Byron Garry

Associate Professor &
Program Lead, Electronics Engineering Technology program
Dept. of Construction & Operations Management
Jerome J. Lohr College of Engineering
South Dakota State University
212 Solberg Hall, Box 2223, 907 Campanile Ave.
Brookings, SD 57007
Office: 605-688-6229
Email: Byron.Garry@sdstate.edu
SDSU Directory page Linked-In

Education

M.S. Engineering, Electrical Engineering Emphasis, 1988, South Dakota State University, Brookings, SD
B.S. Electrical Engineering, 1981, South Dakota State University, Brookings, SD
Coursework (no degree) toward Ed.D. in Adult & Higher Education, part-time, U. of South Dakota, 2001-04

Teaching Experience

South Dakota State University, Fall 1990 to present

- Associate Professor & Program Lead, Electronics Engineering Technology program
  Dept. of Construction & Operations Management (COM), Jerome J. Lohr College of Engineering, SDSU, Brookings, SD
- Non-tenure track, 100% Instructional position
  Promotion to Assistant Professor 1997, Associate Professor 2001
- Courses taught
  - Face-to-Face (F2F) lecture and laboratory for EET program, recent years: Introduction to Electronic Systems (DC/AC), Advanced Analog Devices, Circuit Boards & Design, Communication Systems, Power Systems, & Project Management
  - F2F Intro to Engineering & Technology Professions, 300-student course for College of Engineering
  - Past F2F EET courses: AC & DC Concepts, Analog Devices, Digital Electronics, Microprocessors, Prototype Systems, EET Program Capstone
  - Fully online course for College of Engineering: Technology, Society & Ethics

Graduate Teaching Assistant. Electrical Engineering Dept., SDSU, 1981-84.
- Taught upper level undergraduate laboratories and sophomore level lecture courses.

Advising Experience

Typically 15-20 EET students assigned as advisees each year
Conduct BS degree review for all graduating EET students each semester
SDSU New Student Orientation summer advising for new and transfer COM Dept. students in EET, Construction Mgmt, Operations Mgmt, & Concrete Industry Mgmt programs, 2001-2023

Industrial / Professional Experience

Mar Engineering, Eden Prairie, MN, 1990

- Consulting Engineer. Redesign of electronic hardware for existing measurement instrumentation.

CSE Technologies, New London, MN, 1987-90

- Project Engineer. Designed microprocessor-controlled telecommunications test equipment. Worked on analog and digital hardware design, and software design. Had complete responsibility for completing the design and maintaining the manufacturing revision status and electronic hardware and software updates for a portable analog telephone system test set.

Navistar, Inc., Ft. Wayne, IN, 1986-87
- Project Engineer II. Design and test engineer in the Advanced Electronics Division of Navistar, a maker of large over-the-road trucks. Developed control systems and electronic instrumentation for long range development of in-cab electronics.

RCA Corporation, Indianapolis, IN, 1985-86
- Circuit Design engineer in the Display Monitor Division. Designed video circuitry for high-resolution computer monitors.

Medical Engineering Service Associates, Brookings, SD, 1984
- Safety Technician. Tested medical equipment for electrical safety in small South Dakota hospitals, that had no on-site electrical test capabilities. Part-time, company owned by SDSU EE Dept. faculty.

Magnetic Peripherals/Control Data, Minneapolis, MN, 1980
- Summer Intern/Test Engineer. Wrote test programs for manufacturing of memory disk drives.

