CURRICULUM VITAE

November, 16th 2019

Selahattin Sayil, Ph.D.
Professor
Drayer Department of Electrical Engineering
Lamar University, Beaumont, Texas 77710

E-mail: ssayil@lamar.edu
Phone: (409) 880-8756; Fax: (409) 880-8121

Years of teaching at college level: Nineteen (19) Years
Years of teaching at Lamar: Sixteen (16) Years

EDUCATION:

- Ph.D. in Electrical and Computer Engineering, (1996-2000),
  Vanderbilt University, Nashville, TN, USA
- M. Sc. in Electrical and Computer Engineering, (1994-1996).
  Pennsylvania State University, State College, PA, USA

PROFESSIONAL EXPERIENCE

▪ August 2017- Present	Professor Department of Electrical Engineering Lamar University, Beaumont TX
▪ August 2009- August 2017	Associate Professor Department of Electrical Engineering Lamar University, Beaumont TX
▪ June 2003- August 2009	Assistant Professor Department of Electrical Engineering Lamar University, Beaumont TX
▪ February 2001- May 2003	Department Chair Electronics & Computer Education Department Pamukkale University, Denizli, TURKEY
▪ September 2000- May 2003	Assistant Professor Electronics & Computer Education Department Pamukkale University, Denizli, TURKEY

TEACHING INTERESTS

Online Teaching, Web-based learning

Online labs, Integrating Lab experiences into Theory courses

Study Abroad opportunities

RESEARCH EXPERTISE

Radiation Effects Modeling in Integrated Circuits

Low Power Design & Reliability Analysis

Interconnect Noise & Delay Prediction and Modeling

Contactless VLSI Testing

HONORS, AWARDS, AND APPOINTMENTS

- **Distinguished Faculty Teaching Fellow**, Lamar University (2018-2021)
- **Associate Editor** for *International Journal of Electronics* (2008-present)
- Corresponding Editor for *IEEE Potentials* (2008)
- Research Enhancement Grant Awards obtained from Lamar University
- Promoted to Department Chair position, Electronics & Computer Education Department, Pamukkale University, Denizli, TURKEY, Feb 2001- May 2003.
- Teaching and Research Assistantships awarded from Vanderbilt University (1999), (1998).
- Graduated first in rank among the graduates of Gazi University Electronics Dept, Summer of 1990.
- In the Science Weighted scoring, scored among the top 1% entrants in nation-wide university entrance Exam in Turkey. Nearly 500,000 students had taken the exam.

PUBLICATIONS:

I have authored 2 books, 2 book chapters and published about 30 refereed journal articles that include special feature articles. Some papers appeared on journal covers. I have also presented at many international conferences.

BOOK PUBLICATIONS

(1) Sayil, S., "*Soft Error Mechanisms, Modeling and Mitigation"*, Publisher: Springer, New York, NY, 2016. http://www.springer.com/us/book/9783319306063

This text included collection of my research over last eight (8) years and received very positive reviews (see the book review @ "Microelectronics Reliability" journal, vol. 74, pg 81, 2017 https://doi.org/10.1016/j.microrel.2017.05.016). In the 2017 book review published, researchers from "Broadcom Limited" and "Sandisk Storage" industries state that "the book is a very informative reference to memory device reliability engineers", "The book is valuable as a learning tool for memory device level SER and its clear relevance to real-world industry practices makes it useful for both students and device reliability practitioners."

(2) Sayil, S. "*Contactless Measurement and Testing Techniques*", 2018, Springer Publishing, NY. (www.springer.com/us/book/9783319696720)

This book provides a comprehensive overview of the state-of-the-art contactless probing techniques and diagnostic measurement methods for VLSI and fills a gap in the literature on VLSI Testing.

BOOK CHAPTER PUBLICATIONS

(1) "VLSI: Circuits for Emerging Applications", Publisher: CRC Press, October 24, 2014, ISBN 9781466599093 (hardcover)

Chapter 13.3- Selahattin Sayil, Lamar University,

Title: "*Soft-Error-Aware Power Optimization Using Dynamic Threshold*", pages 295-310

This book is written by well-known international experts in industry and academia. Some authors in this book are affiliated with IBM, Texas Instruments, and Intel. Faculty authors are from many countries including Japan, France, UK, Germany, Italy and well known universities in U.S.

(2) "Advanced Circuits for Emerging Technologies", Publisher: Wiley, Publication Date: May 2012, ISBN-10: 0470900059 (hardcover)

Chapter 23 - Selahattin Sayil, Lamar University

Title: "*Contactless Testing and Diagnosis Techniques*", pages 581-597.

This book is written by well-known international experts in industry and academia. Some authors in this book are affiliated with IBM, Texas Instruments, Broadcom and Synopsys.

REFEREED JOURNAL PUBLICATIONS:

Most papers published are with Lamar Students (shown as underlined).

