Duke Energy Academy at Purdue
Careers in Engineering and Technology

Dr. Robert Bowen, P.E.
Founder & Chairman
BLONDIE

Would you like the chicken adobo or roast beef au jus?

Hmm... that's a huge decision... I need to text for some advice...

Couldn't we just ask your fiancé?

That's who I just txted!

Go with chicken!!
## How They Ranked

<table>
<thead>
<tr>
<th>SCHOOL</th>
<th>MAJORS (THE SCHOOL RANKED IN)</th>
<th>NUMBER OF UNDERGRADUATES</th>
<th>IN STATE</th>
<th>OUT OF STATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Texas A&amp;M University</td>
<td>17.4% Business</td>
<td>5,887</td>
<td>5,887</td>
<td>5,887</td>
</tr>
<tr>
<td>3. University of Illinois at Urbana-Champaign</td>
<td>14.9% Business</td>
<td>13,688</td>
<td>13,688</td>
<td>13,688</td>
</tr>
<tr>
<td>4. Purdue University</td>
<td>21.5% Business</td>
<td>9,070</td>
<td>9,070</td>
<td>9,070</td>
</tr>
<tr>
<td>5. Arizona State University</td>
<td>18.6% Business</td>
<td>8,132</td>
<td>8,132</td>
<td>8,132</td>
</tr>
<tr>
<td>6. University of Michigan</td>
<td>26.2% Business</td>
<td>8,624</td>
<td>8,624</td>
<td>8,624</td>
</tr>
<tr>
<td>7. Georgia Institute of Technology</td>
<td>17.7% Business</td>
<td>8,516</td>
<td>8,516</td>
<td>8,516</td>
</tr>
<tr>
<td>8. University of Maryland</td>
<td>21.1% Business</td>
<td>8,419</td>
<td>8,419</td>
<td>8,419</td>
</tr>
<tr>
<td>9. University of Florida</td>
<td>21.1% Business</td>
<td>5,045</td>
<td>5,045</td>
<td>5,045</td>
</tr>
<tr>
<td>11. Brigham Young University</td>
<td>19.2% Business</td>
<td>4,420</td>
<td>4,420</td>
<td>4,420</td>
</tr>
<tr>
<td>12. Ohio State University</td>
<td>23.5% Business</td>
<td>8,706</td>
<td>8,706</td>
<td>8,706</td>
</tr>
<tr>
<td>13. Virginia Polytechnic Institute</td>
<td>28.1% Business</td>
<td>9,458</td>
<td>9,458</td>
<td>9,458</td>
</tr>
<tr>
<td>14. Cornell University</td>
<td>23.3% Business</td>
<td>23,310</td>
<td>23,310</td>
<td>23,310</td>
</tr>
<tr>
<td>15. University of California – Berkeley</td>
<td>28.5% Business</td>
<td>12,462</td>
<td>12,462</td>
<td>12,462</td>
</tr>
<tr>
<td>16. University of Wisconsin</td>
<td>23.1% Business</td>
<td>9,050</td>
<td>9,050</td>
<td>9,050</td>
</tr>
<tr>
<td>17. University of California, Los Angeles</td>
<td>29.6% Business</td>
<td>10,781</td>
<td>10,781</td>
<td>10,781</td>
</tr>
<tr>
<td>18. Texas Tech University</td>
<td>24.9% Business</td>
<td>8,260</td>
<td>8,260</td>
<td>8,260</td>
</tr>
<tr>
<td>19. North Carolina State University</td>
<td>24.5% Business</td>
<td>5,829</td>
<td>5,829</td>
<td>5,829</td>
</tr>
<tr>
<td>20. University of Virginia</td>
<td>21.3% Business</td>
<td>10,836</td>
<td>10,836</td>
<td>10,836</td>
</tr>
<tr>
<td>21. Rutgers University</td>
<td>25.2% Business</td>
<td>12,860</td>
<td>12,860</td>
<td>12,860</td>
</tr>
<tr>
<td>23. Massachusetts Institute of Technology</td>
<td>25.2% Business</td>
<td>39,212</td>
<td>39,212</td>
<td>39,212</td>
</tr>
<tr>
<td>24. University of Southern California</td>
<td>25.2% Business</td>
<td>41,172</td>
<td>41,172</td>
<td>41,172</td>
</tr>
<tr>
<td>25. University of North Carolina</td>
<td>25.2% Business</td>
<td>9,486</td>
<td>9,486</td>
<td>9,486</td>
</tr>
<tr>
<td>25. University of North Carolina at Chapel Hill</td>
<td>25.2% Business</td>
<td>5,922</td>
<td>5,922</td>
<td>5,922</td>
</tr>
</tbody>
</table>

Nearly 150 companies asked more than 30,000 new bachelor’s degree graduates in the last year across 25 locations responded to the survey’s study. Below are their picks for the schools graduates found the best places to work overall.
### The rewarding and the ruinous