Professional Memberships

ASEE - American Society for Engineering Education member, 1998-present
SDSU Campus Faculty Representative, 2011-2023
North Midwest Section Secretary Treasurer, 2019-present
North Midwest Section Campus Rep, 2012-2019
Organized a North Midwest Section restart and election of new officers in 2019
IEEE - Institute for Electrical and Electronics Engineering member, 2009-present
EMH - Epsilon Mu Eta - Engineering Management Honor Society, Campus Co-Advisor, 2009-present

Certifications

SDSU Center for the Enhancement of Teaching and Learning (CETL) annual Professional Development Certificate, 2021, 2020, 2019, 2018, 2017 & 2015.
Master Online Instructor Certification, SDSU, 2020; Advanced Online Instructor Certification, 2012
Peer Observer Certification, SDSU, 2012

Institutional & Industry Service

SDSU EET program ETAC-ABET Self Study preparation and writing, Spring/Fall 2022
Leading to continuing ETAC-ABET Accreditation for the EET program; also in 2016 and 2005
University Assessment Sub-Committee member, representing the College of Engineering, 2010-2023, Chair 2019-21 & Vice-Chair 2018-19.
SDSU Quality Initiative – Higher Learning Commission Academy for the Assessment of Student Learning, Executive Committee member 2015-2019, leading to SDSU's successful 2019 visit and ten-year accreditation renewal
ETAC-ABET (Engineering Technology Accreditation Commission) - National PEV (Program Evaluator)
Nine accreditation review visits of EET AS- and BS-degree programs, 2011-present
SEET Club (for EET students) Faculty Advisor, 2001-present
SDSU COM Dept., Planned & organized successful ABET accreditation visit for three COM programs, Sept. 2022
SDSU Middle School Fair - organize COM Dept. display and presentation, 2021-23
CIM Program Director Search Committee Chair, Spring 2021
Faculty Search Committee Chair, CM program, Spring 2020, 2019 & 2018
Faculty Search Committee member, First Year Advising Center, Spring 2019
Provide SDSU faculty training & support of software tools as a member of training teams:
ConnectState, for use by faculty advisors, 2016-2021
Campus Labs Outcomes, for use in program assessment, 2016-2020
Digital Measures, for use when preparing Faculty Annual Reports, 2017-2019
Campus Lab Rubrics, for use by faculty within assessment/D2L, 2015-2018

ASEE Annual Conference – Review Abstracts and Papers, 2015 to present
Advisory Board member for AAS Electronics, Robotics, & Mechatronics programs at Lake Area Technical College & Southeast Technical College, 1995 to present
Textbook Reviews - Electronic Communications Systems, 4th edition, Frenzel, McGraw-Hill, 2022
- Electronic Principles, 9th edition, Malvino, Bates, & Hoppe, McGraw-Hill, 2021
Best Robotics Competition, Marketing Judge, SDSU, October, 2017-2022
ASEE Best Practices in Engineering Education – SDSU campus committee chair 2010-present
ETM Dept. representative on Dean of Engineering's Faculty Advisory Council, 2011-12
SDSU Youth Engineering Adventure summer camp, EET project coordinator, 2002-2016
Technology Committee member, SDSU Lead-Forward Initiative, 2003-2006

Honors and Awards

ASEE North Midwest Section Outstanding Service Award, 2023
ASEE North Midwest Section Outstanding Campus Representative, 2023, 2015
ASEE Zone III Outstanding Campus Representative, 2015
Academic Advisor of the Year for SDSU College of Engineering, 2007-08

Research

Hot Box Test Apparatus Design & Material Testing, in support of Dr. Yordanova's Doctoral Dissertation research, Summer 2016

Journal Publications

Garry, B. & Steinlicht, C. (2012). Inductive learning activities for process development and cost estimating. *The Journal of Management and Engineering Integration* 5(4):81-88.

Conference Presentations

Yordanova, A., Tofte, E., & Garry, B. (2023). *Teaching Applied Management Courses Online: Considerations for Good Practices.* Proceedings of the 2023 ASEE North Midwest Section Conference, Brookings, SD

Koromyslova, E., Steinlicht, C., Hall, T.J.K., Yordanova, A., & Garry, B. (2018). *Implementing lean practices in an academic department: A case study.* Proceedings of the 2018 ASEE Annual Conference & Exposition. AC 2018-23435. Salt Lake City, UT

Koromyslova, E., Hall, T.J.K., & Garry, B. (2017). *Continuous improvement of teaching via peer and administrator observations.* Proceedings of the 2017 ASEE Annual Conference & Exposition. AC 2017-18213. Columbus, OH

