ENGINEERING OFFERINGS: MEETING THE NEEDS OF THE STATE OF WISCONSIN



Department of Workforce Development Data

May 2014

Presentation at the UW System Board of Regents

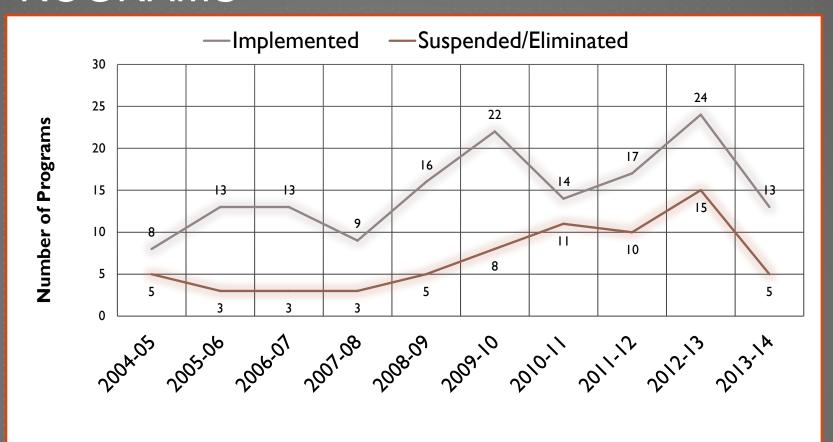
February 6, 2015

Dr. David J. Ward Interim Senior Vice President Office of Academic and Student Affairs



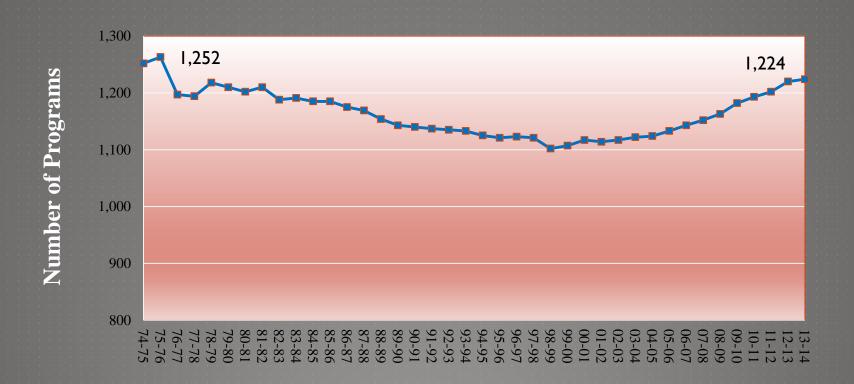
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ADDITIONS AND ELIMINATIONS OF PROGRAMS





TREND IN THE NUMBER OF ACADEMIC DEGREE PROGRAMS 1974-2014





Presentation Overview

- Supply of Engineering Graduates
- Demand for Engineering Graduates
- UW System Approval Process
- Statewide Approach to Engineering Needs
- ►UW System Recommendations



TOP 5 ENGINEERING OCCUPATIONS IN WISCONSIN

1. Mechanical 7520

2. Industrial 7400

3. Civil 4830

4. Electrical 3970

5. Electronics 1660

Source: DWD 2014

46% of Engineers Employed in Manufacturing

Median Earnings: \$77,250



2013 BACCALAUREATE DEGREE WISCONSIN ENGINEER OUTPUT

Public – UW

1306 (70%)

Private

569 (30%)

Total:

1875



BACCALAUREATE ENGINEERING DEGREES CONFERRED BY UW CAMPUSES IN 2013

UW-Madison	691
UW-Platteville	407
UW-Milwaukee	250
UW-Stout	175
UW-Stevens Point	16



UW-PLATTEVILLE – UW COLLEGES COLLABORATIVE ENGINEERING PROGRAMS IN MECHANICAL AND ELECTRICAL ENGINEERING

Delivered at:

- UW-Barron
- UW-Fox Valley
- UW-Rock County
- UW-Baraboo
- UW-Manitowoc
- UW-Marathon

- UW-Marshfield
- UW-Sheboygan
- UW-Washington
- UW-Waukesha
- UW-Marinette
- UW-Richland
- UW-Fond du Lac



UW-PLATTEVILLE COLLABORATIVE ENGINEERING ENROLLMENT AND DEGREES CONFERRED FROM 2008-2014

Enrollment			
Academic Year	<u>Electrical</u>	<u>Mechanical</u>	<u>Total</u>
2008-09	13	38	51
2014-15*	71	100	171



COLLABORATIVE ENGINEERING ENROLLMENT AND DEGREES CONFERRED FROM 2008-2014

Degrees Conf	erred
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► <u>Academic Year</u>	Electrical	<u>Mechanical</u>	<u>Total</u>	
▶ 2008/9	2	5	7	
2013/14	10	22	32	
Total Degrees Conferred	27	62	89	

- ▶ Total Degrees Conferred includes 2008 through 2014 numbers.
- ▶ The total number of graduates from the program since 2002 (the initiation of the program) is 121.