- Sayil, S., "A survey of circuit-level soft error mitigation methodologies", Analog Integrated Circuits and Signal Processing, vol. 99, no. 1, pp. 63-70, April 2019.
- Sayil, S., Bhowmik, P. "Mitigating the thermally induced single event crosstalk", Analog Integrated Circuits and Signal Processing, vol. 92, no. 2, pp. 247–253, August 2017.
- Sayil, S., Shah, A.H. , Zaman, M.A., Islam, M.A.,"Soft Error Mitigation using Transmission Gate with varying Gate and Body Bias", IEEE Design and Test, vol. 34, no. 1, pp. 47-56 , Feb 2017.
- Sayil, S., Yao, Y., "Single Event Coupling Delay Estimation in Nanometer Technologies", Analog Integrated Circuits and Signal Processing, vol. 86, no:2, pp. 215-225, February 2016.
- Sayil, S., Yuan, Li, "Modeling Single Event Crosstalk Speedup in Nanometer Technologies", Microelectronics Journal, Volume 46, Issue 5, pp. 343–35, May 2015
- Sayil, S., Wang, J., "Coupling Induced Soft Error Mechanisms in Nanoscale CMOS technologies", Analog Integrated Circuits and Signal Processing, Volume 79, Issue 1, pp. 115-126, April 2014.
- Sayil, S., Wang, J. Yeddula, S. R., "Single Event Coupling Soft Errors in Nanoscale CMOS Circuits", *IEEE Design and Test*, Volume 30, Issue: 6, pp. 1-9, December 2013.
- Sayil, S., Boorla, V. K., "Single Event Crosstalk Prediction in Nanometer Technologies" *Analog Integrated Circuits and Signal Processing*, July 2012, Volume 72, Issue 1, pp 205-214.
- Sayil, S., Wang, J., "Single Event Soft Errors in CMOS Logic", *IEEE Potentials*, Volume: 31, Issue: 2, Page(s): 15 – 22, April 2012
- Sayil, S., Boorla, V.K.,Yeddula, S.R., "Modeling Single Event Crosstalk in Nanometer Technologies", *IEEE Transactions on Nuclear Science*, Volume: 58 , Issue: 5 , Part: 2, pp. 2493 – 2502, October 2011.
- Sayil, S., Patel, N. B., "Soft Error and Soft Delay Mitigation using Dynamic Threshold Technique", *IEEE Transactions on Nuclear Science*, Volume: 57, Issue: 6, Part: 1, Dec. 2010.
- Sayil, S., Akkur, A.B., "Mitigation for single event coupling delay", *International Journal of Electronics*, Volume 97, Issue 1, pages 17 – 29, January 2010.
- Sayil, S., Akkur, A.B., Gaspard, N., "Single Event Crosstalk Shielding for CMOS Logic", *Microelectronics Journal*, vol. 40, no. 6, 1000-1006, 2009.
- Sayil, S., Borra, U. K., "Coupling Delay Calculation Using Miller Factors under Exponential Waveforms", *International Journal of Electronics*, vol. 96, no. 4, pp. 351 – 366, April 2009.
- Sayil, S., Borra, U. K., "A Multiline Model for Time-Efficient Estimation of Crosstalk", *Analog Integrated Circuits and Signal Processing*, vol. 59, no. 1, pp. 65 – 75, 2009.
- Sayil, S., "On the Use of Silicon Photonics- Part I", *IEEE Potentials*, vol. 28, no. 1, pp. 35 – 39, January-February 2009

- Sayil, S., "On the Use of Silicon Photonics- Part II", *IEEE Potentials*, vol. 28, no. 2, pp. 37 – 40, March-April 2009.
- Sayil, S., Rudrapati, M., "Accurate Prediction of Crosstalk for RC Interconnects", *Turkish Journal of Electrical Engineering* (included in the Science Citation Index Expanded), Volume 17, Issue 1, pp. 55-67, 2009.
- Sayil, S., "Avalanche Breakdown in Silicon Devices for Contactless Logic Testing and Optical Interconnect", *Analog Integrated Circuits and Signal Processing*, Volume 56, No. 3, pp. 213-221, 2008.
- Borra, U. K., Sayil, S., "Coupling Noise and Delay Estimation under Exponential type Waveforms", *Electronic Journal of Student Research*, Lamar Univ., Volume IX, Fall 2008.
- Gaspard, N., Sayil, S., "Single Event Transient Crosstalk Interconnect Shielding to Complete SEU hardening of CMOS Logic Gates", *Electronic Journal of Student Research*, Lamar Univ., Volume VIII, Summer 2008.
- Sayil, S., Rudrapati, M., "Precise Estimation of Crosstalk in Multiline Circuits", *International Journal of Electronics*, Vol. 94, No. 4, pp. 413 – 429, April 2007.
- Sayil, S., "Optical Contactless Probing: An All-Silicon, Fully Optical Approach," *IEEE Design and Test of Computers*, vol. 23, no. 2, pp. 138-146, Mar/Apr, 2006-Special Feature Article
- Anita, M., Sayil, S., "Time-Efficient Estimation of Crosstalk in Multi-Line Circuits", *Electronic Journal of Student Research,* Lamar Univ.", Volume III, Spring 2006.
- Sayil, S., Kerns, D.V., Kerns, Sherra E., "A Survey of Contactless Measurement and Testing Techniques", *IEEE Potentials*, Published on Feb/March 2005 issue, pp. 25-28
- Sayil, S., Kerns, D.V., Kerns, Sherra E. "Comparison of Contactless Measurement and Testing Techniques to a new All-Silicon Optical Test and Characterization Method", *IEEE Transactions on Instrumentation & Measurement*, Vol. 54, No. 5, pp. 2082-2089, October 2005.
- Sayil, S., Kerns, D.V., Kerns, Sherra E. "All-Silicon Optical Contactless Testing of Integrated Circuits" *International Journal of Electronics* vol.89, no. 7 p.537-547, July 2002.
- Sayil, S. "A Combine Algorithm for a CMAC Network", *PAU Journal of Engineering Science,* vol.7, no. 4, 2001.

PEER REVIEWED CONFERENCE/SYMPOSIUM PRESENTATIONS

Almost all conference papers included Lamar students as co-authors.

