

EER & STEM Centers and Programs

- Arizona State University
- University of California-Berkeley
- Clemson University
- University of Cincinnati
- University of Georgia
- Georgia Tech
- University of Kentucky
- Linköping University (Sweden)
- Michigan State University
- University of Michigan
- University of Minnesota
- North Carolina State University
- The Ohio State University
- University of Pittsburgh
- Purdue University
- Tufts University
- Universidad de las Americas Puebla (Mexico)
- Universiti Teknologi Malaysia
- University of Texas – Austin
- Uppsala University (Sweden)
- Utah State University
- Virginia Tech
- Washington State University
- University of Washington
- Wichita State University



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ENGINEERING EDUCATION PhD

No profession unleashes the spirit of innovation like engineering. The Doctor of Philosophy in Curriculum and Instruction with a concentration in Engineering Education prepares the next generation of thought leaders and experts to devise improved strategies for engineering teaching and learning across the education spectrum. A collaborative of the Mary Lou Fulton Teachers College and the Ira A. Fulton Schools of Engineering, ASU's PhD program in Engineering Education provides students a multidisciplinary academic experience that bridges fundamental research and best practices to improve learning.

Graduates of the program emerge with the knowledge and abilities needed to succeed in the global engineering community of the 21st century as they pursue careers in academia, industry, government and policy, foundations or within P-16+ systems, as engineering faculty members, outreach directors, corporate trainers, or assessment specialists.

ADMISSION & PROGRAM INFORMATION

Admission requirements:

- Minimum grade point average of 3.0 (on a 4.0 scale) is required for graduates of accredited United States institutions
- Current score on the general Graduate Record Examination (GRE)
- Three letters of recommendation
- Statement of academic and career objectives
- Curriculum vita and writing sample

Please review the [Engineering Education Program Guide](#) and visit the [ASU Graduate College website](#) for more detailed information regarding admission requirements and how to apply.

APPLICATION DEADLINE

- Applications are accepted only for Fall admission.
- Admissions for Fall 2010 are now closed. Application deadline for Fall 2011 will be announced soon.

PROGRAM DOCUMENTS

- [Engineering Education Program Guide](#)
- [Curriculum & Instruction PhD Handbook](#)

CONTACT US

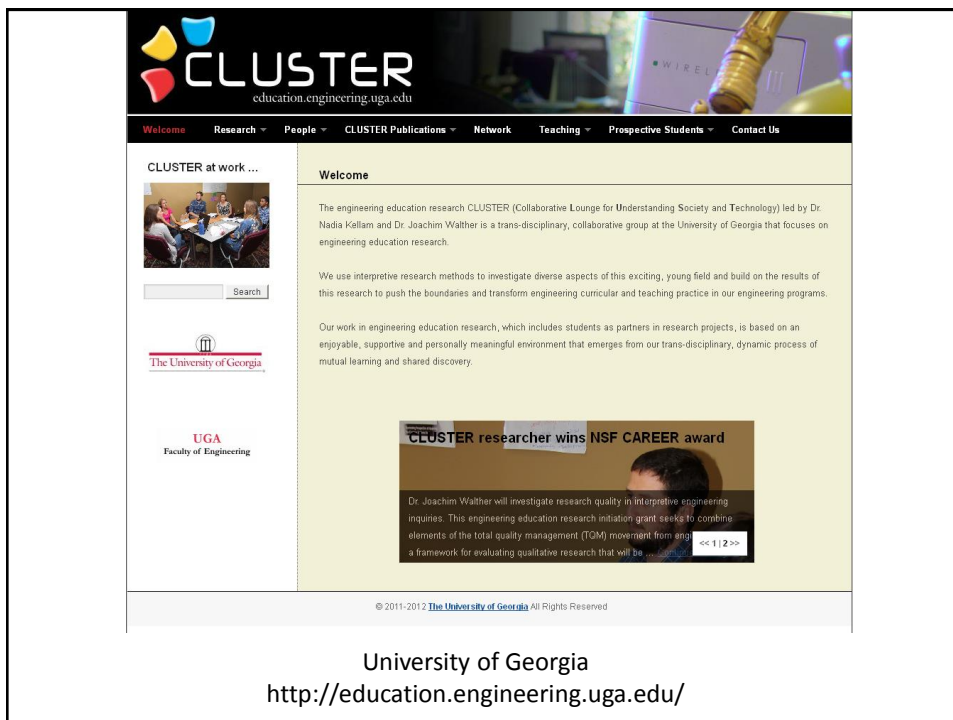
Tripalavaram G. Ganesh, PhD
Program Coordinator & Assistant Professor

