

# Future Roles for Graduate Students— Education, Engagement, and Professional Development

A Report from the ASME Task Force on Graduate  
Students and Graduate Education

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# *ASME's compelling need*

- **Outreach to the “young engineer” (BS+10 y)**
  - Relevant technical and professional programs
  - Relevance to emerging fields of employment, many of which are non-traditional ME activities.
  - Creating value for membership through products, benefits and services.
  - ***Graduate students (full-time and part-time) are an important constituent who are at critical stages of professional development***

# *ME Graduate Students*

- **Growing numbers (2007)**
  - 25% of overall ME enrollment.
  - 25% of all ME degrees.
  - Population size is 20,000
  - Majority are MS/MEng Degree students.
- **Limited involvement with ASME**
  - Technical conferences and papers.
  - Low membership retention.
  - Low rate of new memberships.
  - Low level of visibility for ASME in most ME departments.

# *Task Force on Graduate Education*

- **What should ASME do for graduate students?**
- **What personal benefits can ASME deliver to graduate students?**
- **What should be ASME's future role in graduate education?**
- **What goals, objectives and implementation strategies should ASME adopt?**

# *Task Force Activities 2005-2009*

- **Initial report in June 2006**
  - States the case
  - Describes the community
- **Surveys of MEDHs ('06 and '07)**
- **Industry/Academic Workshop at the 2007 IMEEC**
- **Focus Group Meetings of Graduate Students**
- **Reports to Center for Education, 2006 and 2007**
- **Graduate Student Affinity Group, 2008**
  - [www.asme.org/communities/students/grad](http://www.asme.org/communities/students/grad)
- **New Graduate Student Brochure**
- **Final Report--2009**

# *Educational Framework*

- **Ambiguous role of the Master's degree**
  - Terminal but not professional
  - Flexible curriculum
  - 1-2 years beyond the BS; mostly non-thesis
- **Courses and programs designed for pre-doctoral students**
  - **Some Notable Exceptions**
    - Stanford Design Program
    - Duke/Dartmouth Engineering + Management Program
    - Rensselaer Systems Engineering & Technology Management Program
    - Is the Engineering component unique to the cohort?
- **International Students (UG Degree outside North America)**
  - Greater disposition toward Ph.D. and research
  - Better preparation in terms of scientific and analytical depth
  - Increasingly NOT remaining in the US after PhD
  - May have greater need for professional development skills

# *Educational Framework*

- **US Students**

- Told that Master's degree is needed for professional success
- Financial and admissions obstacles for terminal Master's students
- Inadequate articulation of opportunities and impacts of Doctoral degree

- **Emerging Fields of Research**

- Do UG programs really prepare students for graduate school?
- Are non-engineering backgrounds more suitable for many modern research areas?

# *Summary of Observations*

ASME is not marketed well to graduate students

ASME will always have strong competition with narrowly-focused technical societies.

“Graduate students are pragmatic and poor”

--Pam Eibeck, Dean of Engineering, Texas Tech University

ASME is appealing if it can offer

- financial assistance;
- easy access to technical information that directly helps their coursework or research
- access to jobs after their masters or doctoral degree.

# *Graduate education – the strategy for 2008 - 2009*

- Develop package of ASME products/services to present to new graduate students upon enrollment
- Establishment of Graduate Student Affinity Group (IMECE)
- Improve program activities specifically for graduate students at ASME conferences and events

# *Objectives – Graduate education*

- **Determine appropriate outcomes and how to assess them.**
- **Determine whether there is a meta-curriculum for the MS.**
  - **What is state of the art?**
  - **Is there a body of knowledge?**
- **Determine relevant external influences on MS degree programs?**
- **Issues rolled into Vision 2030 Task Force activities**

# *Possible benefits*

- **No registration fee at ASME conferences**
  - **Apply to tech. divisions and IMECE.**
- **Best paper competition, creativity competitions, e.g., innovation award**
- **Broad overview short courses at ASME conferences without charge – future research directions in Mech. Eng.**
- **Expanded internship programs**
- **Targeted fellowship program for MS/MEng students**
- **Special loan programs**

# *Possible products*

- **Graduate student forum at ASME conferences**
  - Professional in orientation and content
- **One transactions subscription without charge**
- **Professional development courses without charge**
- **Graduate study options and guide**
- **Special membership category for graduate students**
- **New/targeted financial products for grad students.**
  - Student loan consolidation.
  - MS/MEng graduate school grant/loan program
  - Insurance and other financial services

# *Possible Services*

- **Job Fair at IMECE**
  - Focus on the PhD vs. MS/MEng?
  - Company focus vs. student focus.
- **Resume data base linked to ASME web site**
  - Existing program: job board (used by industry; competition is on the Internet.)
- **Graduate student component to Student Professional Development Conferences**
- **Community action projects and activities.**
- **Student loan programs: consolidation, original loans, etc.**

*In conclusion....*

**“Relevance and personal and professional gain are keys to association with any professional organization and society.”**

**-- Vish Prasad, Dean of Engineering, Florida International University, 2007 (Now VP for Research, Univ. of North Texas)**