

THE MISSION OF CRLT-ENGIN

...to serve the University of Michigan College of Engineering and promote excellence in learning and teaching by:

- conducting and cultivating rigorous engineering education research that leverages our college's innovative educational experiences and that has broad impact locally, nationally, and internationally,
- facilitating the adoption of research-based effective teaching practices and seeking continual improvement of teaching and student learning through a comprehensive range of professional development programs for faculty and student instructors, and
- providing leadership and service at the local, national, and international levels.

I couldn't have [achieved tenure] without **good student evaluations**, which CRLT-Engin helped make happen. Thanks!!

Recently tenured full professor

	College-wide programs		One-on-one services		Combined total*	
	Total contacts	Unique clients	Total contacts	Unique clients	Total contacts	Unique clients
Engineering	1,291	661	373	235	1,664	738
AERO	26	22	15	26	87	31
AOSS	20	7	6	20	55	25
BME	34	14	10	34	74	37
CEE	60	48	26	60	180	66
CHE	44	31	21	44	124	49
CSE	104	28	24	104	238	110
ECE	88	44	33	88	197	99
ENGR	19	9	9	19	36	19
IOE	41	33	19	41	108	49
ME	104	59	38	104	280	119
MSE	43	25	7	43	106	45
NAME	6	3	1	6	14	6
NERS	18	2	2	18	32	20
TC	12	12	7	12	41	14
Other	42	36	17	42	92	49
Other U-M units	92	63	11	11	103	73
External	19	11	33	33	52	40
Grand Total	1,402	735	417	279	1,819	851

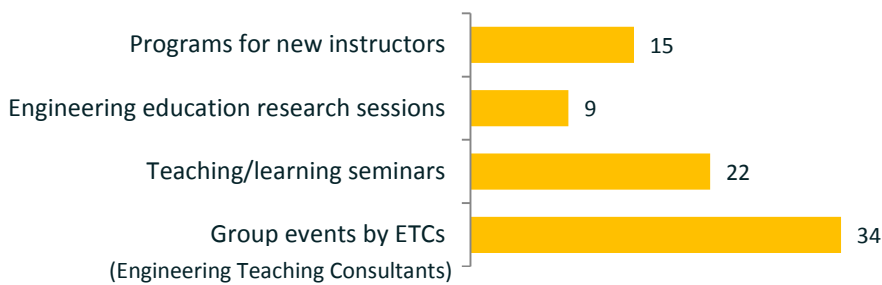
Combined, college-wide programs and one-on-one services reached **851 unique clients** from U-M & beyond

*Individuals may be counted multiple times for "total contacts," but only once as "unique clients." Therefore, entries under "combined total" are not simple summations.

College-wide programs included:

- Five day-long teaching orientation programs plus ten shorter **programs for new instructors**
- Nine **engineering education research sessions**, including three at Engineering Education Research Day
- 14 **teaching and learning seminars** (e.g., "Flipping the Engineering Classroom," "Teaching Engineering Teamwork Across Cultures," and "Improving Communication with your Students") and eight sessions in the **Teaching Circle for Large Engineering Courses**
- 34 **group events planned by Engineering Teaching Consultants (ETCs)**, experienced graduate student instructors (GSIs) who serve the population of engineering GSIs and undergraduate instructional aides

COLLEGE-WIDE PROGRAMS



CRLT in Engineering sponsored
80 college-wide programs having
1,402 total attendees
(735 unique individuals)

- **Teaching Circle for Large Engineering Courses:** Thirteen faculty learned about research-based effective teaching practices, discussed practical implementation strategies, and interacted extensively with each other and with faculty guests. New features this year include observations of colleagues' teaching and hands-on experience with instructional technology.

It certainly affected the way I think about motivation, rapport, prior knowledge, etc. **I will definitely make changes** to my approach, particularly on the first day during the introduction of the class to help with these areas.

