Increase gender diversity of faculty and students.

AQIP Project

Final Report & Recommendations

September 20, 2012

Prepared by Christa Walck, Associate Provost

Gender Project Steering Committee:

- Glenn Mroz, President
- Paul Ollila, Board of Control
- Max Seel, Provost & Vice President, Academic Affairs
- Les Cook, Vice President, Student Affairs
- Chris Anderson, Institutional Diversity
- Margaret Gale, Dean, School of Forest Resources and Environmental Science
- Christa Walck, Associate Provost
- Bonnie Gorman, Dean of Students
- John Lehman, Assistant Vice President, Student Affairs
- Allison Carter, Director of Admissions

Executive Summary

The goal of this project was to develop processes and practices that will increase the gender diversity of faculty and students in order to “prepare students to create the future” (mission) and to “attract, retain, and support a world-class and diverse faculty, staff, and student population” (goal). This project built on (1) a previous Action Project to increase faculty diversity, (2) Michigan Tech’s NSF ADVANCE grant to improve recruiting and mentoring of female faculty, and (3) a previous Action Project to enhance academic advising. The outcomes of this project were (1) improved processes for students and faculty and (2) robust communication of the value of gender diversity to all university stakeholders.

As a technological university (a wider and more meaningful concept than STEM alone), Michigan Tech is uniquely positioned to address many societal challenges, from clean water for the developing world to energy sustainability to nanotechnology. Living up to our mission and goals requires the institution to better reflect the nature and makeup of modern society. We are challenged by the fact that only 17.4% of students nationwide enroll in engineering, fewer still are prepared for work in most other STEM fields, and there is a nationwide shortage of STEM-educated women in the workforce. Our intent is to transform Michigan Tech into the go-to place for women interested in engineering and science, and engage our students and faculty in deep study about engineering and science. Attracting and
retaining women faculty and students is necessary to achieve our mission, but the realization of this and other diversity-improvement steps presents a transformational opportunity for both the culture and perhaps the very nature of Michigan Tech.

The Steering Committee divided the project into five teams with interrelated charges:

1. Develop and communicate gender goals to all stakeholders.
2. Improve brand awareness of Michigan Tech among females in the external environment.
3. Improve processes for recruiting and mentoring female faculty (ADVANCE).
4. Improve processes for recruiting female students.
5. Improve processes for advising and mentoring female students.

It recognized that increasing the number of women faculty on campus would have an impact on the ability to recruit and retain women students, and that recruiting and retaining women faculty and students may need different approaches than those for men. Efforts to improve recruiting and mentoring of women faculty were already underway with the NSF ADVANCE program which began in September 2008.

Since the project spanned a two-year period, recommendations were made that impacted other subteams, and some recommendations were implemented as the project progressed. Final reports from each subteam are included in the appendices. Some highlights include the following.

1. Three overarching goals were established and communicated widely:
   - 35% of all students (graduate and undergraduate) at Michigan Tech will be women by 2020.
   - Top 10 for number of engineering undergraduate degrees granted to women.
   - Exceed national average for women faculty and students in STEM discipline.

2. Differences were identified that suggest that for women undergraduates, compared to men:
   - financial aid was important for their decision to attend Michigan Tech,
   - their primary reason for going to college was to make the world a better place, and
   - it is necessary for Michigan Tech to enhance campus diversity and develop an inclusive climate.

3. Messaging and branding should address
   - how students at Michigan Tech make a difference in the world,
   - resources visible and viable for women,
   - cost, financial aid, and net-cost vs. sticker price of Michigan Tech education, and
   - art/images should focus on people, not things.

In response to these recommendations, Michigan Tech in 2012 launched a Crazy/Smart campaign and contracted to develop an undergraduate recruitment campaign for women.

4. Accountability in the hiring process was addressed to assured a fair and equitable framework for hiring that would results in a diverse candidate pool. Two actions were implemented:
   - Consistent University-level interdisciplinary cluster hiring processes were introduced to parallel regular departmental hiring processes. A restricted online database screening tool was implemented to evaluate applicants. This tool is now being adapted to regular hiring processes.
Campus-wide diversity training programs in unconscious bias and legal aspects of hiring were implemented and required for at least one member of a faculty search committee by 2010, and for all members by 2012. This training has been extended to members of promotion and tenure committees.

5. To address retention, a regular program of mentoring for all newly-hired untenured faculty was established in 2010 and all departments developed mentoring plans. Recommendations were made to mentor mid-career faculty to achieve the rank of professor.

6. Admissions and college and school deans are developing undergraduate female recruitment goals. To achieve these goals,
   - the Michigan Tech Fund is working with donors to increase donor-funded scholarships for women, and
   - the campus visit program targeting female students is being expanded, including a new on-campus Leadership Institute in May for prospective female students.

7. To improve mentoring and advising of female students, education about the value of mentoring is recommended, opportunities to expand service learning are underway, and academic advisors are encouraged to reach out to female students and inform them about earning graduate degrees.

Team Reports

Reports from teams 1, 2, 4 and 5 are included below. Team 3 (ADVANCE) report is available at [http://www.mtu.edu/advance/advance/faq/advance_report.pdf](http://www.mtu.edu/advance/advance/faq/advance_report.pdf).