(1) Sayil, S., "Compensation of Thermally-Induced Soft Errors using Forward Body-Bias", Presented at 25th Annual *Single Event Effects (SEE)/MAPLD Symposium*, San Diego, May 2016.

(2) Rahman, Md. M., Bhowmik, P., Sayil, S., "Mitigation of Thermally Induced Crosstalk Noise by Dynamically Adjusting Driver Strength", *2nd International Conference on Electrical Information and Communication Technology* (*EICT 2015*).

(3) Sayil, S., Yao, Yao, "Predicting Single Event Coupling Delay in Nanometer Technologies", Presented at 24th Annual *Single Event Effects (SEE)/MAPLD Symposium*, San Diego, May 2015.

(4) Sayil, S., Yao Y., Islam, Md. A, "Soft Error Mitigation Using Transmission Gate with Varying Gate and Body Bias", Presented in *2014 IEEE Nuclear and Space Radiation Effects Conference,* July 2014, Paris, France.

(5) Sayil, S., Boorla, V. K., "Modeling Single Event Crosstalk in Nanometer Technologies", Presented in *International Conference on Electrical and Electronics Engineering,* ELECO'11, 7-11 Nov, Bursa, Turkey.

(6) Sayil, S., Patel, N., "Soft Error and Soft Delay Mitigation using a Dynamic Threshold Scheme", Presented in *2010 IEEE Nuclear and Space Radiation Effects Conference*, Denver, CO.

(7) Sayil, S., Rudrapati, M. S., Borra, U. K., "An Improved Multiline model for Precise Estimation of Crosstalk", Presented in *2007 IEEE Region 5 Technical Conference*, pp. 239-245, April 20-21, Fayetteville, AR

(8) Sayil, S., "On the Use of Silicon Photonics for Optical Interconnect and Contactless Logic Testing", *2007 IEEE Region 5 Technical Conference*, pp. 42-48, April 20-21, Fayetteville, AR.

(9) Sayil, S., Lee, K.Y. "An Hybrid Neighborhood Training and Maximum Error Algorithm for CMAC", Proceedings of the 2002 *World Congress on Computational Intelligence*, 5,31 2002.

(10) Sayil, S., Kerns, D.V., Kerns, Sherra E., "All-Silicon Optical Technology For Contactless Testing Of Integrated Circuits", Proceedings of the *International Conference on Electrical and Electronics Engineering ELECO'01*, 7-11 Nov, Bursa, Turkey.

PROPOSALS FUNDED:

(1) Sayil, S., PI, (no co-PI), "Project Title: Enhancing Student Learning via Value Added Engineering Education (VAEE)", *Academic Partnerships*, Fall 2015, Funding Period: 11/20/2015- 6/30/2016- $4,116 .

(2) Sayil, S. PI, Myler, H. R. Co-PI, "Space Radiation Effects on Technology and Human Biology and Proper Mitigation Techniques", NASA/ Texas Space Grant Consortium (TSGC) Higher Education, March 2008, September 2008-August 2010, $15,000

(3) Sayil, S., PI, (no co-PI), "Low Power Radiation Tolerant VLSI Design for Advanced Spacecraft", Texas Space Grant Consortium (TSGC) / NASA New Investigations Program (NIP), October 2010, PI, $9,000

(4) Sayil, S., PI, (no co-PI), "Project Title: A Circuit-Based Approach for Compensation of Thermally-Induced Soft Errors in Microchips", Lamar Research Enhancement Grant, Fall 2016, $5,000.

(5) Sayil, S., PI, (no co-PI), "Project Title: Studying the Impact of Temperature on Microchip Radiation Tolerance", Lamar Research Enhancement Grant, Spring 2014, $5,000.

(6) Sayil, S., PI, (no co-PI), "Mitigation of Radiation Induced Transients in Advanced Microchips using Transmission Gate with Varying Input Voltage", Lamar Research Enhancement Grant, Spring 2012, PI, $5,000.

(7) Sayil, S., PI, (no co-PI), "Studying the Impact of Power Optimizations on Microchip Radiation Tolerance", Lamar Research Enhancement Grant, Spring 2010, $5,000.

(8) Sayil, S., PI, (no co-PI), "Modeling the Effect of Ionizing Radiation on Circuit Delay for Today's Advanced Microchip Technologies", Lamar Research Enhancement Grant, Spring 2009, $5,000.

(9) **Sayil, S., PI**, (no co-PI), "The Impact of Radiation Induced Single Event Upsets on Cross-talk Noise for Today's Advanced Microchip Technologies", Lamar Research Enhancement Grant, Spring 2007, $5,000.

(10) **Sayil, S., PI**, (no co-PI), "Modeling the Impact of Cross-Coupling Noise on Wire Delay for Today's Microchip Technologies", Lamar Research Enhancement Grant Proposal – Spring 2006, $5,000.

(11) **Sayil, S., PI**, (no co-PI), "Evaluation of Existing Test Sets for Crosstalk Test Coverage using VHDL Hardware Description Language", Lamar Research Enhancement Grant – Spring 2004, $5,000.

(12) **Sayil, S., PI**, (no co-PI), "A New Time-Efficient Method for Precise Estimation of Cross-talk Noise on Multi-line Circuits", Lamar Research Enhancement Grant – Fall 2003, $5,000.

Course Development Grants Obtained:

(1) Lamar University Online Course Development Grant, for preparing the undergraduate course titled "ELEN 2411-48F Circuits I and Lab", $6,000.

(2) Lamar University Online Course Development Grant, for preparing the undergraduate course titled "ELEN 3322-48F Electronics II", $4,500.