Garry, B. (2017). *Electronics theory + Mathematics = Ohms Law.* South Dakota Career and Technical Educators (CTE) Conference, Brookings, SD

Koromyslova, E. & Garry, B. (2016). *Problem-based learning in a supply chain management course.* Proceedings of the 2016 ASEE Annual Conference & Exposition. AC 2016-14739. New Orleans, LA

Garry, B. (2016). *Applied ABET student outcome continuous improvement process.* Proceedings of the 2016 ASEE Annual Conference & Exposition. AC 2016-14394, New Orleans, LA

Garry, B. (2015). *Developing a sustainable ABET continuous improvement plan.* Proceedings of the 2015 ASEE Zone III Conference, Springfield, MO

Garry, B. & Burckhard, S. (2015). *Discussions of engineering education learning advances among working engineering faculty.* Proceedings of the 2015 ASEE Annual Conference & Exposition. AC 2015-1113. Seattle, WA

Garry, B. (2014). *Continuous improvement: Process, rubrics, data, and 5 Years of course changes resulting from assessment of capstone projects.* Presentation & Panel Discussion, 2014 Assessment Institute, Indianapolis, IN

Garry, B. (2014). *Multiple learning strategies and assessments used in an online technology, society & ethics course.* Proceedings of the 2014 ASEE North Midwest Conference, Iowa City, IA

Hall, T.J.K., Garry, B. & Steinlicht, C. (2014). *Multidisciplinary approaches: A management core for applied management and decision science.* Proceedings of the 2014 ASEE North Midwest Conference, Iowa City, IA

Steinlicht, C. & Garry, B. (2014). *Capstone project challenges: How industry sponsored projects offer new learning experiences.* Proceedings of the 2014 ASEE Annual Conference & Exposition. AC 2014-8820. Indianapolis, IN

Garry, B. & Burckhard, S. (2013). *On-campus faculty discussions on best practices in engineering education.* Proceedings of the 2013 ASEE North Midwest Conference, ASEE-NMWSC2013-0008, Fargo, ND

Garry, B. (2013). *Effect of previous experience and attitudes on capstone project achievement.* Proceedings of the 2013 ASEE Annual Conference & Exposition. AC 2013-6033. Atlanta, GA

Steinlicht, C. & Garry, B. (2013). *Systems learning within the context of subject learning.* Proceedings of the 2013 ASEE Annual Conference & Exposition. AC 2013-6951. Atlanta, GA

Garry, B., Andrawis, M. & Burckhard, S. (2013). Best Practices in Engineering Education – an On-Going Series of Discussions. *Academic quality: Establishing expectations and Measuring Success.* South Dakota Board of Regents Conference. Brookings, SD

Wilson, A., Garry, B., Cempellin, L., Murray, L., Seefeldt, T., Tschetter, L., Vondruska, J., and Wright, C. (2013). Student and Faculty Perceptions of the IDEA Survey. *Academic quality: Establishing expectations and measuring success.* South Dakota Board of Regents Conference. Brookings, SD

Garry, B. (2012). *Active learning strategies in a project management course*. Proceedings of the 2012 ASEE North Midwest Conference, St. Cloud, MN

Hall, T.J.K. & Garry, B. (2012). *Articulation: The good, the bad, the possibilities*. American Technical Education Association Region Five Conference, Watertown, SD

Steinlicht, C. & Garry, B. (2012). *Developing cost estimating skills through a disassembly process*. American Technical Education Association Region Five Conference, Watertown, SD

Garry, B. & Steinlicht, C. (2012). *Inductive learning activities for process development and cost estimating.* Association for Industry, Engineering & Management Systems Conference, Cocoa Beach, FL.

Garry, B. (2011). *Examples of rubrics used to assess ABET student outcomes in a capstone course.* Proceedings of the 2011 ASEE North Midwest Conference, Duluth, MN.