1. Develop and communicate gender goals to all stakeholders.
2. Improve brand awareness of Michigan Tech among females in the external environment.
3. Improve processes for recruiting and mentoring female faculty (ADVANCE).
4. Improve processes for recruiting female students.
5. Improve processes for advising and mentoring female students.
AQIP Gender Diversity Project: Communication Team

Charge: Develop and communicate gender/diversity goals to all stakeholders.

Team Members:
- Chris Anderson, Institutional Diversity
- Les Cook, Vice President, Student Affairs
- Bonnie Gorman, Dean of Students
- Rudy Luck, University Senate President
- Adrienne Minerick, Associate Professor
- Glenn Mroz, President
- Tim Schulz, Dean of College of Engineering
- Max Seel, Provost
- Christa Walck, Associate Provost

Executive Summary.

The team began by reviewing a variety of documentation. It became clear that in order to develop a message of “why we want more women” and succeed in recruiting and retaining women, Michigan Tech also needed to consider “what women want,” and assess what we do well and where we need to improve.

Deliberations and feedback from many groups led to two outcomes:

(1) Three ambitious goals:
   1. 35% of all students (graduate and undergraduate) at Michigan Tech will be women by 2020.
   2. Top 10 for number of engineering undergraduate degrees granted to women.
   3. Exceed national average for women faculty and students in STEM discipline

(2) A case statement for the importance of increasing female enrollment at Michigan Tech.

The case for increasing female enrollment at Michigan Tech

It will improve the Quality of Education

Women are strong students. They want to make a difference and be leaders. More women students will change the learning environment at Michigan Tech and make it a better place for all students to succeed.

We need to educate the whole person. For our students to succeed, they need a better understanding of contemporary global, social and cultural contexts with engaged, thoughtful men and women in the classroom.

More women on campus improves the climate for diversity. It alleviates the isolation of female students majoring in fields where they are a small minority. It also creates a better learning environment for male students, preparing them to work with women when they graduate.
**IT’S THE RIGHT THING TO DO**

The world needs more talented scientists and engineers, but cultural barriers in STEM disciplines challenge even gifted women. Encouraging girls and young women to consider careers in STEM and pave the way to success is the right thing for us to do. It will take more than words to change this – it requires deliberate action.

**IT’S STRATEGIC**

Women are half of the world’s population and labor force. They are a pool of untapped opportunity. We need to attract, develop and retain them.

We are not reaching all the highly qualified women students and faculty we can. Women engage more in research and other activities that promote social development, which supports our goal of sustainable economic and social development.

**IT’S GOOD BUSINESS**

One of the most predictable drivers of academic success is the quality of the student body. Women are strong students, and we need to attract them to our talent pool. As the overall quality of our applicant pool rises, we can be more selective.

Attracting more women will improve retention. As the quality of our student body improves, fewer students will leave for academic reasons. If we achieve a critical mass of women in all disciplines, they will be more comfortable here. All students may be more likely to stay in a more diverse environment.

Better, happier students become more successful, engaged alumni who are more likely to support the University in many ways. More selective admissions, higher retention, and alumni engagement all drive university rankings.

These goals and case statement were communicated broadly by the president and other team members to the Corporate Advisory Board for Institutional Diversity, Presidential Commission of Alumnae, donor and alumni groups, the University Senate, Undergraduate and Graduate Student Governments, and other groups in face-to-face meetings, as well through media such as the student newspaper, email, and brochures for groups including WEPAN.

They also became the starting point for three of the other subteams to begin their work.
AQIP Gender Diversity Project: Brand Awareness Team
Fall 2011

Charge: Improve brand awareness of Michigan Tech among females in external environment

Team members:
- Tayloria Adams, Graduate Student
- Linda Baker, Executive Director, University Marketing and Communication
- Bonnie Gorman, future Dean of Students (former member/chair)
- Sezi Fleming, Director, Center for Diverse and Inclusion
- Jackie Huntoon, Dean of the Graduate School Associate Provost for Graduate Education
- John Lehman, Assistant Vice President, Enrollment Services (chair)
- Rhea-Ann Moses, Undergraduate Student
- Brenda Rudiger, Executive Director, Alumni Relations
- Suzanne Sanregret, Athletic Director
- Jacque Smith, Director Marketing, Graduate School

Executive Summary
The committee adopted a three step process to tackle its charge:
1. Insight – Understanding through focus groups, the Michigan Tech brand as it relates to women
2. Innovation – articulate what the data means as it relates to the Michigan Tech brand
3. Integration – vehicle design to communicate message

Insight
The committee spent most of its time gathering data to help inform its recommendations. These came in the form of many on campus focus groups of variety of precollege, undergraduate, and graduate populations as well as research from national players in the area of increasing the number of women in the STEM fields.