Arizona State University: Engineering Education Doctoral Program

<http://engineeringed.asu.edu>



Discover **ENGINEERING**, foster engineering habits of mind, **ENHANCE** K-12 STEM education; retain undergraduate engineering students; **ENCOURAGE** mathematical thinking, systems thinking, **CREATIVITY, OPTIMISM, COLLABORATION, COMMUNICATION, ETHICAL** considerations research, innovation; scholarship of teaching and learning engineering; address the **GRAND CHALLENGES** of our time





The **Georgia Tech American Society for Engineering Education Student Section** is working to build capacity. They recently held a workshop sponsored by the College of Engineering (COE) and ASEE entitled "Teaching, Scholarship, and Research: Building an Engineering Education Community at Georgia Tech" sponsored by COE and ASEE. Over 60 individuals participated in the day's events, and the ASEE Student Section is planning similar future events to continue their efforts to improve engineering education and more strongly connect Georgia Tech's engineering education research community.



Dr. Wendy Newstetter is a cognitive scientist with extensive research experience in engineering education. She is supported by the **College of Engineering** to work with faculty engineering education research efforts. In Biomedical engineering alone, she has collaborated with faculty on NSF funded efforts through grants REESE, EEC, SES, IRES, CCLI and DUE.



Center for the
enhancement of
teaching and
learning

Drs. Donna Llewellyn and Tris Utschig, along with other **CETL** staff members, encourage, consult, and partner with faculty who become involved in the scholarship and assessment of teaching and learning through individual, program, or grant driven initiatives.

CETL offers a range of support for implementing engineering education research and innovation, from classroom consultations to seminars, project-based fellows programs, and retreats. CETL currently supports engineering education research efforts funded by NSF, the US Dept of Education, the Engineering Information Foundation, the Goizueta Foundation, and others.

PhD in Engineering Education @

Regional Centre for Engineering Education (RCEE)
Universiti Teknologi Malaysia (UTM)

FACTS ON UTM

- 10 engineering schools
- 2000 tenured academics
- 2,800+ foreign students
- Largest number of engineering alumni in Malaysia
- More than 43% enrollment at graduate levels in engineering and technology in Malaysia

Transforming engineering education through innovative evidence-based practices

- Focus on training and research in Engineering Education
- PhD in Engineering Education program
 - Started in 2008
 - Up till now, 8 students completed PhD
 - Current enrolment: 40 students
- Also: Joint PhD in Engineering Education with Aalborg University, Denmark
- Post-doctoral and faculty position available

Contact:

khairiyah@cheme.utm.my

<http://tree.utm.my>




UTM
UNIVERSITI TEKNOLOGI MALAYSIA

School of Graduate Studies
www.sps.utm.my



innovative • entrepreneurial • global





University of Michigan
CENTER FOR RESEARCH ON
LEARNING AND
TEACHING IN
ENGINEERING
CRTE
ENGIN

U-Michigan: Center for Research on Learning and Teaching in Engineering


crte.engin.umich.edu

Programs to enable research

- **SoTL grants** for faculty and graduate students
- **PhD Certificate** in Engineering Education Research
- **Reading group** to expand understanding of EER
- **Faculty learning community** around large course teaching
- **EER Day**, with multiple programs and a poster fair
- **Community-built taxonomy for the field** of EER

Ongoing research initiatives

- **Faculty motivation** to adopt effective teaching practices
- Impact of **screencast technology** on students
- Strategies for **innovative design practice**
- **Ethical development** of engineering undergraduates
- Challenges practitioners face when **returning to grad school**





STEM Education Center University of Minnesota

Mission

The STEM Education Center is dedicated to the transformation of science, technology, engineering and mathematics education.