Garry, B., Hall, T.J.K., & Qian, L. (2011). *Work in progress: Implementing peer observation of teaching*. FIE 2011 Conference, Rapid City, SD

Garry, B. (2011). *Relationship between ABET-TAC Criterion 3 a-k student learning outcomes achievement data and student's self-assessment of learning gathered from student evaluation of teaching surveys.* Proceedings of the 2011 ASEE Annual Conference & Exposition. AC 2011-375. Vancouver, BC

Garry, B. (2010). *Using webpages to document and assess student capstone project work.* Proceedings of the 2010 ASEE North Midwest Conference, Mankato, MN

Hall, T.J.K., & Garry, B. (2007). *The importance of relevant industrial experience in tenure and promotion policy decisions*. Proceedings of the Conference for Industry and Education Collaboration, Session ETD 328. Palm Springs, CA

Nelson, R. & Garry, B. (1998). *Effect of impedance and frequency variation on insertion loss for a typical power line filter.* 1998 IEEE International Symposium on Electromagnetic Compatibility (2):691–695.

Presentations On-Campus at SDSU

SDSU ASEE Chapter Organizer & Moderator, Best Practices in Engineering Education, Spring 2011 through Spring 2022 semesters, 48 sessions

JJL College of Engineering faculty presenting to their colleagues their research and practical class work examples in the engineering education field.

Presenter or Co-Presenter:

ASEE TUEE Phase IV: Views of Faculty & Professional Societies, Sept. 2018
Industry Feedback from Internship and Senior Design/Capstone Projects, Feb. 2016
ASEE TUEE Phase I: Synthesizing and Integrating Industry Perspectives, Apr. 2014
Developing rubrics to assess specific ABET Student Learning Outcomes, Feb. 2014

Developing course assignments that measure specific ABET Student Outcomes, Jan. 2014
Team-Based Learning & Immediate Feedback forms, October 2013
Academic Quality & Rigor, Discussion leader, Feb. & March 2013
Rubrics, February 2012
Problem-Based Cooperative Learning, October 2011
Engineering Education research in your classroom/lab, April 2011
Building Student Engagement in the Classroom, March 2011

Various campus research presentations are linked for access on SDSU's OpenPrairie, at https://openprairie.sdstate.edu/do/search/?q=Garry%2C%20Byron&start=0&context=7231697&facet=

Yordanova, A. & Garry, B. (2020). *Crash Course on Considerations About Converting Face-To-Face (F2F) Course Content to Online*, online presentation developed for SDSU Instruction Design Services Master Online Instructor Certification

Gertken, N., Bebensee, S., Erdman-Becker, K., & Garry, B. (2019). Advising Technology Panel presentation, SDSU Spring Advising Conference, Brookings, SD

Garry, B., Badura, M., Owen, J., & Bebensee, S. (2019). *ConnectState Training for College of Engineering Departments*, four sessions during Spring 2019 semester

Garry, B., Hall, T.J.K., & Merriman, J. (2017 & 2018). *COM programs: Toast Kaizen, Estimate a Project, & Solder an Electronics Kit*. 3.5 hour session. Part of SDSU Summer Scholars camp for high school students, Brookings, SD

Seefeldt, T. & Garry, B. (2017). *Demonstration/Support for faculty using Campus Labs Outcomes.* SDSU Assessment Academy I, April Session, Brookings, SD

Trenhaile, J., Hale, J., Flint, D., & Garry, B. (2017). *Panel discussion: Closing the loop*. SDSU Assessment Academy I, March Session, Brookings, SD

Garry, B. (2014 & 2015). *Electronics Engineering Technology circuits-½ day*. Part of Engineering the Future Summer Workshop for high school teachers, Brookings, SD

Garry, B. & Kampmann, J. (2015). *Closing the loop: Practical experiences in program assessment*. DME Faculty Discussions, Brookings, SD

Garry, B., & Tschetter, L. (2014). *Learning assessment using IDEA student opinion surveys: Interpreting the IDEA Diagnostic Form report.* Presentation at Teaching Learning Center Faculty Development Series, SDSU, Brookings, SD