A summary of the how and where the committee gathered information to inform its recommendations:

- Focus groups:
  - 3 precollege
    - 2 WIE, 1 SYP
  - 2 undergraduate
  - PCA Women of Promise
  - Women of color
  - Graduate
- Review of large format survey responses by Michigan Tech students
  - National Survey of Student Engagement
  - Student Satisfaction Survey
  - Your First College year
  - Profile of Today’s College Student
  - Climate Survey
- Review of national studies including
  - Changing the Conversation – National Academy of Engineering
  - US Department of Commerce – Women in STEM
  - Summer 2011 edition of The Bridge from National Academy of Engineering
- Analysis of the data provides the following summary:
  - Female students at Michigan Tech feel:
• It is more appropriate to offer support to women, however not by much
• More than men that it is important to develop cross-cultural communication skills
• More than men that it is necessary for Michigan Tech to enhance campus diversity
  and develop an inclusive climate for all members
  - Women said:
    • More than men that financial aid was important in their decision to attend Tech
    • More than men that their primary reason for going to college was to make the world
      a better place
    • More than men that it is important to give back to the community

The committee put together “world clouds” populated with key words and phases gathered from the focus
groups. These word clouds can be found in the appendix

Innovation

From these focus groups and national reports, the committee recommends the following themes and content
be stressed in messaging and branding.

• The committee recommends future messaging of the Michigan Tech brand focus on:
  - Ideas in action (as suggested by NAE)
    • Underscores how engineering uniquely bridges the world of science with real world
    • Life takes engineering
    • Focus on the fields essential role and life-changing work
    • Limitless imagination
    • Speak to the innovative, design driven nature of engineering
  - Themes should:
    • Evoke the constant journey that is the engineer’s quest to new solutions
    • Shape the Future
    • Speak to how engineering offers and empowering and rewarding career
    • Enterprising Spirit
    • Recognize the inventive sprit and pioneering contribution of the field

• Specific content should address the following issues:
  - The quality of our facilities, especially residence halls
  - How student make a difference in the world at Michigan Tech
  - The camaraderie between faculty and students
  - The safety of our community
  - The quality of research and programs
  - Resources visible and viable for women
  - Cost and financial aid – ability to support themselves
  - The quality of other students
  - How do we talk about tough, smart, independent, brave, empowerment?
  - Art/images in marketing should focuses on people rather than things
  - The net-cost versus sticker price of a Michigan tech education

• Graduate students need special messaging as well. The committee recommends
  - Highlighting faculty interaction opportunities
  - How students at Michigan Tech can make connections to faculty earlier
  - Highlight the quality of academic opportunities
  - Showcase programs and research on campus that appeal to women
Show women in research situations
- Strong focus on scholarships and fellowships available to graduate students
- Specific needs to reach women of color
  - Introducing them to campus/campus culture
  - Empowering to participate in recruitment process
  - Vehicle of the message is other students of color
  - Message that indicate that there will be someone here (specific names) that will be here for the students. Highlight continuity of support. Specific and safety net of support.

Integration

In conjunction with this committee, Michigan Tech is continuing to work with Mindpower Inc., a marketing firm located in Atlanta, GA. Mindpower helped to launch Michigan Tech’s latest undergraduate recruitment campaign, “Crazy/Smart.” (crazysmart.mtu.edu). Michigan Tech recently signed a small contract extension with Mindpower to develop a undergraduate recruitment campaign for women to compliment Crazy/Smart.

The committee recommends that to establish true integration of the above stated branding/messaging, this report should be combined with the other AQIP gender initiative subcommittees.

In addition, the committee recommends members of this committee work with University Marketing and Communications to develop an informative presentation based on this committee’s recommendations which can be used with various faculty, staff, and administration constituents.
Appendix A: Word Clouds comprised of focus group responses

What were your expectations of Michigan Tech?

What are Michigan Tech’s strengths?
What are Michigan Tech’s weaknesses?

What other schools were you considering?
What was/will be the “closer” in determining your college choice?

What are the attributes of women who will succeed at Michigan Tech?
What suggestions do you have concerning how Michigan Tech can best recruit additional women?
AQIP Gender Diversity Project: Female Recruitment Team

**Charge:** Improve processes for recruiting female students.

**Team members:**
- Amy Berns, graduate student
- Allison Carter, director of Admissions
- Les Cook, vice president of Student Affairs
- Shezwae Fleming, director of Center for Diversity and Inclusion
- Bob Freimuth, member of Institutional Diversity Corporate Advisory Board
- Christine Grotzke, regional admissions manager, Admissions
- Bill Huss, member of Institutional Diversity Corporate Advisory Board
- Kristi Isaacson, assistant director of grad marketing and advancement
- Michelle Jacob, head coach women’s soccer
- John Lehman, chair, assistant vice president of Enrollment Services
- Lindsey Licht, undergraduate student
- Audrey Mayer, assistant professor Social Sciences
- Bill Roberts, director of Financial Aid
- Emily Westerman, undergraduate student

**Executive Summary**

The AQIP Female recruitment action sub-committee met through the spring and summer semesters of 2011. The subcommittee recommends three overarching actions:

1. The university develop specific female enrollment goals by college, school, and department goals leaving the proportional size of the colleges, schools, and departments relatively static. From these enrollment goals, annual undergraduate and graduate recruitment goals can be developed. Specific enrollment and recruitment goals are found in the contents and appendixes of this document.

2. Based on the recruitment goals and utilizing the most effective recruitment activity, the university should direct necessary resources to fund an extensive expansion of campus visit programs, specifically targeted to prospective undergraduate female students and graduate female students. Specific visit activities and estimated necessary resources are found in the contents of this document. Also special attention should be paid to expanding outreach to increase Michigan Tech’s visibility.

