FY 2013 - 2020 Strategic Plan Overview

School of Engineering

Barbara D. Boyan, Ph.D.
Dean

Spring 2013
2013 – 2020 Strategic Themes

1. Build upon our legacy of student-centered learning to prepare the inter-disciplinary leaders of tomorrow

2. Conduct research that makes a positive difference in our community and human kind

3. Create and nurture a highly collaborative, creative, innovative, and entrepreneurial culture

4. Provide a global, real-world perspective of engineering in the learning experience
VCU Challenge for School of Engineering Dean

1. Increase enrollment and number of degrees granted
2. Raise academic quality of undergraduate students
3. Increase and diversify external funding
4. Multi-disciplinary, multi-campus collaborations
5. Increase doctoral enrollment and engagement

President’s Goal: Become a top 50 research university.
Goals for VCU School of Engineering

1. School of Engineering student body from 1,681 to 2,500
   2,000 undergraduate and 500 graduate students
2. School of Engineering faculty: from 69 to 110
3. Funded research from $4.5 to $20 million
4. From *US News and World Report* #120 to top 50 school of engineering
5. Targeted graduate programs to top 25 in USA
VCU School of Engineering Competitors

- Case Western
- U. Cincinnati
- J. Hopkins
- J. Madison
- G. Mason
- UVA
- VA Tech
- VCU
- ODU
- NC State
- Vanderbilt
- Clemson
- GA Tech
VCU School of Engineering Organization

Dean

Associate Deans

Executive—Finance, Admin Innovation, Outreach
Academic Affairs Undergraduate
Academic Affairs Graduate (50%)
Research (50%)
Strategic Initiatives (50%)

Department Chairs

Mechanical and Nuclear Engineering
Biomedical Engineering
Chemical and Life Science Engineering
Computer Science
Electrical and Computer Engineering
### Growth in Student & Faculty Population

<table>
<thead>
<tr>
<th>Targeted Growth In Students &amp; Faculty</th>
<th>FY 2013</th>
<th>FY 2020</th>
<th>Inc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ugrad</td>
<td>1,436</td>
<td>2,000</td>
<td>39%</td>
</tr>
<tr>
<td>Grad</td>
<td>233</td>
<td>500</td>
<td>115%</td>
</tr>
<tr>
<td>Total Students</td>
<td>1,669</td>
<td>2,500</td>
<td>50%</td>
</tr>
<tr>
<td>Total Faculty</td>
<td>69</td>
<td>110</td>
<td>61%</td>
</tr>
<tr>
<td>UGRAD S/F ratio*</td>
<td>21</td>
<td>18</td>
<td>-13%</td>
</tr>
</tbody>
</table>

* Decrease in S/F ratio is an improvement
Student Education and Engagement

1. Undergraduate
   - Multi-disciplinary course offerings
   - Internships and pre-professional training
   - Develop new certificate programs
   - Develop an undergraduate co-op program
   - Establish undergraduate research project funding

2. Graduate students
   - Raise enrollment qualification standards
   - Competitive stipends for Ph.D. students
   - Formalize the role of thesis committees in monitoring their Ph.D. candidate’s progress
   - Publication requirement for Ph.D. students
   - Develop professional master’s level programs
Cross-disciplinary Focus Areas

- Sustainability and Energy Engineering
- Micro and Nano Electronic Systems
- Pharmaceutical Engineering
- Mechanobiology and Regenerative Medicine
- Security and Mining of Big Data
- Device Design and Development

Note: Build core competencies/platform technologies across departments.
- Systems engineering
- Manufacturing technology
- Materials science
Goals for VCU School of Engineering

Research Funding ($ Millions)

Faculty Research Funding Goal - $20,000,000
1. Teaching and collaborative spaces for faculty and students
   • Engineering East – re-think, re-allocate
   • Engineering West – re-think, re-allocate
   • Engineering “New”: why, what, when, where?
2. Bring research labs into 21st century for current & new faculty, grad students and grant applications
   • Develop a master plan
3. Leveraging core R & D capabilities
   • Nano-characterization center & cleanrooms
   • Animal surgery and vivarium
   • Power micro-grid development center
   • Creativity and innovation centers
   • TRIP facilities, Tinkering lab, Cathedral Place (S. Job’s Place)
## Endowed Chairs, Professorships & Scholarships

<table>
<thead>
<tr>
<th>Support Required</th>
<th>FY2013</th>
<th>FY2020 Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Projected Chairs Needed ($2 mil)</strong></td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Endowment (Mkt 12/31/12)</td>
<td>$9,536,340</td>
<td>$25,000,000</td>
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<tr>
<td>FY13 Distribution</td>
<td>$454,877</td>
<td>$1,200,000</td>
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<tr>
<td><strong>Projected Professorships ($250K)</strong></td>
<td>6</td>
<td>26</td>
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<tr>
<td>Endowment (Mkt 12/31/12)</td>
<td>$2,448,996</td>
<td>$8,000,000</td>
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<tr>
<td>FY13 Distribution</td>
<td>$115,746</td>
<td>$375,000</td>
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<td><strong>Projected Scholarship Support</strong></td>
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<td></td>
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<tr>
<td>Endowment (Mkt 12/31/12)</td>
<td>$8,985,496</td>
<td>$20,000,000</td>
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<tr>
<td>FY13 Distribution</td>
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<td>Other scholarships</td>
<td>$306,666</td>
<td>$500,000</td>
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<td>Scholarships total</td>
<td>$733,625</td>
<td>$1,500,000</td>
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</table>

**Scholarship needs:**
- Recruiting and retaining the best students

**Additional scholarship needs:**
- International travel scholarships for undergrad and grad students
- Supporting undergraduate research and entrepreneurial activities
Thank You!