Garry, B. & Madsen, L. (2014). Co-Mentors, SDSU AL Cloud Summer Academy. Basic Cohort, June 2014, 5 days, Brookings, SD

Garry, B. (2014). *Continuous Improvement: Process, Rubrics, Data, and 5 Years of Course Changes resulting from Assessment of Capstone Projects.* Poster presented at SDSU Spring 2014 Faculty Conference, Brookings, SD

Sckerl, J., Bayer, S, Nepal, M., Kampmann, J. & Garry, B. (2013). *Navigating quality rubrics*. University Assessment Committee sponsored faculty workshop. South Dakota State University, Brookings, SD

Hill, K. & Garry, B. Co-Mentors, SDSU AL Cloud Summer Academy. Basic Cohort, June 2013, 3 days, Brookings, SD

Sckerl, J. & Garry, B. (2012). *That's an IDEA: Interpreting reports.* Workshop for SDSU faculty, South Dakota State University, Brookings, SD

Sckerl, J. & Garry, B. (2012). *Using the IDEA for administrative decision-making.* Workshop for Deans and Department Heads, South Dakota State University, Brookings, SD

Garry, B. (2012). *Using multiple learning strategies in an online course*. Poster Sessions, Food & Faculty Fall Showcase and National Distance Learning Week, South Dakota State University, Brookings, SD

Garry, B., & Tschetter, L. (Fall 2009, Spring 2010, Fall 2010, Fall 2011). *Learning assessment using IDEA student opinion surveys: Interpreting the IDEA Diagnostic Form report.* Presentations at Teaching Learning Center Faculty Development Series, South Dakota State University, Brookings, SD

Garry, B., & Tschetter, L. (Fall 2009, Spring 2010, Fall 2010, Fall 2011). *Learning assessment using IDEA student opinion surveys: Selecting objectives on the Faculty Information Form (FIF).* Presentations at Teaching Learning Center Faculty Development Series, South Dakota State University, Brookings, SD

Garry, B. (2011). *Redesigning a face-to-face, web-enhanced course to be a distance-lecture/ face-to-face lab course.* Poster sessions Spring 2011 Teaching Learning and Technology AL Cloud Conference and at Spring 2011 Faculty Teaching Showcase, South Dakota State University, Brookings, SD

Garry, B. (2010). *Student evaluations: Not going away any time soon.* Presentation at Department of Engineering Technology & Management Fall Retreat, South Dakota State University, Brookings, SD

Garry, B. (2010). *Using D2L "student homepages" to track and assess group projects.* Presentation at Spring 2010 Faculty Development Conference, South Dakota State University, Brookings, SD

Garry, B. (2009). *Making the transition to active learning.* Presentation at Department of Engineering Technology & Management Fall Retreat, South Dakota State University, Brookings, SD

Garry, B., & Steinlicht, C. (2009). *Embedded assessment: quality control vs. quality assurance.* Presentation at Teaching Learning Center Faculty Development Series, South Dakota State University, Brookings, SD

Garry, B. (2008). *Using WebCT's "student presentation" as a collaboration tool for capstone project teams.* Poster session. 10 Years of On-Line Education, South Dakota State University, Brookings, SD

Garry, B., & Steinlicht, C. (2008). *Coordinating SDSU program outcomes and IDEA objectives.* Presentation at Academic Evaluation & Assessment IDEA Workshop, South Dakota State University, Brookings, SD.