(3) Lamar University Online Course Development Grant, for preparing the Summer 15 graduate course titled "ENGR 4301/5301-48F Low Power CMOS Design and Reliability", $4,500.

(4) Lamar University Online Course Development Grant, for preparing the Summer 15 graduate course titled "ELEN 4304/5301-49F VLSI Design and CAD Tools", $4,500.

(5) Lamar University Online Course Development Grant, for preparing the Fall 15 undergraduate course titled "ELEN 3421-48F Electronics I", $6,000.

(6) Lamar University Online Course Development Grant, for preparing the Fall 15 graduate course titled "ENGR 4324/5324-48F CMOS Digital IC Design", $4,500.

(7) Lamar University Online Course Development Grant, for preparing the Fall 15 graduate course titled "ENGR 4304 Topics in VLSI", $4,500.

PROFESSIONAL DEVELOPMENT ACTIVITIES

(Workshop, Short Course, Conferences Attended)

(1) Writing/Designing Winning NSF Proposals Workshop January 25, 2016

(2) 25th Annual *Single Event Effects (SEE) Symposium*, and *Military and Aerospace Programmable Logic Devices* (*MAPLD*) Workshop, San Diego, May 2016.

(3) 24th Annual *Single Event Effects (SEE) Symposium*, and *Military and Aerospace Programmable Logic Devices* (*MAPLD*) Workshop, San Diego, May 2015.

(4) 2014 *Nuclear and Space Radiation Effects* (*NSREC*) *Radiation Effects Data Workshop*, Paris, France.

(5) 2014 *Nuclear and Space Radiation Effects* (*NSREC*) *Conference*, Paris, France.

(6) *National Science Foundation (NSF) one-day workshop*" at Texas A&M University- Commerce, November 14, 2011.

(7) 7th *International Conference on Electrical and Electronics Engineering* ELECO, Conference, Bursa, TURKEY, Dec. 1-3, 2011.

(8) 2010 *Nuclear and Space Radiation Effects* (*NSREC*) *Short Course*, Denver, CO

(9) 2010 *Nuclear and Space Radiation Effects* (*NSREC*) *Conference*, Denver, CO.

(10) 2010 *Nuclear and Space Radiation Effects* (*NSREC*) *Radiation Effects Data Workshop*, Denver, CO.

(11) *NSF Power Electronics Workshop*, and "*Successful Grant Writing" Seminar*, 2004.

(12) *NSF Educational Grant workshop* on "Successful Grant Writing", Lamar University, Beaumont, TX 2005.

(13) *ABET workshop* in Baltimore on Assessing Program Outcomes, 2007.

TEACHING PROFICIENCY/SUPERIOR TEACHING EFFECTIVENESS

My teaching skills, effectiveness, and enthusiasm have been recognized and excelled during my 16-year service at Lamar. Since 2003, I have taught a total 33 different courses at both undergraduate and graduate levels at Lamar and supervised 30 Master's Theses and 2 Doctoral students. I have provided undergraduate students with a strong background in core courses such as Circuits & Electronics and offered advanced research-oriented graduate/elective courses in VLSI. At graduate level, 5 graduate courses I created in the area of VLSI Design and Signal provided a strong basis for specialization in VLSI.

I have shown leadership and excellence in classroom teaching, curriculum and lab development. I have taken the lead in offering online courses in our department: Offered our first BSEE Online course, and also created the first online BSEE laboratory course in our department's history. I have developed Circuits and Electronics Online Labs. The online labs were important as EE lab courses were the main obstacle in offering of our Digital eLearning Content Delivery System.

I am the biggest contributor of the LUEE's "Digital eLearning Content Delivery System and have created a total twelve (12) online EE theory and two (2) online EE laboratory courses.

Many of our engineering students are "experiential" learners who learn by doing and my philosophy is that students acquire a deeper knowledge through hands-on experiences. Therefore, I have recently integrated lab experiences into "purely theoretical courses" (e.g. Electronics II) via a novel "Value Added Engineering Education" (VAEE) concept. I have designed six (6) new VAE experiments so that students can perform VAE labs virtually anywhere by using the portable kit - the "Analog Discovery Module". The Educational Grant that I obtained from *Academic Partnerships* supported this project.

I have also obtained a TSGC Higher Education Program grant that was aimed at attracting undergraduate students on space related research. I have created a new Elective/Graduate course titled "*Space Radiation Effects & Mitigation*" course during 2010 which attracted many students. Course material was also made online for public use.

I had an opportunity to work with several undergraduate students in my research. I have supervised two Senior Undergrad Students on their topics for IEEE Paper competition. Both papers won 1st place awards in *IEEE Region V East area* competition and *IEEE Beaumont section* competition, respectively. I have also served as a faculty mentor of several undergraduate students in Lamar University Honors Program.

For long time, I have served as the *Lamar IEEE Student Branch Advisor* (2003-2015) where I had a chance to interact with undergraduate students from all levels during my 12-year service. There has been a great deal of activity in Lamar IEEE Student Branch since I became advisor.

My philosophy of teaching asserts that students should get top quality instruction in an active and stimulating learning environment. In class evaluations, students have consistently rated my teaching superior and I was consistently ranked above department, college and university averages on student evaluations for many years.

DEVELOPMENT OF COURSES, CURRICULA, AND OTHER TEACHING ACTIVITIES

(1) **Offered and Taught First Online Course in our LUEE Department**:

This course was titled "ELEN 2310 48F Fundamentals of Electrical Engineering" (Winter 2012). This course was offered for other engineering departments at Lamar. The online course offering has been a great success and students were very pleased with the online teaching provided.