Total cost of a degree*, 2013, $’000

<table>
<thead>
<tr>
<th>College</th>
<th>Annual return over 20 years†, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Virginia</td>
<td>17.6</td>
</tr>
<tr>
<td>Georgia Tech</td>
<td>17.1</td>
</tr>
<tr>
<td>Harvard</td>
<td>15.1</td>
</tr>
<tr>
<td>William and Mary</td>
<td>14.8</td>
</tr>
<tr>
<td>University of Washington</td>
<td>14.8</td>
</tr>
<tr>
<td>Stanford</td>
<td>14.2</td>
</tr>
<tr>
<td>MIT</td>
<td>13.9</td>
</tr>
<tr>
<td>U.C. Berkeley</td>
<td>13.5</td>
</tr>
<tr>
<td>Caltech</td>
<td>13.3</td>
</tr>
<tr>
<td>Dartmouth</td>
<td>13.3</td>
</tr>
<tr>
<td>Yale</td>
<td>13.3</td>
</tr>
<tr>
<td>Princeton</td>
<td>13.2</td>
</tr>
<tr>
<td>Purdue</td>
<td>13.2</td>
</tr>
<tr>
<td>UCLA</td>
<td>12.8</td>
</tr>
<tr>
<td>South Dakota School of Mines</td>
<td>12.7</td>
</tr>
<tr>
<td>Harvey Mudd College</td>
<td>12.6</td>
</tr>
<tr>
<td>Columbia</td>
<td>12.6</td>
</tr>
<tr>
<td>Brigham Young</td>
<td>12.6</td>
</tr>
<tr>
<td>University of Pennsylvania</td>
<td>12.5</td>
</tr>
<tr>
<td>Brown</td>
<td>12.1</td>
</tr>
<tr>
<td>Babson</td>
<td>11.8</td>
</tr>
<tr>
<td>Amherst</td>
<td>11.6</td>
</tr>
<tr>
<td>Manhattan</td>
<td>11.0</td>
</tr>
<tr>
<td>North Dakota State University</td>
<td>11.0</td>
</tr>
<tr>
<td>New York University - Poly</td>
<td>10.9</td>
</tr>
<tr>
<td>Stevens Institute of Tech.</td>
<td>10.6</td>
</tr>
<tr>
<td>Carnegie Mellon</td>
<td>10.2</td>
</tr>
<tr>
<td>Georgetown</td>
<td>9.9</td>
</tr>
</tbody>
</table>
The 10 Colleges with the Best Career Services

#1: Northeastern University
#2: Pennsylvania State University
#3: PURDUE UNIVERSITY
#4: Barnard College
#5: Bentley University
#6: University of Florida
#7: Massachusetts Institute of Technology
#8: University of Notre Dame
#9: Texas A&M
#10: Princeton University
Best Career Services
Resources to Get You Employed

#1. High Graduation Rates
#2. Strong Alumni Networks
#3. Innovative Career Fairs
#4. Top-Dog Recruiter Connections
Purdue

- Gold Rush
- World Renown
- Value Driven – David Wolf
- On a Roll
- Big Ten
- Bargain of the year
- Drug Free
Expected Salaries

- Non – high school grad - $23,000
- High school grad - $33,000
- 2 year college - $39,000
- 4 year college - $55,000
  - Delta - $22,000 per year
  - $1 million in a lifetime
Need to know
United States:
average annual pay
By educational level, 2013 prices, $’000

Bachelor’s degree
Associate’s degree
High-school diploma

1970  80    90  2000  13
STEM

- 250,000 unemployed in Indiana
- 2.5 jobs for every STEM grad
- For every (5) non-STEM grads, there is one job
- Many of today’s job opportunities are in supervision
Bowen Engineering

- Senior Managers – All engineers
- 75 employees – Purdue engineers
- 30 engineering interns
- My Dad was a Purdue Civil
- Bowen Lab
- I teach in Construction Engineering
  - Many of our top managers help with the class
Leadership

- Maintain High Values & Standards
- Have Genuine Concern for Others

Harvard Business School
Engineering vs. Engineering Technology
What Makes A Good Engineer?

• Math and science oriented
• Good with your hands - shop
• Some intellectual curiosity
• Problem solver
• A desire to go to the head of the class
  • Expected of Purdue grads
• Competitive
The Road to Success

• Have High Expectations
  ◦ Make A’s at school

• Give Back

• Believe you can make a difference

• Positive Attitude

• Leaders Build Leaders
  ◦ It is not about you
What is a Typical Career?

- Project Engineer
- Estimating
- Project Support
- Project Manager
- Project Responsibility
- Senior Manager
- Multiple Projects
- Area Manager
- Company Executive
Benefits of an Engineering Degree

• Shortage of engineers – job opportunities
• Better wages/salary
• More rigorous curriculum – broader education
• Greater opportunity for advancement
• Professional license
• Launching pad to other professions
The Hidden Values of being an Engineer

- Value driven - Purdue
- Project driven
- Field experience
- Cutting edge of industry
- Certain prestige
- Pride
A Broader View of Engineering

• Build America – our country is desperate for graduate engineers
• Service to community
• Bowen Engineering hires graduate engineers
• Our customers love us
Future of Power/Energy

- Demand will exceed supply
- Current system is tired and needs upgrading -
- Clean fuels will take over
- Foreign competition
Power Construction Put in Place
Forecast as of Q3 2013

Millions of Current Dollars


$160,000 $140,000 $120,000 $100,000 $80,000 $60,000 $40,000 $20,000 $0
Pipe Gallery was pre built on stools in the yard ¼ mile away.
5 – 12” carbon steel pipelines were installed prior to the sheeting being installed.
Bridge was transported on 2 Goldhoffers rented from and operated by Barnhart of Knoxville TN.
The Road to Success

• Have High Expectations
  ♦ Make A’s at school
• Give Back
• Believe you can make a difference
• Positive attitude
• Genuine concern for others
• Leaders build leaders
  ♦ It is not about you
Advice to my Grandson On His First Job

• Be early to work.
• Be watchful of what is going on around you. Offer to help the guy in the next cubicle.
• Ask questions.
• Positive attitude.
• Compliment club.