Professional Development Activities, since 2018

ASEE North Midwest Section Conference, Planning Committee member & Session Moderator, Brookings, SD, Oct 5-6, 2023

Supporting Students and Ourselves Across Personal, Cultural & Experiential Differences, SDSU Fall Faculty Conference, Aug 2023

Boosting Antenna Efficiency with Infineon Antenna Tuners, Tech OnLine Webinar, July 2023

Active Learning in First Year Engineering Programs, Webinar, Cengage, April 2023

Selecting the Optimal Power Management and Conversion Solutions, Tech OnLine Webinar, Nov 2022

Effective PCB Design in New Product Development, Four Webinars, IEEE, Oct 2022

Arduino Explore IoT Kit, Four Webinars, Pitsco Education, Oct 2021

ASEE Annual Conference & Exposition, virtual, July 2021

Evaluator or Teacher: Reflecting on Our Feedback Practice, SDSU CETL course, May 2021

Reinvesting in Our Campus Commitment to General Education, SDSU Spring Conference, May 2021

SDSU Quality Matters Review/Approval of GE 231 online course for Summer 2021

ABET Symposium, virtual, Apr 14-16, 2021

ASEE ETD (Engineering Technology) Division Business meeting, via Zoom, Feb. 2021

ETLI Webinar - *You Belong, and You Are Not Special; Underrepresented in the STEM Pipeline*, Jan. 2021

Open Education Resources Faculty Forum, SDSU, Nov. 2020

ASEE North Midwest Section Conference, Presentation Session Moderator, Virtual, October 2020

Supporting Our Students in Challenging Times, SDSU Fall Faculty Conference, virtual, Aug. 2020

Teaching and Learning When 'Normal Isn't Real', Dr. Shelly Bayer, SDSU Spring Faculty Conference, virtual, May 2020

Excellence in Assessment Designation Information Session, Webinar, Jan. 2020

Academic Advising, Applying Approaches and Perspectives to Practice, Dr. Elizabeth Higgins, SDSU Spring Advising Conference, Jan 2020

IEEE Siouxland Section tour of Solar Power Project, Sioux Valley Energy, Brandon, SD, Sept. 2019

Teaching Unprepared Students: Strategies for Promoting Success and Retention in Higher Education, Dr. Kathleen Gabriel, SDSU Fall Faculty Conference, Aug 2019

Higher Learning Commission Results Forum, 2 days, Chicago, June 2019

D2L Training, SDSU Instructional Design Services, 5 hours, May 2019

Assessment Academy Showcase, SDSU, May 2019, 2018, 2017

Insight Demo Webinar, Campus Labs, May 2019

ExpressPCB & OrCAD software self-training for use in Circuit Boards & Design course, 2 weeks, Dec 2018

Byron Garry Teaching Philosophy Statement

My goal as a higher education instructor is to guide students through the process of learning, so they can achieve three levels of competency in any subject they approach (Gray & Larson):

I know,
I can do, and
I can adapt to new situations.

Electronics Engineering Technology (EET) is the area in which I teach. This field very much influences how I go about the process of teaching and learning. EET is an area of study that attempts to take the mathematical, theoretical approach of traditional engineering, and balance it with a hands-on, business-oriented approach to the industrial field of electronics. This blend of theory and practice is applied to make sure the student meets specific educational outcomes. These outcomes include such attributes as possessing appropriate electronics technical skills and knowledge, the ability to apply problem-solving techniques, the ability to use information technology, and should possess appropriate teamwork, leadership, and communication skills.