(2) **Offered the First Online Laboratory Course at LUEE Department**:

ELEN 2107 Circuits Laboratory has been made fully online with the help of Digilent's Analog Discovery Module (Spr. 2014). I have constructed our first online laboratory course in our department's history. **This was followed by Online Electronics Lab Course**. This was important as the lab courses were the main obstacle in offering a full online EE degree. With Analog Discovery, students were able to run experiments remotely on their computers at a great convenience. Detailed video tutorials have been created to introduce students with the

tools and usage. The online lab has been a great success and very good student evaluations have been obtained.

(3) **Created Eight (9) more ONLINE Courses during next 2 years**:

In addition to "Fundamentals of Electrical Engineering" course and the two (2) lab courses that was offered online, I have created eight (8) more ONLINE EE courses (4 undergraduate, 4 graduate / elective) during last 2 years. These courses were "Circuits I theory", "Electronics I" theory, "Electronics II", and "Digital Logic Design and Lab" courses at undergraduate level and "CMOS Digital IC Design", "Low Power Radiation Tolerant Design", "VLSI Design and CAD tools", Advanced VLSI and "Topics in VLSI Design and Testing" courses at graduate level. The offering of these courses greatly helped our program as our LU BSEE program now offers **Digital eLearning Content Delivery**.

(4) **Development of 5 new regular courses in VLSI Design and Signal Integrity**:

Since I joined Lamar in 2003, I have **created and developed five new courses in the area of VLSI Design and Signal Integrity** area at both the undergraduate and graduate levels: (1) CMOS Digital IC Design, (2) Topics in VLSI, (3) Low Power Radiation Tolerant Design, (4) Advanced VLSI and (5) VLSI Design and CAD Tools. Offering such advanced level graduate courses provided a strong basis in VLSI Research area and increased research productivity.

(5) **Electronics I lab has been made fully online in 2014**..

(6) **Development of VLSI CAD and Signal Integrity Laboratory** to support research and teaching. I am currently the manager for the VLSI CAD and Signal Integrity Lab. Various Synopsys tools have been installed to support research and graduate level teaching. The graduate courses offered fully utilized this Laboratory.

(7) Offered twelve (12) Research-oriented Independent study courses: Allowed students to undertake independent research study on important issues related to very deep submicron VLSI Technology.

(8) **Integrated Value Added Engineering (VAE) Concept into Electronics II** theory Course (2011): For theory courses (with no labs), students were able still have hands-on-experience to support the theory learned in class using VAE concept.

(9) **Obtained an Educational Grant** from **Academic Partnerships** in the amount in the amount $4,116. The project was titled "Enhancing Student Learning via Value Added Engineering Education (VAEE)", Fall 2015.

(10) Created a new Elective/Graduate course titled "*Space Radiation Effects & Mitigation*" course during Summer I 2010. The course material was created with the support of a **TSGC Higher Education Program grant** aimed at attracting undergraduate students on space related research. The course offering has been a great success and attracted many students including undergraduates. The learning material for TSGC funded "Space Radiation Effects on Technology and Human Biology and Proper Mitigation Techniques" course has been made available online.

COURSES TAUGHT AT LAMAR UNIVERSITY

I have taught a total 33 different courses on both undergraduate and graduate level in Electrical Engineering discipline at Lamar. I have taught about 4 courses per long semester (one undergrad, one grad, one lab course and one thesis/independent study) with class size varied between 20-110 students.

Undergraduate Courses

ELEN 3321-01 Electronics I (16 times)
ELEN 3108-01 Electronics Lab (14 times)
ELEN 3322-01 Electronics II (13 times);
ENGR 1301-01 Introduction to Computer Programming (9 times)
ELEN-2311-01 Circuits I (3 times)
ELEN 2107-01 Circuits Lab (12 times)
ELEN 2310-48F Fundamentals of Electrical Engineering (7 times)
ELEN 3431-48F Digital Logic Design and Lab (1 time)
ELEN-4304-32 CMOS Digital IC Design -Elective (8 times)
ENGR-4304-32 CMOS Static Pow -elective (1 time)
ELEN 4304-32 Advanced VLSI -Elective (2 times)
ELEN 4304-32 Topics In VLSI Design -Elective (5 times)
ELEN 4304-32 Space Rad Effects & Mitigation -elective (2 times)
ELEN 4304-32 Low Power Rad Tolerant Design (2 times)
ELEN 4304-SS VLSI Design and CAD tools (2 times)

Graduate Courses

ENGR 5301-32 VLSI Interconnects (4 times)
ENGR 5391-32 Interconnect Crosstalk Prediction (2 times)
ENGR-5301-32 CMOS Digital IC Design (13 times)
ENGR-5301-33 CMOS Static Pow (1 time)
ENGR-5301-36 Signal Integrity (1 time)
ENGR 5301-32 VLSI Testing (3 times)
ENGR 5301-32 VHDL Prog. (1 time)
ENGR-5301-35 Alternative Interconnect Tech (1 time)
ENGR-5301-32 Advanced VLSI (5 times)
ENGR-5301-33 CMOS Soft Delay Hard (1 time)
ENGR-5301-33 Hardening for CMOS (1 time)
ENGR 5301-32 (ELEN 5328) Topics In VLSI Design (8 times)
ENGR-5390-32 Thesis (ENGR5391) (17 times)
ENGR-5301-33 Leakage Prev. Methods (1 time)
ENGR 5301-32 Space Rad Effects & Mitigation (2 times)
ELEN 5301-32 Low Power Rad Tolerant Design (5 times)
ELEN 5301-SS VLSI Design and CAD tools (4 times)
ENGR 5301-32A Temp Induced Soft Errors (3 times)