System engineering graduates who stay in the state

65%



Demand for Engineering Graduates



NCHEMS STUDY: ENGINEERING DEMAND

Identifies 5 engineering fields in which there is a need in the State of Wisconsin

Chemical

Civil

Electrical

Industrial

Mechanical



NCHEMS STUDY: ENGINEERING DEMAND

Identifies Geographic Need

Demand/Supply Ratio

New North 134.0

Centergy 79.5

M-7 Milwaukee 4.6

Demand Rule: d/s>3 indicates demand

Demand: Job postings – Burning Glass

Supply: Integrated Postsecondary Education Data System (IPEDS)



EDUCATIONAL ADVISORY BOARD (EAB) STUDY: ENGINEERING DEMAND

Top 5 Wisconsin counties - North and West

2010-13 Job Postings for Mechanical, Electrical, and Chemical Engineering

Marathon	233
La Crosse	183
Saint Croix	132
Eau Claire	121
Wood	77



INDUSTRY SUPPORT IN NORTHWEST AND CENTRAL WISCONSIN

Letters of Support from more than 20 organizations in Northwest and Central Wisconsin

- Among others, from:
- Bonduelle Americas
- Momentum West
- Stratasys Advanced Material Center
- Polk, St. Croix, Greater Menomonie, Pierce, and other County Economic Development Corporations
- Fiberstar Bio-Ingredient Technologies
- MarquipWard United
- Catalytic Combustion Corporation



UW System and Statewide Plan for Meeting Engineering Needs



WHAT IS THE NET ANNUAL ENGINEERING DEMAND?

► 31,461 Engineers

6% Estimated Turnover Rate

▶ 1,887 Estimated Annual Demand

▶ 1,200 Graduates that stay in the State

687 Annual Deficit (Not including any growth)



PROGRAM APPROVAL PROCESS



REQUESTS FOR 8 ENGINEERING PROGRAMS

Institution	Program	Date
UW-Eau Claire	B.S. in Materials Science and Engineering	September 13, 2013
UW-River Falls	B.S. in Environmental Engineering & B.S. in Agricultural Engineering	October 15, 2013
UW-Stevens Point	B.S. in Chemical Engineering & B. S. in Environmental Engineering	December 12, 2013
UW-Stout	B.S. in Chemical Engineering, B.S. in Electrical Engineering, & B.S. in Mechanical Engineering	December 20, 2013



ACIS I.0 NEW PROGRAM APPROVAL PROCESS

Process

- ► I.Approval of Notice of Intent to Plan
- 2. Planning
- 3. Recommendation to BOR
- ▶ 4. Authorization
- ▶ 5. Implementation
- ▶ 6. Review

Responsible for Action

- ► UW System Administration
- ► Campuses & UWS Admin.
- UWS Administration
- Board of Regents
- Campuses
- Campuses and UWS Admin.



WHERE WE ARE IN THIS APPROVAL PROCESS:

- Ist Step:
- Notice of Intent to Plan



• 2nd Step: Planning

- At Each Campus
- ► Following Governance Processes
- Creating Authorization Document



Conditions for Authorization

Clear Demand Case

No New Resources: Self-financed

Consortial Element to Reduce Cost

ABET
Accreditation
Process



Conditions for Authorization cont.

Mission Congruence

Non-Duplication

Overall Cost

Higher
Learning
Commission
Approval (If
Applicable)



3RD AND 4TH STEPS: AUTHORIZATIONS

 System Decision to Recommend

Board of Regents
 Decision to Approve



UW SYSTEM STATEWIDE RECOMMENDATIONS



COST / FINANCING FOR NEW PROGRAMS

Options include:

- Reallocation
- Industry Support
- No New State Dollars



First System Administration Recommendation

Meet the needs of the Northwest

Mechanical – Stout

> Materials Science – Eau Claire

Chemical – Stevens Point

Agriculture – River Falls



Second System Administration Recommendation

Meet the needs of the Northeast

- Platteville Collaborative Programs
- Further Develop Planning for Expansion



Third System Administration Recommendation

Meet the needs of the Southeast

- UW-Milwaukee
- UWM & UW-Parkside Collaborative
- UW-Platteville-Rock County Collaborative
- UW-Madison & UW-Whitewater



Fourth System Administration Recommendation

Meet the needs of the state engineering research

- UW-Madison
- UW-Milwaukee
- Applied Research at UW Comprehensives



Fifth System Administration Recommendation

Expand

- UW-Madison
- UW-Milwaukee

Continuing Education

- Emerging Continuing Education at UW Comprehensives
- Further Discussion and Planning



Sixth System Administration Recommendation

Meet the Needs of the State for Graduate Education

- UW-Milwaukee
- UW-Madison



Meeting the Needs of the Northwest Timeline

Intent to Plan – February 2015

- Request for Board Authorization
 - Starting in April/June 2015



REGENT DISCUSSION

Recommendations