New Program Authorization

BS in Computer Engineering

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STOUT
UNIVERSITY OF WISCONSIN
WISCONSIN'S POLYTECHNIC UNIVERSITY
Computer Engineering Program Overview

Design of hardware & software for engineering systems that utilize embedded digital processors. Embedded digital processors are incorporated into nearly every device with electronic components.

- Calculus-based program
- Designed to meet ABET Accreditation standards
- Curriculum meets employer & students’ needs
- Emphasis on laboratory experiences & student design experiences
- Builds on existing concentration in Computer Engineering
Alignment of Proposed Program with UW-Stout Mission

- UW-Stout mission includes manufacturing-related engineering & technologies

- Addition of Computer Engineering will strengthen UW-Stout’s polytechnic identity

- Will further economic development in West Central Wisconsin

- Key program in UW-Stout’s Academic Plan & Growth Agenda

- Compatible with UW-Stout’s STEM programs
Alignment with UW System Engineering Taskforce Report

- Meets regional engineering need
- Utilizes existing resources (laboratory space, trained experts)
- Designed in collaboration with other institutions
- Exercises multiple student recruitment strategies, with an emphasis on women & minorities
- Includes strategies for part-time & place bound students
Collaborative Efforts

- Shared computer science courses with UW-Eau Claire
- Shared engineering courses with UW-Platteville
- “2+2” agreements with Chippewa Valley Technical College and other WTCS colleges
- Cohort delivery to regional employers
Need for the Program

*Designed to meet needs in West Central Wisconsin:*

- Large number of computer component & electronics manufacturers
- Strong regional support from employers, legislators, & technical colleges
- Jobs available in the region, state & nation
  - Regional needs study
  - Wisconsin Department of Workforce Development Data
  - Bureau of Labor Statistics Employment Projections
- Need for resident computer engineering faculty to provide expertise & strengthen regional engineering capabilities
Student Pipeline

- New freshmen
  - New STEM recruiter & minority recruiter
  - STEM recruitment activities

- Internal transfers from STEM programs; undecided students

- Technical college transfer students
  - Articulation agreements in development

- Part-time students – may be working full time

- Programs for middle school and high school students, with emphasis on women & minorities
  - Summer Technology & Engineering Preview (STEPs)
  - Summer Math Springboard Program
  - Project Lead the Way
B.S. in Computer Engineering program graduates will be able to:

- Apply knowledge of mathematics, science & engineering.
- Design & conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within realistic constraints.
- Function on multidisciplinary teams.
- Identify, formulate, & solve engineering problems.
- Understand professional & ethical responsibility.
- Communicate effectively.
- Understand the impact of engineering solutions in a global, economic, environmental, & societal context.
- Recognize the need for & an ability to engage in life-long learning.
- Identify contemporary issues in the field.
- Use the techniques, skills, & engineering tools necessary for engineering practice.
Computer Engineering Curriculum

- 130 credits
  - 43 general education; ethnic & global studies courses
  - 19 additional math & science courses
  - Engineering core courses
  - Computer engineering & computer science courses

- Two-semester senior capstone design project

- Co-op experience or internship
Resource Requirements

- Builds on existing resources in engineering and computer science
  - Faculty
  - Curriculum
  - Laboratories

- Will add 3 faculty members
  - 2 FTE provided in 2007-2009 Growth Agenda budget
  - 1 FTE will be reallocated in third year of the program

- Will add 2 specialized laboratories
  - Funding provided in the 2007-2009 Growth Agenda budget
## Budget Summary

- **For 2008-2009**

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<th>Category</th>
<th>Amount</th>
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<td><strong>CURRENT COSTS</strong></td>
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<td>2.0 Faculty positions</td>
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<td><strong>TOTAL</strong></td>
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Program Summary

- Aligned with UW-Stout’s mission, polytechnic designation and academic plan
- Builds on existing Computer Engineering concentration
- Designed to meet ABET accreditation standards
- Designed to meet regional needs
- Strong support from employers, legislators and regional economic development groups
- Designed in collaboration with other institutions
- Will utilize numerous strategies for recruiting students
- Will utilize existing resources
- Additional resources provided through 2007-2009 Growth Agenda budget