ENGR 5301-32S TG based Soft Error Mitigation (1 time)
ENGR 6320-32 Justification Engineering (1 time)
ENGR 6601-32 Engineering Prac. Field Study (5 times)
ENGR 6110-32 Professional Seminar (4 times)
ENGR 6603-SS Engineering Dissertation I (1 time)
ENGR 5301 -SS PVT Analysis of Soft Error mitigation methods (1 time)
ELEN 5301-SS Spintronics for Low Pow& Rel
ELEN 5301-SS Dsgn Asynch Circ for Reliab.
ELEN 5301-05 ST: Comp. of NCL Dsgn Soft Err

Additional Courses taught at previously affiliated institution:

Circuit Analysis I (3 times), Circuit Analysis II: (2 times), Digital Design I, and II
Diff. Equations (3 times), Measurement Tech. II, Computer Hardware, Transmission Lines
Introduction to C Programming (3 times), CMOS VLSI Design

GRADUATE STUDENTS

At Lamar, I have supervised thirty (30) Master's theses since 2003 and two (2) doctoral students. I have been a member of five (5) doctoral committees and member of more than fifty (50) MSEE committees. Most of my publications are with my Master's or undergraduate students. Some of my students are hired by companies like Intel, Altera, and JSC/NASA.

Thesis Students:

Pankaj Bhowmik, MSEE, Dec. 2016,
Title:"Mitigation of Temperature Induced Single Event Crosstalk Noise",

Bulbul Ahmed, MSEE, Dec. 2016.
Title: "Minimization Of Crosstalk, Power Consumption And Inductive Noise In Interconnect"

Md. Adnan Zaman, MSEE, Aug 2016,
Title: "Analysis and Modeling of Normal Signal Switching Induced Crosstalk Delay and Speedup in Nanometer Technologies"

Sujan Saha, MSEE, Aug 2016,
Title: "Minimization of Interc. Crosstalk Noise and Power Consumption in Nanoscale Designs",

Archit Shah, MSEE, May 2016,
Title: "3D Analysis of Self-Heating and its Impact on Performance of SOI and Bulk FINFET".

Mustafizur Rahman, MSEE, May 2015
Title: "Reduction of Temperature Induced Clock Skew and Crosstalk".

Syed A. Rahman, MSEE, May 2015

Title: "Reliability Analysis of Various Body Biasing Techniques".

Md A. Sayeed, MSEE, May 2015
Title: "Soft Error Mitigation Using Driver Sizing Combined With Transmission Gate".

Palash Datta, MSEE, May 2014
Title: "Soft error mechanisms in FINFET devices".

Mahgol Sadat Moussavi, MSEE, August 2014
Title: "Comparison of various circuit level power optimization techniques".

Kaustubh V. Dhonsale, MSEE, August 2014
Title: "A combine method for soft-error mitigation using DTMOS and varied gate and body bias".
Currently works at "Panasonic Automotive systems".

Li Yuan, MSEE, August 2013
Title: "Analysis and Modeling of Single Event Induced Signal Speedup".

Yao Yao, MSEE, August 2013
Title: "Predicting Single Event Coupling Delay in Nanometer Technologies".

Md. Azharul Islam, MSEE, May 2013
Title: "Transmission Gate Input Voltage Control for Soft Error Mitigation".

Partivkumar B. Prajapati, MSEE, May 2011
Title: "A Comparison of Radiation Tolerance of Different Logic Styles".
Currently works at "Myron L Company"

Vinaychawdary Singamaneni, MSEE, August 2011
Title: "Crosstalk Mitigation Using Varying Transmission Gate Voltage".

Priyank Nerurkar, MSEE, December 2011
Title: "Radiation Tolerance of Low Power Design Techniques".

Harikrushna H. Dhameliya, MSEE, December 2011
Title: "Radiation Induced Soft Error Mechanisms in Nanoscale CMOS".

Bo Sun, MSEE, December 2011
Title: "Transmission Gate Technique for Soft Error Mitigation in Nanometer CMOS Circuits".
Currently studies Ph.D. at "TU Delft Beijing Research Center"

Juyu Wang, MSEE, May 2010
Title: "Comparison on various Combinational Logic Related Soft Errors".

Vijay K. Boorla, MSEE, May 2010
Title: "Closed form modeling for Single Event Crosstalk and mitigation techniques".

Nareshkumar B. Patel, MSEE, August 2010
Title: "Soft Error Mitigation using Dynamic Threshold".

Abhishek Balaji Akkur, MSEE, August 2008
Title: Single Event Crosstalk Noise Contamination in Nanoscale Circuits", Senior Memory Design Engineer ARM Inc,, UK

Selcuk Belek, MSEE, August 2008

Title: "High Altitude Simulation of Fuel Cell", Software Engineer at Apex Systems & Technology Solutions .

Srinivas Achanta, MSEE, August 2008
"Comparison of Circuit Level Hardening Techniques for CMOS Combinational Logic". Development Lead Engineer at Schweitzer Engineering Laboratories.

Uday K. Borra, MSEE, December 2007
Title: "An Analytical Model For Crosstalk Delay Estimation In Deep Sub-Micron VLSI Circuits" Currently Hired by Intel Corporation, AZ as a Product Engineer.

Merlyn Rudrapati, MSEE, December 2006
Title: "An Improved Crosstalk Noise Model for On-Chip Interconnects".

Michael Anita, MSEE, May 2005
Title: "An Accurate and Time Efficient Cross-talk Noise Model for Multi-line Circuits and its use in Interconnect Optimization" Hired by Intel Corporation, Austin, TX as a Post Silicon Validation Engineer.