Initiatives

- STEM Integration
- Learning and Cognition
- Research and Instructor Preparation
- Evaluation and Assessment



STEM Education Center University of Minnesota

Outreach

- Research
- Professional Development
- STEM Colloquium on K-12 Education Research to Practice

Contact Us

www.cehd.umn.edu/stem

stem@umn.edu

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THE OHIO STATE UNIVERSITY

College of Engineering
Engineering Education Innovation Center



PhD Option in Engineering Education

Contacts:

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Paul Post, College of Education and
Human Ecology post.1@osu.edu



The Leonhard Center for the Enhancement of Engineering Education

Founded in 1990 with a gift from William E. Leonhard



Mission includes:

- Leading and supporting enhancements in undergraduate engineering courses and programs
- Supporting assessment, including ABET
- Leading improvements in communication courses for engineering students
- Preparing graduate and undergraduate teaching assistants
- Conducting externally funded research



Tom Litzinger, Center Director



Sarah Zappe, Director
Assessment & Instructional Support

Current strategic focus areas:

- Cross-national teams in capstone courses
- Integration of creative process into engineering courses
- Ethics education for first year students
- Technology-enhanced learning



Michael Alley
Engineering Communications



For more information, contact Tom Litzinger at TAL2@PSU.EDU
or visit www.engr.psu.edu/leonhardcenter/



my.pitt Swanson School of Engineering Contact Us

ENGINEERING EDUCATION RESEARCH CENTER
A Center of the Swanson School of Engineering

FACULTY
GRAD STUDENTS / POST DOCS
ENGINEERING ED COMMUNITY

WHO WE ARE SERVICES EFFECTIVE TEACHING RESEARCH CONNECTIONS EVENTS/NEWS



Upcoming Events

Using Model Eliciting Activities (MEAs) in the Engineering Classrooms
07-19-12 | 08:30 am | 102 Benedum Hall, University of Pittsburgh
This workshop will provide engineering faculty with the ability to adapt or develop, implement, and assess Model Eliciting Activities (MEAs) in the upper division engineer classrooms. Participants will learn the theoretical basis for the MEAs, how to best implement MEAs within a course, as well as assessing the effectiveness of the MEAs.
... [Learn more](#)



Teaching Workshop
08-21-12 | 08:30 am |

University of Pittsburgh
<http://www.engineering.pitt.edu/eerc/>

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Universidad de las Américas Puebla
Mexico

Doctoral Program in
Science,
Engineering, and
Technology Education

GOALS

- Conduct world-class research on teaching and learning of science, engineering and technology
 - *Scholarship of discovery*
- Use the results of that research to continually improve instruction at UDLAP, Mexico and other Ibero-American countries to better support the learning process of our students
 - *Scholarship of application, integration, and teaching*
- Support the educational needs of science, engineering and technology teachers and learners at the P-12, University, and continuing professional development levels
 - *Scholarship of application, integration, and teaching*

Fall 2003

- Center for Science, Engineering, and Technology Education

Fall 2006

- PhD program

Spring 2008


- program accredited by the National Council of Science and Technology (CONACYT) of Mexico