3. Based on recommendations from university counsel, the Michigan Tech Fund develop procedures to award donor-funded scholarships to women in order to best leverage admitted students towards enrollment at Michigan Tech – specifically increasing the Women in Engineering to enrollment yield from around 30% to 50%. Details regarding the amounts of donor-funded aid available to the Tech Fund are found within the contents of this document.
1. Enrollment goals

Before any substantial or meaningful female enrollment and recruitment initiatives can be put in place, the institution needs to best understand what the goal of enrolling a student body of 35% female looks like. As this subcommittee was beginning to convene, many in the campus community questioned whether reaching this goals would have unintended consequences. For instance, given the limited number of female students interested in engineering nationwide, would this goal not then require growing the size of certain historically “female friendly” academic units on campus, thus, in the end, minimizing the significance of the College of Engineering and fundamentally changing the academic competition of the university.

This sub-committee recommends meeting the 35% female enrollment goal by 2020 while at the same time keeping the college/school proportional share of the overall student body unchanged. Figure 1 depicts the present enrollment by undergraduate and graduate female, all students, and percent of female. Figure 1 also shows the 2020 enrollment goal of 35% while also meeting overall enrollment goal of 6,000 undergraduates and 1,500 by the year 2020.

<table>
<thead>
<tr>
<th></th>
<th>2010 Female</th>
<th>All Students</th>
<th>% Female</th>
<th>2020 Female</th>
<th>All Students</th>
<th>% Female</th>
<th>Change Female</th>
<th>All Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergrad</td>
<td>1,392</td>
<td>5,620</td>
<td>25%</td>
<td>2,089</td>
<td>6,000</td>
<td>35%</td>
<td>+697</td>
<td>+380</td>
</tr>
<tr>
<td>Grad</td>
<td>334</td>
<td>1,172</td>
<td>28%</td>
<td>515</td>
<td>1,500</td>
<td>34%</td>
<td>+181</td>
<td>+328</td>
</tr>
<tr>
<td>Total</td>
<td>1,726</td>
<td>6,792</td>
<td>25%</td>
<td>2,604</td>
<td>7,500</td>
<td>35%</td>
<td>+878</td>
<td>+708</td>
</tr>
</tbody>
</table>

Figure 1 – 2010 actual and 2020 recommended female enrollment goals

Figure 1 depicts a 708 student increase of all students between Fall 2010 and Fall 2020, while the number of women increases by 878, 697 more undergraduate women and 181 more graduate women.
2. Undergraduate enrollment

Figure 2 depicts the present undergraduate enrollment and proportional size of the five schools and colleges. Figure 2 also depicts the 35% female 2020 enrollment goal while maintaining these current proportions.

<table>
<thead>
<tr>
<th>School</th>
<th>% of undergraduates at university</th>
<th>2010</th>
<th>2020</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>All</td>
<td>% Female</td>
<td>Female</td>
</tr>
<tr>
<td>SBE</td>
<td>7%</td>
<td>174</td>
<td>416</td>
<td>42%</td>
</tr>
<tr>
<td>COE</td>
<td>58%</td>
<td>586</td>
<td>3,262</td>
<td>18%</td>
</tr>
<tr>
<td>SFRES</td>
<td>3%</td>
<td>68</td>
<td>193</td>
<td>35%</td>
</tr>
<tr>
<td>CSA</td>
<td>25%</td>
<td>548</td>
<td>1,384</td>
<td>40%</td>
</tr>
<tr>
<td>SOT</td>
<td>6%</td>
<td>16</td>
<td>365</td>
<td>4%</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td>1,392</td>
<td>5,620</td>
<td>25%</td>
</tr>
</tbody>
</table>

Figure 2 – Proportional distribution of female enrollment

Appendix A depicts the same static-proportion goal setting methodology applied to the Colleges of Engineering as well as Sciences and Arts. An increase of 697 undergraduate women over nine years requires at least an average annual increase of 78 women a year.

3. Undergraduate recruitment

Recruitment demands to meet this 78 per year increase are depicted below. Assuming the Fall 2011 female class is the same as Fall 2010, Figure 3 depicts change in undergraduate enrollment if the institution was able to increase the female freshmen class by an average of 34 students a year. Figure 3 assumes an 84% retention rate from freshmen to sophomore year (current retention rate). It also assumes 100% retention thereafter. For the sake of simplicity, new transfer enrollment can be assumed to ‘backfill’ any attrition after the sophomore year.
Figure 3 – Undergraduate populations by class level (does not include post-grad and other small categories)

To meet the 34 per year undergraduate student increase, the committee recommends a significant increase in Michigan Tech’s most effective recruitment strategy, campus visits. Historically 64% of students who visit the campus through the Admissions office enroll at Tech their freshmen year. Assuming this historical figure is based on somewhat self-selected population, the committee predicates this recruitment strategy on a somewhat diluted 55% visit-to-enrollment yield. Increasing the freshmen female class by 34 students, then, requires an additional 62 female prospective students visit the campus (62*55%=34). Figure 4 depicts campus visit requirements to meet the freshmen enrollment goals of Figure 3.

