Countries (Solar PV, Microhydro, Wind Power, Diesel Generators)

Research Interests:
Off-grid electrification systems for developing countries; low power lighting, solar photovoltaics, wind generators, micro-hydroelectric generators, biomass gasification, biogas, biofuels, appropriate technology.

Teaching Awards:
Twice voted "Distinguished Professor" by SWE student chapter for "dedication to students." Academic years 2002/2003 and 2003/2004.
Awarded "Outstanding Professor" among university lecturers and non-tenure track faculty, 2006-2007 for teaching, research, and service.

INDUSTRIAL EXPERIENCE

Electric Power Engineers
Summer 2007 full time, Fall 2007 part time
Waco, Texas

Performed preliminary designs for wind farm power collection circuits including specifying conductors, transformers, and associated switchgear. Considered budgetary issues, wind resource estimates, wind turbine performance parameters, protection schemes, and terrain constraints.

The National Radio Astronomy Observatory
June and July 2002
Green Bank, West Virginia

As a contracted microwave engineer, designed a five-port multiplexer to divide 26-40 GHz into four, approximately equal bands. Performed simulations and optimizations using circuit

modeling software, including planar electromagnetic simulation. Temporary appointment during summer.

Remec Wacom
February 1999 – August 2001
Waco, Texas
Design and Project Engineer for RF components and subsystems. Responsible for design and development of prototypes, debugging, documentation, and acceptance testing criteria. Viewed as a leader in engineering by management. Considered an excellent teacher and communicator. Instructed technicians and junior engineering staff in many subjects applicable to RF circuits.

L3 Communications Narda Microwave West
October 1995 – February 1999
Sacramento, California
Design and Project Engineer for many filter based microwave components, both commercial and military. Representative designs and projects included but were not limited to: high peak power (10kW) combline duplexer for cellular basestations, bandpass filter integrated with low noise amplifier, 900 MHz band, and high peak power (1.8 kW) isolator-filter for harsh environment application (missile)

Microwave Networks Incorporated
July 1992 - September 1995
Houston, Texas
As entry level engineer, performed extensive systems level testing, troubleshooting and development on 2 and 8 GHz digital transmitters and receivers. Performed acceptance testing, qualified and evaluated many components: power amplifiers, low noise amplifiers, oscillators, mixers, ferrite devices and filters (cavity and waveguide), waveguide manifolds, top level transmitters and receivers.

SMALL SCALE RENEWABLE ENERGY SYSTEMS EXPERIENCE

May 2005, Kenya
Led four undergraduate engineering students in the design and deployment of a 50 W solar photovoltaic system to charge a deep cycle battery and power a lighting system for a school of deaf children. Lighting system consisted custom designed arrays of white LEDs as well as low power fluorescent lights.

May 2006, Kenya
Led seven undergraduate engineering students in the design and deployment of hybrid energy system consisting of a 300 W wind generator and 80 W solar panel, a deep cycle battery, circuit breaker/distribution panel, a series of power distribution cables, and a white LED array as a home light. Provided lighting to 17 homes in the Kibera slum of Nairobi. Also provided lighting for public latrine and multi-purpose community room.

January and August 2007, Honduras
Took team of four students to La Ceiba, Honduras. A 1000 W pico-hydro electric generator was installed in a remote village to provide light and a battery charging station. (While in Honduras also installed water purification equipment in relief housing project with untreated water.) Partnered with local church on both projects.

SELECT JOURNAL PUBLICATIONS

Brian Thomas, "A Wind Powered, White LED Lighting System for the Kibera Slum of Nairobi", International Journal for Service Learning in Engineering, Vol. 2, No. 1, pp 16-31, Spring 2007, ISSN 1555-9033

John Miller, Brian Thomas, "Design of a Bicycle-Powered Electric Generator for Use in Developing Countries", Presented at the ASEE GSW Annual Conference, March 2007, South Padre Island, Tx., and in: Proceedings of the 2007 American Society for Engineering Education Gulf Southwest Annual Conference, 2007.

Kelley, B.S., Bradley, W.L, Thomas, J.B., "Student-Aimed Appropriate Technology Engineering Projects in Kenya", Paper presented at the ASEE GSW Annual Conference, March 17, 2006, Baton Rouge, La. and in: Proceedings of the 2006 American Society for Engineering Education Gulf Southwest Annual Conference, 10 pps; 2006.

Benjamin S. Kelley, Cynthia C. Fry, David B. Sturgill, and J. Brian Thomas, "Faith-Based and Secular Experience on Rebuilding Engineering and Computer Science Higher Education in Kurdistan of Iraq," Proceedings of the 5th Christian Engineering Education Conference, pp 35-47, Westminster College, Salt Lake City, Utah, June 23-25, 2004.

Thomas, J. Brian, "Cross-Coupling in Coaxial Cavity Filters - A Tutorial Overview", IEEE Transactions on Microwave Theory and Techniques Special Tutorial Issue, April 2003.

EDUCATION

Master of Electrical Engineering August 1992
University of Houston,
Concentrated study in electromagnetics.

Post-baccalaureate work in Electrical Engineering Spring 1990
Rice University; ten semester hours.

Bachelor of Science December 1989
Stephen F. Austin State University,
Major: Physics, Minor: Mathematics.
Awards: William H. Bailey Outstanding Physics Graduate 1989, Freshmen Physics Fellowship 1986