Fall 2009

- first graduate





Fall 2010

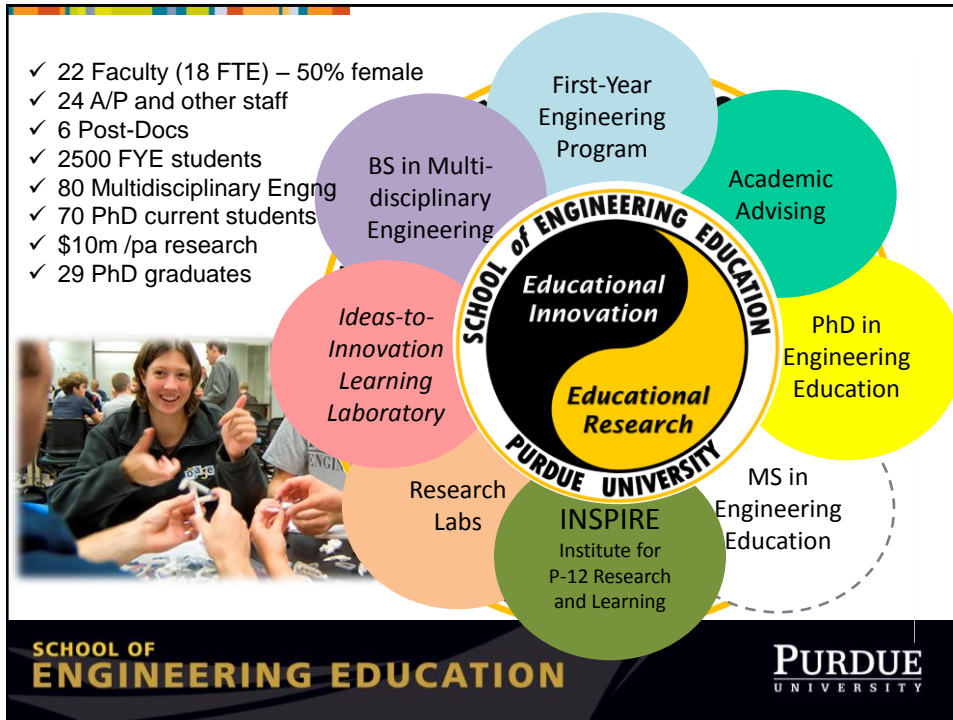
- ≈ 40 PhD students



Universidad de las Américas Puebla

- Mexican private institution of higher learning
 - accredited in the US since 1959 by SACS



THE UNIVERSITY OF
TEXAS
— AT AUSTIN —

The College of
EDUCATION

STEM Education

Master's & PhD Programs (97 students total)

<p><u>Past and Current Research</u></p> <ul style="list-style-type: none"> UTeach Engineering (NSF-MSP) Beyond Blackboards (NSF-ITEST) VanTH (NSF-ERC) Teacher Training for Engineering IPRO - Programming Standing Up Adaptive Expertise in Engineering K-12 LEGO Robotics Discourse in K-12 engineering teams National HS Curriculum Project 	<p><u>Faculty</u></p> <ul style="list-style-type: none"> David Allen (Chem Eng) Leema Berland (STEM-Ed) Richard Crawford (Mech Eng) Ken Diller (BioEng) Jill Marshall (STEM-Ed) Anthony Petrosino (STEM-Ed) Catherine Riegle-Crumb (STEM-Ed)
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Center for Engineering Education and Outreach

Engineering Education Research

Improving Education through Engineering

- Research in engineering teaching and learning, outreach, and educational technology development.
- Current projects:
 - Integrating Engineering and Literacy (IEL)
 - Design Compass: How people design
 - Interactive Learning and Collaboration Environment (InterLACE)
 - LEGO Robotics: Catalyzing Social Communication in Students with Autism
 - W-STOMP Women in Engineering

Tufts Department of Education

Engineering Education M.S. & Ph.D. Program

- Develop research on how students (K-College) learn/engage in engineering
- Interdisciplinary thesis committee (at least 1 education and 1 engineering professor)

<http://ceeo.tufts.edu/>

Utah State University

COLLEGE OF ENGINEERING

Doctorate of Philosophy in Engineering Education

The Doctorate of Philosophy in Engineering Education is offered through the Engineering and Technology Education Department. Emphasis is on the learning and teaching of engineering design. Engineering Design is a decision making process, which utilizes results from basic sciences, mathematics, and the engineering sciences. This program produces doctoral students with proficiency in developing engineering design skills in theory, and expertise in research into how those skills are best learned and taught.

Program graduates are expected to:

- Be familiar with the theory and practice of engineering education and an aspect of those aspects within their specific area of engineering specialization.
- Have the ability to conduct research in engineering education in areas such as engineering epistemologies, engineering learning mechanisms, engineering learning systems, engineering benefits and misbenefits, technology-related learning, distance delivery, and engineering assessment.
- Have the ability to develop, implement, and assess engineering curricula at high school and university levels.