Figure 4 – Undergraduate female freshmen class size and corresponding female visit number needed

The visit goal numbers in Figure 4 look daunting, especially from years 2016 to 2020. It is the sub-committee’s view that as Michigan Tech is more successful enrolling more female students, this success will be somewhat self-perpetuating.

To drive these increased campus visit numbers, the sub-committee recommends three substantial campus visit program initiatives. These programs, at least in the initial years would drive the campus visit numbers needed to meet the enrollment goals detailed in this recommendation. Total visit capacity under these three plans ranges from 80 to 370 women per year for a cost of $45,000 to $116,000 a year. Appendix B describes the programs in more detail. These programs include:

- Female adventure visits
  - 4-6 one day trips per year @ 10 students per trip = 40 to 60 students per year
  - ~$5,000 a year
• Monthly bus trips to campus
  o 4 to 9 bus trips per year @ 30 students per trip = from 120 to 270 students per year
  o $5,000 per trip or $20,000 to $45,000/a year
• Female fly-in conference weekends
  o Three times per year
    ▪ October-Leadership theme, applicants/admits
    ▪ January/early February-?? theme, admits
    ▪ April- STEM theme (hold during Expo?), inquirers (juniors)
  o 3 @ $22,000 per trip or $66,000/a year

4. In-school hands/on presentations
In an effort to expand our marketing base and increase exposure of Michigan Tech as the go-to location for women interested STEM fields, we propose two initiatives.

• Female-faculty in-school presentations
  o Four to five faculty travel to targeted schools to present to women interested in STEM careers
  o Presentation involves hands-on activities, couched in high-human-impact manner (STEM fields make the world a better place)
  o Students are left inspired
  o ~$6,000

• Female-focused MindTrekkers outreach activities
  o Sending female MindTrekkers student members back to their high schools during Michigan Tech’s spring break to engage female students with MindTrekker hands-on demonstrations.
  o 10 to 15 students
  o ~$5,000 for supplies

5. Undergraduate Scholarship leverage

Michigan Tech’s financial aid office, working with University counsel, has developed a means by which the Michigan Tech Fund will be able to award donor funded scholarship dollars to women. With this advancement, it is anticipated the additional leverage these scholarship dollars will create, the university will be able to more quickly meet its female enrollment goal. To date approximately $12,000 in donor-funded scholarship are earmarked for women at Michigan Tech.

Specifically, the committee felt that the financial aid leverage might be best used to increase the number for Women in Engineering and female Engineering Scholars Program precollege participants who enroll. Currently WIE yields 33% and ESP yields 13%. The committee set a goal of enrolling 60% WIE participants and 30% ESP female participants.
6. **Graduate School – Female Application Data**

Figures 5 and 6 depict the application to enrollment data for female graduate applicants to either Master’s or PhD programs for the past three years. Recruiting additional female applicants to the Graduate School would consist of female-focused recruiting efforts and continuing to grow the Graduate School campus visit structure for high-quality applicants.

<table>
<thead>
<tr>
<th></th>
<th>Master’s Applications</th>
<th>PhD Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic Female</td>
<td>International Female</td>
</tr>
<tr>
<td>2008-09</td>
<td>79</td>
<td>220</td>
</tr>
<tr>
<td>2009-10</td>
<td>106</td>
<td>227</td>
</tr>
<tr>
<td>2010-11</td>
<td>146</td>
<td>260</td>
</tr>
</tbody>
</table>

**Figure 5: Female Graduate School applicants over the past three years**

<table>
<thead>
<tr>
<th>First-time MS (Female)</th>
<th>First-time PhD (Female)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>43 (18 International)</td>
</tr>
<tr>
<td>2009</td>
<td>49 (10 International)</td>
</tr>
<tr>
<td>2010</td>
<td>64 (23 International)</td>
</tr>
</tbody>
</table>

**Figure 6: First-time female graduate student enrollment data over the past three years**

The yield of first-time female MS and PhD students from applicant to enrolled student has been consistently over 40% for domestic MS students and over 65% for domestic PhD students. Our recruitment efforts need to continue to focus on these high-quality female applicants that are a good fit for our University. In addition to first-time students, there needs to be a more substantial focus on retaining current female undergraduate students, as well as initially recruiting these students as accelerated master’s students. The availability of accelerated master’s programs is continuing to grow, which can be used as a recruiting tool for undergraduate students with an initial intent to obtain a degree further than a bachelor’s degree.

As our undergraduate female population grows it automatically provides a new pool of quality female students for the Graduate School to recruit and retain. Combining our efforts from the time they are first recruited to campus to also be knowledgeable about their Graduate School options is the first step in this process. Increased exposure of graduate programs to these students will assist in these efforts. In addition to increased exposure of the Graduate School during the initial recruitment of these students, it will also be important to grow the exposure overall of the Graduate School on campus.
7. Graduate Recruitment Goals

Figure 7 depicts the present graduate enrollment and proportional size of the four schools and colleges. Figure 2 also shows what meeting the 35% female 2020 enrollment goal while maintaining these proportions would look like. Appendix C provides the breakdown of the female enrollment data by program over the past three years.

