Mechatronics Engineering at SUNY Canton

Mechatronics Engineering is a field that integrates mechanics, electronics, control theory, and computer science in product design and manufacturing to improve and optimize its functionality.

Companies as diverse as Aerotek, Siemens, Newell Rubbermaid, Halliburton, Continental Ag, and Apple are currently seeking to hire graduates of bachelor’s degree programs in Mechatronics Engineering. In fact, the biggest employer of Mechatronics Engineers is the dairy industry – a core industry in the North Country.

SUNY Canton has established well-regarded, high-quality bachelor’s degree programs in Mechanical Engineering Technology and Electrical Engineering Technology, both recently accredited by ABET, to complement our longstanding accredited associates degrees in both areas.

To build on this solid foundation, faculty in SUNY Canton’s Canino School of Engineering Technology have been working to establish a bachelor’s degree program in Mechatronics Engineering. This program would be the first of its kind in the SUNY system and only the second in the State. This program will provide transfer opportunities for promising mechatronics students who have earned certificates to continue their education. This will provide the seamless educational pathway that will enable employers in the field of advanced manufacturing to meet their significant and growing employment needs.

SUNY Canton is interested in the Senator’s support in finding and obtaining federal funds to help establish this bachelor’s degree program in Mechatronics Engineering.

Details of the draft plan to create a Mechatronics Engineering Degree bachelor’s degree program at SUNY Canton are below.
Timeline

Year minus 2
- Submit proposal to SUNY and NYSED
- Conduct search and hire a new faculty member to lead the program ($75,000 plus benefits)
- Develop laboratory space within existing facilities

Year minus 1
- New faculty continues to develop new courses
- Purchase equipment related to mechatronics, IE robots, sensors and conveyor systems ($200,000)
- Conduct search and hire a second faculty member ($75,000 plus benefits) and an Instructional Support Associate (ISA) ($45,000 plus benefits)
- Start recruiting first-year students
- Develop plans for a new building to house Mechatronics, Computer/Cyber Security/Computer Game Design, and future engineering programs ($45,000 for design firm)
  - 10,000 square feet
  - Includes classrooms, laboratory space, faculty/staff offices, and supporting infrastructure

Year 0
- Admit first class of students
- Purchase additional equipment ($100,000)
- Conduct search and hire a third faculty member ($75,000 plus benefits)
- Introductory courses shared with Engineering Science program
- Recruit second class of students
- Assess program outcomes of first-year courses
- Break ground for new building ($30 million)
- Teach freshman courses in Mechatronics Engineering

Year plus 1
- Enroll second class
- Purchase additional equipment and supplies ($75,000)
- Teach freshman and sophomore courses in Mechatronics Engineering
- Continue to assess program outcomes to ensure program students are progressing
- Recruit the third class of students

Year plus 2
- Enroll third class
- Move program into new facility
- Teach freshman through junior courses
- Recruit fourth class
Year plus 3
- Enroll fourth class
- Teach all class levels
- Recruit fifth class
- Graduate first class in May

Year plus 4
- Enroll fifth class
- Seek ABET accreditation for Mechatronics Engineering from Engineering Accreditation Commission (EAC)

Year plus 5
- Enroll sixth class
- ABET visitation under EAC for Mechatronics Engineering

Budget Approximation

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year minus 2</td>
<td></td>
</tr>
<tr>
<td>Faculty hire</td>
<td>$75,000</td>
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<tr>
<td>Year Minus 1</td>
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</tr>
<tr>
<td>Equipment purchase</td>
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<td>ISA hire</td>
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<td>Year 0</td>
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<tr>
<td>Equipment purchase</td>
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<tr>
<td>Faculty hire</td>
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<tr>
<td>Building construction</td>
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<tr>
<td>Year 1</td>
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<tr>
<td>Equipment purchase</td>
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</tr>
<tr>
<td>Total</td>
<td>$30,595,000</td>
</tr>
</tbody>
</table>

Enrollment Projections

Based on enrollment numbers at a peer institution (Southern Polytechnic State University), SUNY Canton expects enrollment numbers of approximately 30 new students each year. We would anticipate that tuition from students in the program will cover non-capital costs of operation as of year three and generate an operating surplus thereafter. These funds will be reinvested to strengthen existing programs and create new programs in STEM fields geared toward employer needs.