Curriculum Requirements: meet program expectations, students will complete a minimum of sixty credit hours, combining course work and research. The curriculum is divided into three components:

- Engineering Education Core:** This curriculum component requires that engineering education is an emerging discipline. As such, students must have an accredited degree in an engineering discipline.
- Area of Specialization:** This component allows students to develop an in-depth knowledge in one area of engineering education. Students will identify a research area approved through the department and take courses within that area. The research area and courses will be identified and chosen with the advice and approval of the student's doctorate advisory committee. Three credits of these courses must be taken outside the ETE Department.
- Research Component:** This component requires that program graduates have the skills

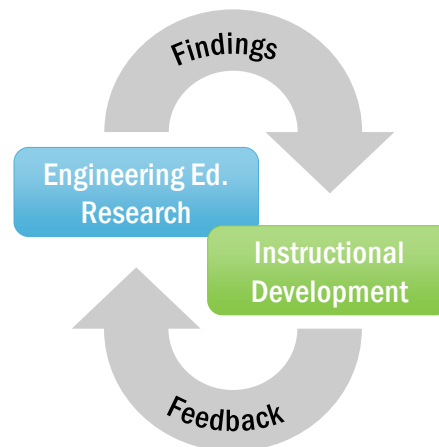
Utah State University

<http://www.engineering.usu.edu/htm/information/phd-engineering-education>




Virginia Tech

<http://www.enge.vt.edu/>






First campus-based center in U.S. to combine research and instructional development missions

http://bit.ly/uw_celt


HUMAN CENTERED DESIGN & ENGINEERING
 UNIVERSITY of WASHINGTON

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[PhD Recruitment »](#) | [Research: Technology with a Human Touch »](#) | [HCDE Has the Moves! Do you? »](#)

Why Human Centered Design & Engineering »

Study Human Computer Interaction (HCI), Socio-Technical Systems, User Experience (UX) Research & Design, and Engineering Education in the internationally recognized department of Human Centered Design & Engineering.

Work with award-winning faculty, participate in interdisciplinary research, and gain cutting-edge, real world experience at international companies. [MORE »](#)

HCDE is Hiring »

The Department of Human Centered Design & Engineering (HCDE) is hiring a postdoctoral researcher, and a full-time [Senior Lecturer and Director](#) of the new [Master of Human-Computer Interaction + Design \(MHCI+D\)](#) program.

Give to HCDE »

Make an impact in the everyday lives of HCDE students. Give a gift today and help an HCDE student attend a conference, bring in guest speakers, or contribute to a scholarship fund.

News »

>> Praveen Shekhar Selected as Hero Student Scholarship Winner. Recent HCDE graduate, Praveen Shekhar, has been selected as a Hero Student Scholarship Winner to attend the 2013 UXPA Conference in Washington, DC.

>> WebLabUX Research Group Wins IPCC Poster Competition. Students in HCDE Professor and Chair Jan Spyridakis' WebLabUX research group recently won the 2013 IPCC student poster competition.

>> The Class of 2013. HCDE held its Commencement Ceremony on Friday, June 14. Congratulations to the Class of 2013!

>> Robin Mays Attends ISCRAM 2013. HCDE PhD student Robin Mays joined up with Professor Mark



World Class. Face to Face.

Engineering Education Research Center

- Six faculty in College of Engineering and Architecture who focus on engineering education
- About 20 active engineering education graduate students
- Students receive engineering degrees
- Research areas include conceptual change and epistemology, human computer interactions, adoption of innovations, assessment of design skills, problem-based learning, and collective intelligence in design

<http://eerc.wsu.edu/>



The screenshot shows a web browser window displaying a wiki page titled "Engineering Education Community Resource". The browser's address bar shows "engineeringeducationlist". The page has a "VIEW" tab selected and an "EDIT" tab. The content of the page describes the wiki as a resource created by the American Society for Engineering Education's Student Division (ASEE StuD) in collaboration with the Center For Engineering Learning & Teaching (CELT). It mentions that the resource offers lists of programs, centers, researchers, societies, publication venues, etc., and aims to help explore the engineering education field. A note about user registration states that all content is public and no access request is needed. The resource currently consists of lists in the following categories:

- Engineering Education Departments and Programs
 - [Graduate level](#)
 - [Undergraduate level](#)

On the right side of the page, there is a "Navigator" section with a list of links, all starting with "Engine". Below the Navigator is a "Pages" button. A large orange circle with the text "bit.ly/engredu" is overlaid on the top right of the page.