Doctoral Students

(1) Md. Sofikul Islam "Mitigation of thermally induced soft errors in VLSI Design", Graduated in Fall 2017.

(2) Mustafizur Rahman, "Soft Error Tolerant Threshold Gate Design for Null Convention Logic"

Theses and Dissertations Committee Services

(1) Chair of around 60 non-thesis comprehensive examination committees
(2) Member of five (5) doctoral committees
(3) Member of more than fifty (50) MSEE committees
(4) Member of around 120 non-thesis comprehensive examination committees

UNDERGRADUATE RESEARCH SUPERVISION

I have supervised two Senior Undergrad on their topics in IEEE Paper Competition. **Both papers won 1st place awards in IEEE Region V East area competition and IEEE Beaumont section** competition during 2006 and 2007, respectively. I have also published with undergrad students in international peer-reviewed journals.

PROFESSIONAL SERVICES, ACTIVITIES AND ACHIEVEMENTS

Journal Editorship

(1) **Associate Editor** for *International Journal of Electronics* (Fall 2008-present)

More than 200 papers have been assigned to reviewers and decided ~150 manuscripts.

(2) **Corresponding editor** for IEEE Potentials magazine (Fall 2008- Fall 2009).

Serving on Panels

(1) **Proposal Reviewer** (Panel Member) for **NASA/TSGC New Investigations Program** 2013 invited.

(2) **Proposal Reviewer** Lamar Summer Undergraduate Research Fellowships (SURF) Proposals, 2017

(3) **Proposal Reviewer** The Office of Undergraduate Research (OUR) at Lamar University, 2017

Book Reviewer- incomplete list

(1) *Microelectronic Circuits*, 7th edition, Adel Sedra and Kenneth C. Smith (2016)
(2) *Principles of Electronic Materials and Devices*, 4th edition, Safa Kasap (2013).
(3) *Microelectronic Circuits*, 6th edition By Adel Sedra and Kenneth C. Smith (2012)
(4) *Microelectronic Circuits*, 6th edition, Adel Sedra and Kenneth C. Smith (2010)
(5) *CMOS Digital Integrated Circuits Analysis & Design 4th edition*, Kang, Leblebici and Kim (2011)
(6) *CMOS Digital Integrated Circuits Analysis & Design 4th edition*, Kang, Leblebici and Kim (2009)
(7) *Electrical Engineering Principles and applications*, 4/E, Hambley (2009)
(8) *Electric Circuits*, 8th edition,Nilsson and Riedel (2009).
(9) *Fundamentals of Microelectronic Circuit Design and Analysis*, Neudeck and Neudeck.

Manuscript Reviewer for Many International Peer-Reviewed Journals/Conferences (incomplete list)

(1) *IEEE Transactions on Aerospace and Electronic Systems (1 manuscript-2014)*
(2) *Analog Integrated Circuits and Signal Processing (2017)*
(3) *IEEE Transactions on Nuclear Science (4 manuscripts-2014, 1 manuscript 2017)*
(4) *IEEE Transactions on Computer Aided Design*
(5) *IEEE Transactions on Neural Networks (3 times).*
(6) *IEEE Potentials Magazine (2 times).*
(7) *Journal of Vacuum Science and Technology-invited.*
(8) *Journal of Lightwave Technology.*

(9) *Measurement Sc. and Tech. -invited. (2 manuscripts- 2008)*
(10) *IEEE Design&Test Journal (2006)*
(11) *Microelectronics Engineering Journal (2 times- 2008)*
(12) *CSICC'08 Conference*
(13) *Microelectronics Engineering Journal- (2 times) (2008)*
(14) *IET Circuits and Systems (2008).*
(15) *Int. Journal of Electronics (2009)*
(16) *Pamukkale Journal of Engineering Science*
(17) *Pamukkale University Internet Technology Conference*

Membership of Professional Societies/ Committee Member

(1) Member, *IEEE*
(2) Member -TCVLSI - Technical Committee on VLSI.

COMMUNITY SERVICE

(1) Gave three (3) presentations to the West Brook High School on Career Day for recruiting purpose.
(2) Gave four (4) presentations to the Ozen High School on Career Day for recruiting purpose.
(3) Served as Judge for IEEE Region V student paper competition (2011) and ranked 5 papers.
(4) Developed an interdisciplinary and space based research course under NASA/TSGC Higher Education grant. All course material has been made online at the Lamar University's website and the information made available to students and the public for dissemination.
(5) Attended most IEEE Beaumont Section Meetings, and Region 5 IEEE Executive Committee meetings

SERVICES FOR DEPARTMENT, COLLEGE, UNIVERSITY AND COMMUNITY (incomplete list)

I have been very enthusiastic in serving the department, college, university and community and have been very active in departmental, college and university level service and community service at Lamar

I have served as **Lamar IEEE Student Branch advisor for 12-years**. I served as Faculty senator two times and represented our college.

I have been recently selected as the **ABET coordinator** to prepare the self-study report for EE department starting Fall 2015. I am also the department's SACS Representative since 2009. At Lamar, I have also served in Faculty Tenure, Promotion and Faculty Search committees on multiple occasions.