<table>
<thead>
<tr>
<th>Graduate Students*</th>
<th>2010</th>
<th>2020</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of level in university</td>
<td>Female</td>
<td>All</td>
<td>% Female</td>
</tr>
<tr>
<td>SBE</td>
<td>4%</td>
<td>21</td>
<td>52</td>
</tr>
<tr>
<td>COE</td>
<td>61%</td>
<td>144</td>
<td>717</td>
</tr>
<tr>
<td>SFRES</td>
<td>7%</td>
<td>37</td>
<td>82</td>
</tr>
<tr>
<td>CSA</td>
<td>27%</td>
<td>132</td>
<td>321</td>
</tr>
<tr>
<td>Total</td>
<td>334</td>
<td>1172</td>
<td>28%</td>
</tr>
</tbody>
</table>

Figure 7: Graduate School recruitment goals by school/college (*Note: SOT has added an MS program for Fall 2011 – enrollment data is not yet available)

In order to recruit more high-quality prospective students, contact time with these students needs to increase. This can be accomplished through a variety of efforts:

- Identifying schools with high-percentage female undergraduate populations to add to recruiting events
- Increasing exposure at current recruiting events such as SWE
  - Regional and National events
  - Inviting SWE chapters to campus
- Using currently established groups on campus to serve as mentors/contacts for select groups of students
  - Female Faculty
  - Presidential Council of Alumnae
  - On-campus SWE Chapter
  - Graduate Student Government
- Initiating a Female Summer Research Program
  - This program would be similar to a summer youth program, but would be for current undergraduate/graduate students
  - They would be provided with funded research positions for the summer, which would conclude with a poster session
  - The poster session would be part of a summer open house. Programs on campus and prospective female graduate students would be invited to attend.
Extending recruitment efforts more substantially to current Michigan Tech female undergraduate students
  - Recruit students to campus as part of the accelerated master’s program initially
  - Provide financial aid to female students to continue on either through the accelerated masters programs or into a coursework only master’s program

In order to facilitate some of these initiatives there are various levels of funding that will allow for additional recruitment initiatives:

- Funding and additional resources to facilitate a new Summer Research Program
  - REU (Research Experience for Undergraduates) extensions to NSF grants to support female participants
  - A campus committee to facilitate the program as well as arrange a poster session / open house (the Graduate School’s current staff and resources would make it difficult to add any additional programming internally)

- Graduate student funding to allow the Graduate School to provide a tuition stipend to a current female graduate student to specifically target female recruiting efforts
  - This is a trend that most graduate schools are now following to allow for increased recruiting
  - Funding would include a tuition stipend and would cover all travel costs

- University financial aid to facilitate and follow our strategic focus of acquiring more female graduate students
  - Tuition stipends for coursework-only students
  - One time-awards for high-quality female recruits ($5,000-$10,000)
  - Additional TA lines to support students as well as provide support to programs as enrollment grows

- Increase recruiting funds to allow for sponsoring of hospitality rooms and hosting prospective student dinners at/after events
  - Hospitality rooms range from $1,000 to $5,000 per event
  - Extending visits to accommodate for “recruit dinners” has increased costs for additional days of travel as well as meal costs

- Campus visit funding
  - Funding to champion high-quality prospective students
  - These students would be selected and contacted by the Graduate School, in coordination with the program
  - Focus would be to get these students to campus, provide them with a campus/community tour and to meet with the programs – making them more highly recognized applicants as well as increasing their interest in campus

- Increased research initiatives to allow for funding of additional graduate students
8. **Graduate school recruitment needs**

There is a need for a Customer Relationship Management (CRM) system in the Graduate School. Because of the lack of this technology, the abilities are limited to compile accurate yield analysis based on current recruitment trends. A CRM system would not only enable the graduate school to better track yields by event, but would also allow more targeted follow-up with prospective students demographically, such as by gender.

- The Graduate School does not currently buy lists and a CRM system would allow us to manage and target prospective students from these lists if it was in place. If resources were available, the following areas would be most impactful for recruiting high-quality female students:
  - Targeted GRE (Graduate Record Examinations) Lists ($0.38 per name)
  - Targeted GMAT (Graduate Management Admission Test) Lists (105,900 females took the GMAT in 2010)
  - SWE Database Access ($4,000 per year)
  - NUCR (National Conference on Undergraduate Research) List ($5,000 per year)

As with the undergraduate recruitment goals, increased contacts and campus visits are what we determined will have the greatest impact. However, our focus on recruiting additional high-quality prospective females does not guarantee increased accepted females, or students in general, for each program. There will need to be buy-in from the Deans, Chairs, and Graduate Application Review Committees to accept additional students and to set an overall growth plan. This may be difficult in some areas based on their current models for accepting students and/or may create a need to reallocate internal resources. Areas that need to be addressed to facilitate these changes include:

- Accepting students both with and without funding
- Increased funding to allow for additional advisors
- More availability of coursework only options for programs to lessen advising needs

9. **Graduate School Summary**

Other suggestions for future consideration include:

- Adjust academic departmental funding model to create incentive for departments to assist in the recruitment and success of our female students
- Engage in a conversation on how on-line student demographics affect Michigan Tech’s gender diversity goals
- Create robust assessment of these proposed initiatives
## Appendix A – Undergraduate female enrollment goals for College of Engineering, College of Sciences and Arts