The program got me to read helpful sources, which in turn got me thinking about my teaching, and gave me both some good ideas about both some **short-term easy improvements and some longer-term goals**. Very worthwhile.

Teaching Circle participants

- **Engineering Education Research Mini-Course:** Fifteen participants reviewed relevant engineering education research articles, discussed methodologies and data analysis, and worked to apply the ideas to their own scholarly work.
- **Ongoing Professional Development for GSIs:** This new program provides flexible opportunities for engineering GSIs to develop their teaching proficiencies and reflect on their work. 113 GSIs participated.
- **Mapping the Field of Engineering Education:** This project, supported through an NSF grant, will result in a taxonomy (i.e., a keyword outline) that can be used by researchers, funding agencies, journal editors, and other stakeholders in the field. A project website was launched and more than 50 individuals from the diverse national and international community participated in a special conference held at U-M. Future workshops are planned.

The **conference felt inclusive** because the careful design of process facilitated involvement and inclusion.
Great work! Thanks for all your care, attention, and dedication.

Mapping the Field conference participant

OTHER SERVICES

- **Teaching responsibilities**
 - Engineering 360-06: Introduction to Design Processes
 - Entrepreneurship 599: Opportunity Space Exploration
 - Engineering 200: Product Design (Universidad de Navarra, Spain)
- **Committee service**
 - Classroom of the Future
 - NextProf: Diversifying the Academy
 - CoE Undergraduate Education Team
- CRLT-Engin coordinates the **Richard and Eleanor Towner Prize for Outstanding GSIs** to recognize outstanding graduate student teaching. Four \$1,500 awards were made.
- The **CRLT Players Theater Troupe** had six engineering performances that included 279 participants in the audience.
- CRLT-Engin's **website** had 11,743 visits (by 5,106 unique visitors) and 28,712 hits. Frequent landing pages include:
 - Services for GSIs & IAs (11,403 hits)
 - Overview of CRLT-Engin (5,074 hits)
 - Workshops & seminars (2,603 hits)
 - Engineering education research and scholarship (2,363 hits)

ONE-ON-ONE SERVICES: MIDTERM STUDENT FEEDBACK SESSIONS AND CONSULTATIONS

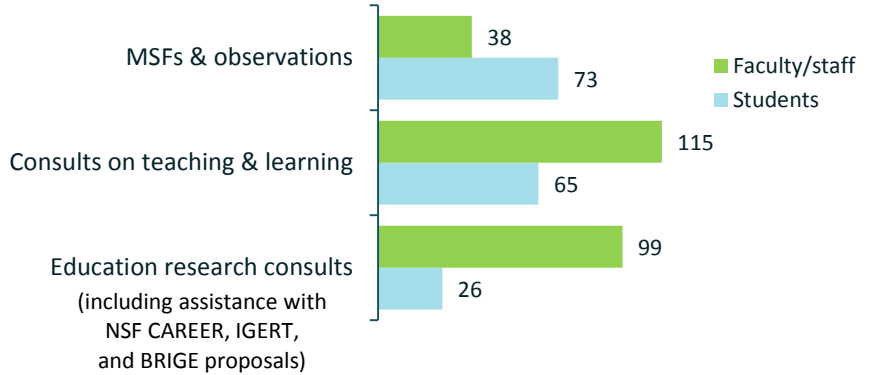
CRLT in Engineering staff (including the Engineering Teaching Consultants) provided **93 midterm student feedback sessions**, 34 for faculty and 59 for graduate/undergraduate student instructors. This allowed 2,743 students to provide feedback to their instructors. CRLT-Engin also provided **22 classroom observations** and **305 individual consultations**.