DEPARTMENTAL SERVICE (incomplete list)

(1) **Lamar IEEE Student Branch Advisor (Aug. 2003-Sept. 2015).** There has been increasing amount of activity in Lamar IEEE Student Branch since I became advisor in 2003**.** Meetings mostly held regularly every two weeks and I attended most meetings. Some of my contributions during my 12-year service

a) **Arranged many tours** such as: Edison Plaza Museum Tour (2004), Entergy Tour (2004), Ellington Field, Johnson Space Center tour at NASA, 2006, Separate NASA trip organized with Faculty in the Space Science Department (from JCS 2006), Power Plant tour (2010)

b) **Helped students bring guest speakers** and arrange meetings: Some important seminars/meetings are:
Job opportunities as power engineer- Equistar, 2 times in 2005; *IEEE and Ethics* - Lyondell company, 2005; *Financial planning* - Primerica, twice, 2006, 2007; *Resume and Interviewing writing*- Total, 2006; *Interview Practice*- BP Guest Speaker, 2007; NASA Presentations- 2008, and 2010; Bayer Material Science LLC informational meeting; *IEEE Xplore*, Client Services presentation (2010).

c) Attended Region V conference with students (2007),

d) Served as as Judge for IEEE Region V student paper competition and ranked papers (2011)**.**

e) Attended Branch, Regional and Gold Chapter meetings, made presentations to BMT IEEE Section.

f) **Supervised students for reimbursements** of conferences, requested support from Section and Area for winning papers.

(2) **Department ABET Coordinator** (Fall 2015- present), **Preparer of the ABET Self Study Report**

Collected data from faculty, presented results to faculty in departmental meetings, prepared the continuous improvement plan for first 3 years for our BSEE program.

(3) **Department SACS Representative**: Starting 2009, I have served as the department representative for the College of Engineering ABET and SACS outcomes assessment committee, I have

a) Prepared SACS Institutional Effectiveness (IE) plan for our BSEE program, communicated and obtained feedback from Assessment Coordinator and Chair, and attended SACS meetings.
b) Created Rubrics and informed Faculty about Evaluation and Procedure
c) Prepared Assessment Reporting Form.
d) Created "End of the year IE Report" for EE and statistics, prepared new IE Plans each year.

(4) Department representative for the PIR committee on the review of DE and PHD programs (2016)

(5) Director for the Lamar VLSI Cad & Signal Integrity Laboratory (2004- Present)

(6) Developed our first online laboratories in EE department for Circuits I and Electronics I courses. Added lab component to theory courses via Value Added Engineering (VAE) concept.

(7) Made a presentation for Beaumont IEEE Section in November 2012

(8) Service for ABET Accreditation: Performed Alumni Survey for ABET, Maintained ABET class folders and graded each course outcome, Attended ABET meetings, met with the ABET evaluator. Assisted in the preparation of the 2006 and 2012 ABET review for the BS program in Electrical Engineering.

(9) Maintained SACS Syllabus each semester and updated resume.

(10) Attended EE Seminar Faculty Research Showcase.

(11) Attended EE Advisory board meetings

(12) Senior Project Review for SACS (2009-present).

(13) Ranked student papers for IEEE student paper competition (each year)

(14) Committee chair for the fourth year review of an EE faculty (2012).

(15) Member, Faculty Tenure Committee, 2013.

(16) Member, Faculty Promotion Committee, 2013.

(17) Member, Electrical Engineering Faculty Search Committee: Attended all Skype interviews and ranked applicants (2014), (2015). Attended meetings for new faculty search, ranked candidates, attended interviews.

(18) Represented department on "chair meetings" when needed.

(19) Represented Lamar IEEE Student Branch in IEEE Beaumont Section and EXCOM meetings which is mostly held in Orange, TX (6 times).

(20) Mentored two Senior Undergrad Students (Nelson Gaspard III in 2007 and Martin Martinez in 2006) on their topics in IEEE Paper Competition. Both papers won 1st place awards in IEEE Region V East area competition and IEEE Beaumont section.

(21) Represented department during Fall Academic Open House (at least 5 times).

(22) Prepared EE Graduate Comprehensive Exam and Graded students.

(23) Served as one of the academic advisors of the graduate programs in EE Department. Advised students to register, take courses, and achieve degree requirements.

COLLEGE SERVICE (incomplete list)

(1) COE Promotion and Tenure Committee member (2019-present)

(2) COE Dean Search Committee member (2019)

(3) College Representative for Distance Education Committee (2014-2019)

(4) COE Regents University Professor & Merit Award Committee member (2013, 2015).

(5) Represented COE during PIR committee visit for the review of DE and PHD programs (2016)

(6) Representative for the ad-hoc committee to review Online proctoring services.

(7) Represented EE on COE Energy Engineering Ph.D. proposal (2009-2010).

(8) Represented EE on COE Green Energy Engineering Ph.D. proposal (2009).

(9) Created EE faculty job ad for Ph.D. in Energy Engineering application. (2011).

(10) Attended Fall Academic Open House.

(11) Attended ABET Workshop in Baltimore, MD

(12) Attended College Convocations.

(13) Offered "Fundamentals of Electrical Engineering course" as an online course for engineering departments.

(14) Gave five (5) presentations to INEN 1101 Introduction to Engineering for an introduction of Electrical Engineering program to non-EE engineering students (2008-2009).

UNIVERSITY SERVICE (incomplete list)

(1) Faculty Senator for College of Engineering (Fall 2013- May 2015): Attended most meetings.

(2) Faculty Senator for College of Engineering (Fall 2007-May 2008): Attended meetings.

(3) Study Abroad Committee Member (2007-2008)

(4) Educator Preparation Council member (2015)

(5) College Representative for Distance Education Committee (2014-present)

(6) COE Regents University Professor & Merit Award Committee member (2013, 2015).

(7) Served as Physics Faculty Search Committee member (2009), evaluated over "90-ninety Physics Faculty Candidate Applications" and ranked them based on given criteria.