<table>
<thead>
<tr>
<th>College of Engineering</th>
<th>% of undergrads in college</th>
<th>2010</th>
<th>2020</th>
<th>Difference</th>
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<td></td>
<td></td>
<td>Female</td>
<td>All</td>
<td>Female</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
<td>7%</td>
<td>97</td>
<td>234</td>
<td>41%</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>12%</td>
<td>108</td>
<td>399</td>
<td>27%</td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering</td>
<td>20%</td>
<td>161</td>
<td>637</td>
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<tr>
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<td>% of level in college</td>
<td>2010</td>
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<td>Change</td>
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<td></td>
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<td>% Female</td>
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</tr>
<tr>
<td>Biological Sciences</td>
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<td>313</td>
<td>41%</td>
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Appendix B – Undergraduate Visit program summaries

# 1 Female Adventure Visits
Target audience:  Inquirers
Frequency:  4-6 times per year (September and/or November, July)
Student numbers:  4-6 trips per year @ 10 students per trip = from 40 to 60 students per year
Duration on campus:  1 day
Programming:  Campus tour, adventure activity, social with current female students
Other:  Students would attend with parents, market as “girls only” visit
Estimated cost:  Nominal (<$5,000 a year)

# 2 Bus Trips to Campus
Target audience:  inquirers, applicants, accepted students from different regions where we have admissions staff (Minneapolis/Duluth, Green Bay, Milwaukee, Northern IL, Chicago, Detroit, Grand Rapids/West Michigan, Traverse City/Northern Lower Michigan/Eastern UP)
Frequency:  once per month September through May (rotate through regions)
Student numbers:  4 to 9 bus trips per year @ 30 students per trip = from 120 to 270 students per year
Duration on campus:  2 nights (travel Thursday and Saturday, or Sunday and Tuesday)
Programming:  Campus tour, programmed activities (several options so the girls can choose), attend athletic event (fall only), attend classes or attend a mock class, host with students in WIE learning community or guest rooms, social/casual time
Other:  Students would attend without parents, admissions staff would chaperone on the bus, if space is available parents could attend but lodging would be their own expense, host appetizers on bus/other activities to make event special
Estimated cost:  4 to 9 trips @ $5,000 per trip or $20,000 to $45,000/a year

#3 Female Fly-In Conference Weekends
Target audience:  applicants and accepted students; especially for hard-to-place programs such as computer science, mechanical engineering, electrical and computer engineering, and School of Technology programs
Frequency:  Three times per year
    October-Leadership theme, applicants/admits
    January/early February-?? theme, admits
    April- STEM theme (hold during Expo?), inquirers (juniors)
Student numbers:  3 trips per year @ 12 students per trip = from 12 to 36 students per year
Duration on campus:  3 nights (travel Thursday and Sunday)
Programming:  Thursday: arrive at CMX, evening activities/ice breaker
    Friday: campus tour, financial aid info session, conference activities, events in evening
    Saturday: student life activities (adventure outings, tea room, SDC, student orgs host activities)
    Sunday: brunch and church (optional), depart afternoon flight
Other:  Host in guest rooms or with husky hosts, involve WIE and other current female students, hold “mocktail” party in different learning communities, hold Leading Scholar application session/essay writing with October event
Estimated cost:  3 @ $22,000 per trip or $66,000/a year
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<td><strong>56</strong></td>
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<tr>
<td>Total Female MS Students</td>
<td>183</td>
<td>146</td>
<td>151</td>
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</tbody>
</table>
AQIP  Gender Diversity Project: Student Advising/Mentoring Team

Charge: Improve processes for advising and mentoring female students

Team Members:
- Beth Lunde (chair), Student Life
- Les Cook, Student Affairs
- Bonnie Gorman, University Marketing and Communications
- Jean Kampe, Faculty
- Susan Liebau, COMPASS
- Lori Ann Sherman, Center for Diversity and Inclusion
- Kaitlyn Bunker, Graduate student
- Margo Woller-Carter, Graduate student
- Deb Charlesworth, Graduate School
- Past member: Renee Blackburn, Graduate student

Executive Summary

Tasks:
Began in February 2011
- Reviewed programs, services, and opportunities specifically for women that currently exist at Michigan Tech (see attached spreadsheet).
- Reviewed and discussed survey responses, specifically from women, from existing data sources concerning mentoring and advising including Michigan Tech’s Student Satisfaction Survey, Climate Survey, and Academic Advising survey, as well as national surveys such as CIRP, Profile of Today’s College Student, National Survey for Student Engagement (NSSE), and Your First College Year (YFCY).
- Reviewed and discussed several articles on relevant topics (see attached resource list).
- Reviewed data indicating numbers of women that hold leadership positions in student organizations and Enterprise groups.
- Hosted women’s Focus Groups on mentoring, service learning, advising, resources, and leadership on August 10 (see attached report).
- Discussed and developed recommendations for implementation.

Recommendations for Mentoring, Service Learning, Student Resources and Input, and Academic Advising:

Mentoring Recommendations

1. Increase awareness of mentoring opportunities for women and educate as to why mentoring is important.

2. Bring current mentoring programs/initiatives for women to a greater level, as well as provide additional opportunities for mentoring. This would include formal and informal, as well as one-on-one and group mentoring structures in academic and co-curricular venues.
3. Provide professional development and training opportunities for faculty/staff on how to effectively and successfully mentor women in academic and co-curricular venues.