I got the CAREER award! Thank you for **your advice and information that was invaluable** during the writing process.
CAREER grant recipient

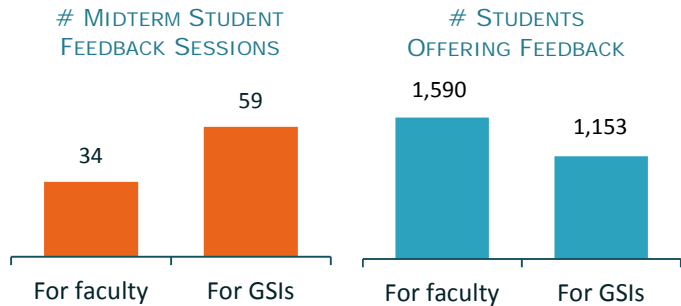
The insight gained [from the MSF] could never be achieved from mid/end of term E&E assessments on-line. The effort gave me a **very clear sense of direction** for future improvements.
MSF client, full professor

Such feedback **helps when teaching a new class**, to gauge what is and is not working, and even **when teaching a class for the nth time**.
MSF client, assistant professor

The MSF provided me with clear feedback about my performance. Also, I got some really valuable suggestions that will **definitely help me to improve and be a better teacher**.
MSF client, GSI

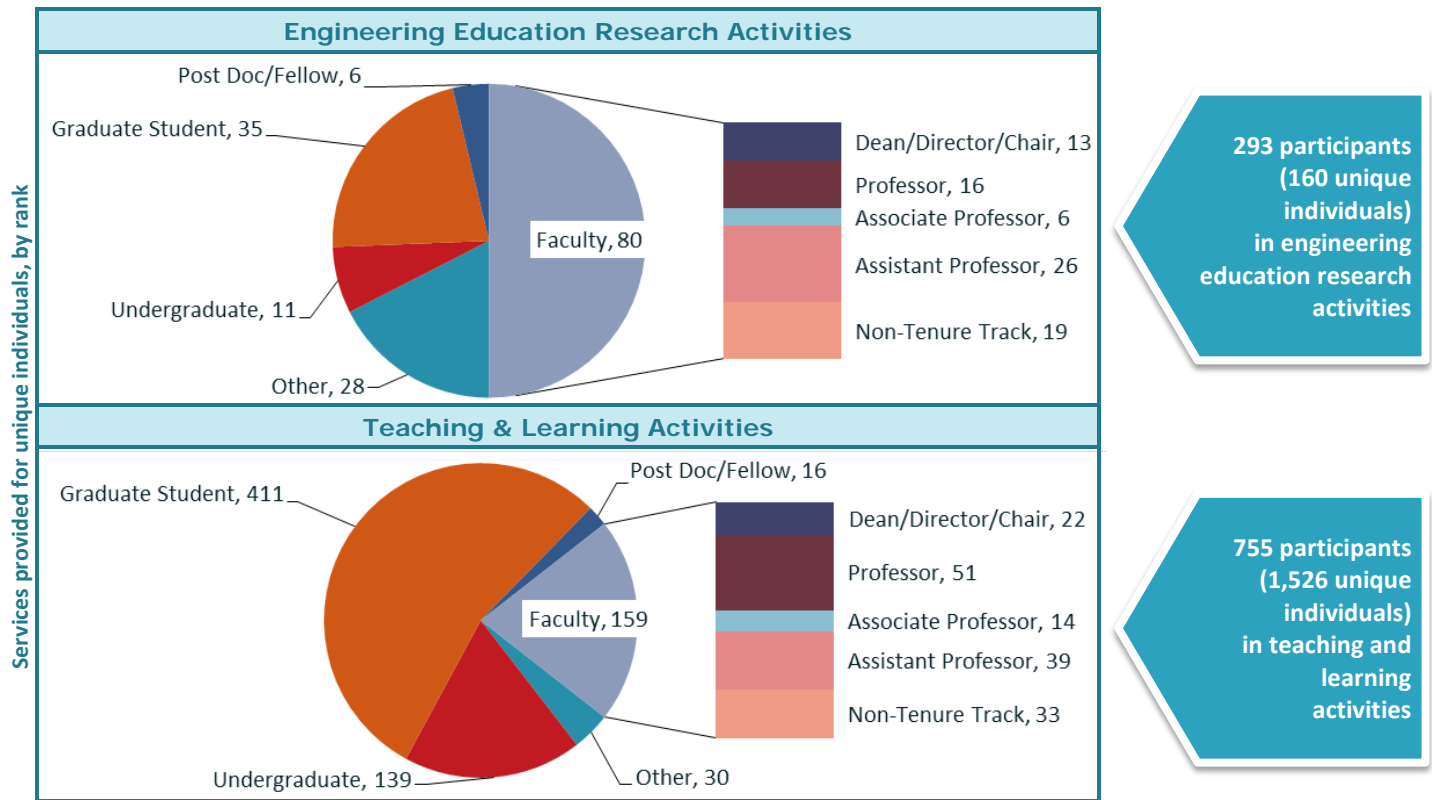


CRLT in Engineering provided **417 total one-on-one services (279 unique individuals)**



CRLT in Engineering reached 39 external clients from 27 colleges/universities across the globe

Alexandria University (Egypt)	Marquette University	Purdue University	Univ of Maryland
American Society of Engineering Education	Massachusetts Institute of Technology	Rensselaer Polytechnic Institute	Univ of Michigan, Dearborn
Bilkent University (Turkey)	Mathworks	SRI International	Univ of Michigan, Flint
Duke University	National Institute of Standards & Technology	Univ of California, Irvine	Univ of North Texas
George Mason University	National Science Foundation	Univ of California, Santa Barbara	Univ of Pittsburgh
Kettering University	Northwestern University	Univ of Cape Town (South Africa)	Univ of Portland
Loyola University			Univ of Wisconsin
			Wayne State University



ENGINEERING EDUCATION RESEARCH ACTIVITIES

- Efforts to promote **engineering education research community** included:
 - Eight programs to network, share data, and refine research ideas,
 - 99 consultations/collaborations on faculty's scholarly projects, and
 - A poster fair attended by 83 individuals to highlight College of Engineering initiatives
