

ROSE-BUD

(Rose Building Undergraduate Diversity)

MAPS

(Mentoring and Professional Skills)

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Goal

Increase the recruitment, retention, and development of women and underrepresented minorities in ECE

- Scholarships
- Internships
- Workshops
- Seminars
- Networking
- Mentoring
- Community building



Motivation and Background

national decline of enrollment in ECE, in particular women and minorities

- Job gap
- World model
- Maximize potential
- Team dynamics
- Communication skills
- Problem solving
- Remain competitive
- Institute diversity goals
- Change the culture



Engineering Employment Trends

Table 1: Job Gap Predictions, National Employment Matrix
Bureau of Labor Statistics, 2006 - 2016 (numbers in thousands) [7]

	Employment				Change		Total job openings due to growth and net replacements
	#		%		#	%	
	2006	2016	2006	2016			
Total, all occupations	150,620	166,220	100	100	15,600	10.4	50,732
Engineers	1,512	1,671	1.0	1.0	160	10.6	505
Civil	256	302	0.2	0.2	46	18.0	114
Computer	79	82	0.1	0.0	4	4.6	28
Elec & Electronic	291	306	0.2	0.2	15	5.0	82
Electrical	153	163	0.1	0.1	10	6.3	45
Electronics, except comptr	138	143	0.1	0.1	5	4.7	37
Industrial	201	242	0.1	0.1	41	20.3	89
Marine and Naval	9	10	0.0	0.0	1	10.9	3
Material	22	22	0.0	0.0	1	4.0	6
Mechanical	226	235	0.1	0.1	9	4.2	58



About Rose-Hulman



- Small engineering school in the Midwest
 - 2100 undergraduates, 100 graduates
- Ranked top undergraduate engineering institution
- Hands on education with emphasis on teamwork
- 1:13 faculty ratio
 - average class size: 20
- 80% retention rate
- 25% female, 5% URM

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ROSE-BUD Program

- Established in 2009
- \$600,000 grant from NSF S-STEM program
- Maintain minimum GPA
- Emphasis on women and URM in ECE
- Attend 1 professional development or networking activity each quarter
- Complete at least 2 internships, co-ops, research experiences



Assessment of Activities

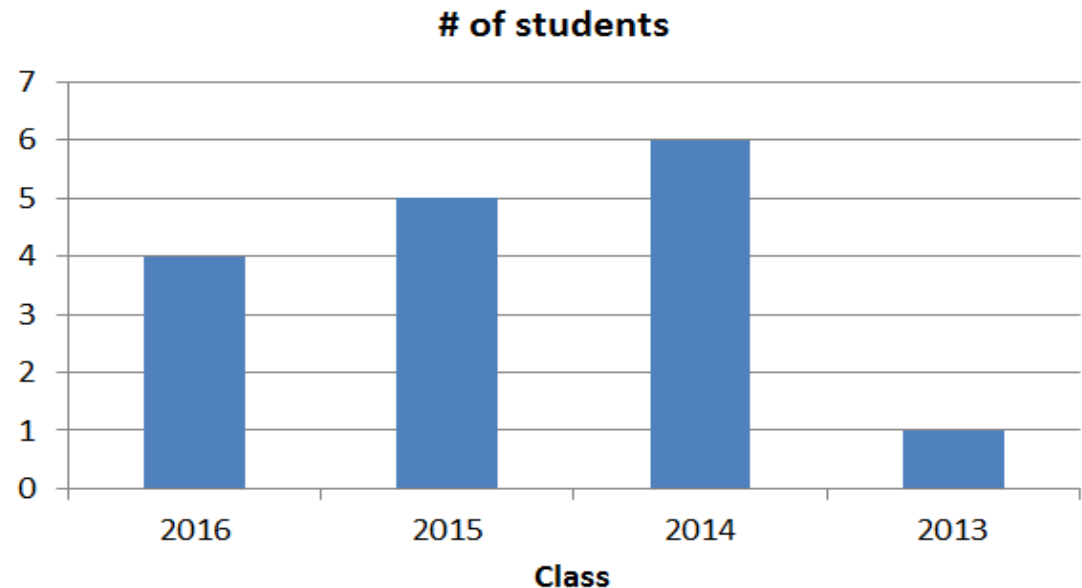
All activities were assessed by using the Assessing Women in Engineering STEM assessment tools www.aweonline.org

- Welcome Picnic
- Faculty/Student Dinner
- Roundtable Discussion
- Basketball Game
- Career Fair Walkabout
- Dress for Success
- Time Management/Study Skills
- Explore Engineering
- Luncheon with NI engineers
- Four Ways Identity Mapping Workshop
- Spring Design Challenge



ROSE-BUD Students

- 17 current ROSE-BUD students
- 8 female (47%)
- 6 URM (35%)
- 2 dropped out, 1 switched majors (85% retention rate)
- CPE (71%), EE(24%), CS/CPE (5%)



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Preliminary Results

- Increased enrollment of female students in ECE
- Slightly increased URM students in ECE
- Efforts recognized by the institute and program will transition into institutional program already garnered institutional and corporate support

	2007-2008	2011-2012	National average percentage
Electrical & Computer Majors	277	327	
WOMEN	18 (6%)	33 (10%)	14% ^a
URM	5 (2%)	10 (3%)	14% ^a



MAPS Program

- Extension of the ROSE-BUD program to facilitate growth into a university-wide program
 - Mentoring and professional skills workshops
 - Mentoring program
 - Professional meeting experience



MAPS Goal

Develop the person as well as the professional to be able to function effectively within a multi-cultural workplace and world

- Engineering students typically have excellent technical preparation
 - MAPS will help with the personal and professional preparation
- Goal achieved with personal and professional mentoring and advising



Program Components

- Communication
- Teamwork
- Ethics
- Professionalism
- Social networks and community and cohort
- Cross cultural mentoring
- Peer mentoring
- Internship fair



Conclusions

- **ROSE-BUD MAPS** program will help educate, train and provide awareness to benefit the community at large regarding diversity issues
- **ROSE-BUD MAPS** will provide the formal mechanism for the university to improve the recruitment, retention and development of minority students in STEM



Acknowledgement

NSF S-STEM Program (Award ID# 0850187)



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