**Mentoring Notes:**

- **After review, mentoring appears to be happening across campus, but survey and focus group results indicate it is not currently recognized by students as an integral part of their college experience. National research shows that mentoring can play a significant role in engagement and retention.**

- **Charge one area with leading and/or coordinating collaborative mentoring opportunities for undergraduate and graduate female students, as well as providing training for faculty and staff.**

- **More fully utilize current mentoring program such as**
  - Alumni Relations - [http://www.mtu.edu/alumni/connect/mentoring/](http://www.mtu.edu/alumni/connect/mentoring/)
  - COMPASS - [http://www.mtu.edu/compass/mentoring/exsel/](http://www.mtu.edu/compass/mentoring/exsel/)
  - Presidential Council of Alumnae - [http://www.mtu.edu/diversity/units-orgs/presidential-council/michigan-tech.html](http://www.mtu.edu/diversity/units-orgs/presidential-council/michigan-tech.html) in addition to other corporate boards and organizations such as WISE.
  - Graduate School - [http://www.mtu.edu/gradschool/administration/academics/resources/mentoring/](http://www.mtu.edu/gradschool/administration/academics/resources/mentoring/)
  - See attached spreadsheet of other current Michigan Tech Programs

- **Look at Purdue University’s Mentees and Mentors (M & M) Program at [https://engineering.purdue.edu/WIEP/MMprogramInvite.htm](https://engineering.purdue.edu/WIEP/MMprogramInvite.htm) and Virginia Tech’s College of Engineering GUEST Profiles program at [http://www.eng.vt.edu/mentoring/description](http://www.eng.vt.edu/mentoring/description) as a springboard for ideas**

  *Cost for a mentoring program depending on mix of one-on-one and group mentoring for approximately 100 women ranges from $17,000 to $34,000 for approximately 300 women ranges from $46,000 to $99,000*(see attached).

**Service Learning Recommendations**

1. Increase service learning opportunities for women in academic and co-curricular venues.

2. Provide training for faculty and staff about service learning, including how to develop curriculum for integration into course work, and into meaningful co-curricular experiences.

**Service Learning Notes:**

- **Surveys specific to Michigan Tech women, as well as national service learning research, indicate that women want to make the world a better place and as such, participate in service at higher rate than men, leading to higher engagement and retention.**
• Utilize Campus Compact as a resource for service learning initiatives and grants.

• Charge one area with leading and coordinating collaborative service learning initiatives for undergraduate and graduate female students, as well as providing training for faculty and staff.

• Look at Depauw University’s Service and Engagement area at [http://www.depauw.edu/academics/centers/cgpopp/service](http://www.depauw.edu/academics/centers/cgpopp/service) and The University of Utah’s Bennion Center [http://bennioncenter.org](http://bennioncenter.org) as a springboard for ideas.

Resources and Student Input Recommendations

Begin a University Women’s Student Commission that is similar to the University’s Student Commission. This commission would be a place for women to bring issues/concerns that need discussion and/or implementation which are policy, procedure, or service based.

1. Develop and advertise a robust online “where to go for what”, a “where to go for help/counseling”, and “where to go to voice opinion/needs/wants/complaints” information source with resources clearly identified.

Resources and Student Input Notes:

• Michigan Tech survey responses indicate that women would like to have an increased voice in policies and procedures. This was the lowest rated satisfaction area for women on Michigan Tech’s Student Satisfaction Survey, where only approximately 65% of both graduate and undergraduate women felt they had a voice in University decisions.

• This would increase satisfaction and will enable female students’ to be a part of the conversation and, most importantly, part of the solution.

• After review, we found that women are well represented in leadership positions in student organizations and Enterprise groups; however we should encourage leadership development specifically designed for women.

Academic Advising Recommendations

1. Continue to provide, as well as increase, online academic advising resources.

   Require Academic Advisors to provide additional “in-person” outreach to female students in one-on-one and/or group settings.

2. Continue to provide, as well as increase, information that is available to women about earning graduate level degrees.

3. Provide developmental training for Academic Advisors on encouraging women to pursue graduate degrees as well as assist them with the graduate school search and acceptance process.
**Academic Advising Recommendations**

- According to survey results, Michigan Tech women seem to be using online resources more fully than men; they also seem to understand academic policies and procedures better than men.

- According to several surveys, at Michigan Tech, women are more likely to want to earn a doctorate degree than men.

- Focus groups indicated little to no understanding or assistance from Academic Advisors on the graduate school process.

- An online tracking of requirements for graduate degree, like DARS for undergraduate degrees, would be a good addition.

**Subcommittee Resources**

Assessment

Michigan Tech Surveys
  - Academic Advising Survey
  - Climate Survey
  - Student Satisfaction Survey

National Surveys
  - Cooperative Institutional Research program (CIRP) Freshman Survey
  - National Survey for Student Engagement (NSSE)
  - Profile of Today’s College Student
  - Your First College Year (YFCY)

AQIP Academic Advising Committee Recommendations and Results

Michigan Tech Strategic Diversity Measures

Articles


*Five Ways the Gender Gap Affects Student Development* – Student Affairs Leader, March 2011
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