- Engineering education research activities are clearly flourishing at U-M, and **your leadership** is one of the major reasons why!
Associate Professor, Electrical Engineering
- Grants administered by the central CRLT office resulted in **18 projects awarded to engineering faculty totaling \$55,955**
 - CRLT-Engin conducts engineering education research and had:
 - Seven active NSF research grants** (totaling \$1,916,391) and three new proposal submissions. Projects include studies to:
 - disseminate **77 Cards** (heuristics to prompt creative designs)
 - promote faculty's use of **effective teaching practices**
 - understand challenges of **transitioning to graduate school** from an engineering career
 - \$215,000 in sponsored research expenditures** during the 2012-2013 academic year
 - Seven refereed journal manuscripts** (including four manuscripts in the preeminent *Journal of Engineering Education*, two of which were highlighted in ASEE Prism) and **seven peer-reviewed conference proceedings**
 - National recognition: the **Maryellen Weimer Scholarly Work on Teaching and Learning Award**, the **American Educational Research Association's Outstanding (Division I) Publication Award**, and highlights in the **Chronicle of Higher Education**

ABOUT CRLT-ENGIN



- CRLT-Engin Professional Staff**
 - Cynthia Finelli**, Director of CRLT-Engin and Research Associate Professor
 - Tershia Pinder-Grover**, Assistant Director
 - Shanna Daly**, Assistant Research Scientist, Program Manager, & Adjunct Assistant Professor
 - Support from the **central CRLT office** as needed
- The CRLT-Engin Advisory Board**
 - Lola Eniola-Adefeso**, Chemical Engineering
 - Jeffrey Fessler**, Electrical & Computer Engineering
 - Krzysztof Fidkowski**, Aerospace Engineering
 - Lisa Lattuca**, School of Education
 - Jerry Lynch**, Civil & Environmental Engineering
 - Mark Moldwin**, Atmospheric, Oceanic & Space Sciences (also serving as CRLT-Engin Faculty Associate)
 - A. Galip Ulsoy**, Mechanical Engineering