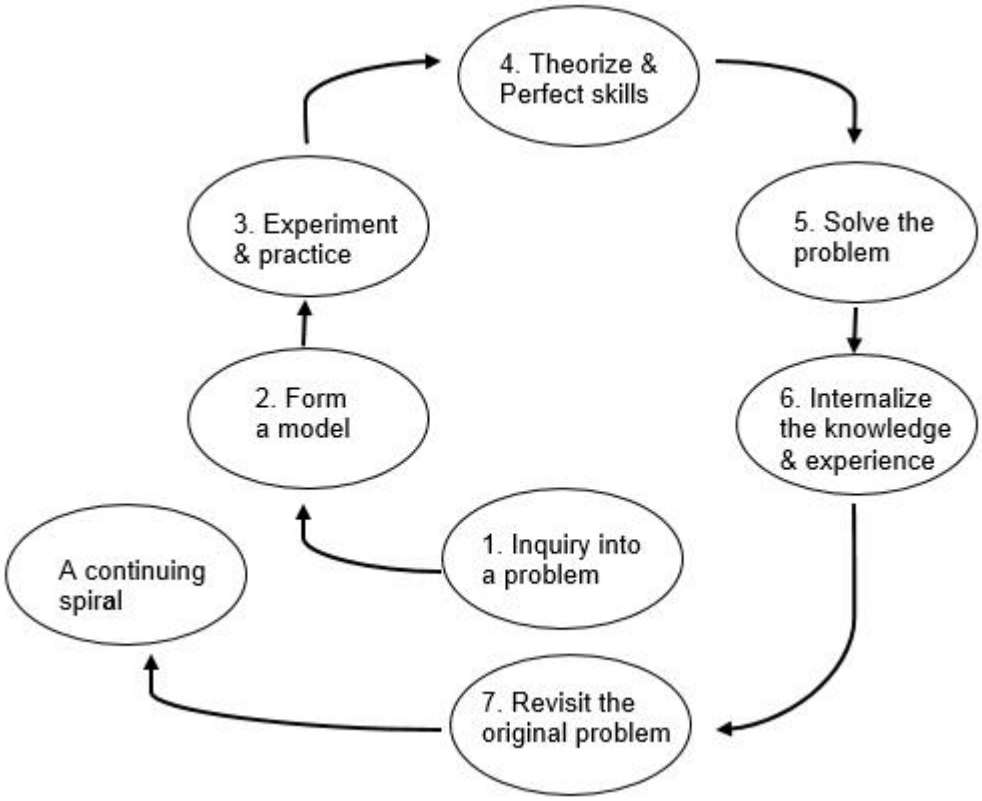
I believe it is very important, as a teacher, to get to know your students, to know their abilities and learning preferences they possess now, and to know their goals and dreams for the future. This is possible because class sizes are usually small, and usually the teacher in an EET program is covering both the lecture and lab portion of courses, and has the time during lab to get to know the students.

The field of engineering usually involves a very teacher-centered style in the classroom. There is much knowledge to transmit to the student, and class periods filled with one-way lectures are the standard way of conveying that knowledge. I agree with this somewhat, as there exists a great deal of information that a student must grasp, in order to become technically competent in their field. One case in which lecturing is good is when attempting to model thinking and processing skills. That is, when standing in front of the class, a good teacher will articulate his/her thought processes when working through a problem, and show the student the steps to take to decide how to attack and solve a problem.

I try to vary this approach, though, when I attempt to create an atmosphere where student-centered learning takes place. The constructivist approach (Dewey, Paget) says that students as learners must be active participants in knowledge construction. That is, the student must take responsibility for their own learning. Knowledge in a technical field has a limited shelf-life. Facts become outdated or superseded in a fast-paced world. Graduates of the EET program should have the technical skills and familiarity of subject matter well in hand as they graduate, but they also need to have of attitude of being a lifelong learner, as they encounter problems where the facts they have learned won't solve the problem. My goal as an EET faculty member is to make sure students have a sense of personal competence in the learning process, so they are not afraid to be learner-centered (Rogers) in their approach to new situations.

Technical learning often begins with a particular problem to be solved or question to be answered. For technically-oriented students, learning often must take place in a linear, step-by-step fashion. Each step involves different types of learning that the learner might not be comfortable with, and so it is the responsibility of a teacher to help guide the student through that process. This process can be written and pictured as a modified learning cycle (adapted from Lewin):

1. An original problem is questioned.
2. A model is made of how to approach that question.
3. The model is experimented on, and practical skills are learned.
4. The theory behind the answer to the question is learned, and practical skills are perfected.
5. The problem is solved or the question is answered.
6. The learner internalizes and makes this knowledge and skill their own.
7. The original problem is revisited with a deeper level of understanding, revealing more questions.


4. Theorize &
Perfect skills
5. Solve the
problem
6. Internalize
the knowledge
& experience
7. Revisit the
original problem
A continuing
spiral
1. Inquiry into
a problem
2. Form
a model
3. Experiment
& practice