The University Senate of Michigan Technological University

Proposal 3-14
(Voting Units: Academic)

“Minor in Surveying”

Submitted by:
Surveying Engineering Faculty
School of Technology

1. Introduction
The dean of The School of Technology and surveying engineering faculty recommend the establishment of a minor in surveying.

2. Rationale
The construction of all land-based engineering projects starts with a survey to locate the structure(s) on the ground. This has been, and will continue to be, one of the traditional roles of a surveyor. Advances in GPS technology have led to improvements and increased utilization of Geographic Information Systems (GIS), which in turn has generated significant changes in cartography. There is a growing need for surveyors to help with the process of reconciling traditional surveying information with digital information contained in a GIS database in order to produce more comprehensive maps.

All U.S. states and territories license surveyors. Students who complete a minor in surveying may be eligible for licensure depending on the various state or territory licensing requirements.

3. Details of Catalog Copy
   a. Title of Minor
      Surveying
   
   b. Catalog Description
      The minor in surveying will provide non-surveying engineering majors the opportunity to learn principles and practices of surveying. This minor is most suitable for students in civil engineering, environmental engineering, forestry, geological engineering and geology.
   
   c. List of Courses
      The Surveying minor consists of 18 credits, including a minimum of twelve (12) credits of required courses and an additional six (6) credits of electives. Four courses are required as shown in Table 1. Students are required to select two additional courses from the list shown in Table 2. All courses (except FW 3540) are taught by surveying engineering faculty and on a regular basis.

   
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
<th>Term</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU 2000</td>
<td>2</td>
<td>Introduction to Surveying</td>
<td>Fall, Spring</td>
<td>none</td>
</tr>
<tr>
<td>SU 2050</td>
<td>3</td>
<td>Plane Surveying</td>
<td>Fall</td>
<td>SU 2000(C)</td>
</tr>
<tr>
<td>SU 3600</td>
<td>4</td>
<td>Surveying Computations and Adjustments</td>
<td>Fall</td>
<td>[(MA 2320 or MA 2321 or MA 2330) &amp; ((MA 2710(C) or MA 2720(C) or MA 3710(C)) &amp; MA 3160(C)]</td>
</tr>
<tr>
<td>SU 4060</td>
<td>3</td>
<td>Geodesy</td>
<td>Fall</td>
<td>SU 3600(C)</td>
</tr>
</tbody>
</table>
4. New Course Descriptions
   No new courses are required for this minor.

5. Estimated Costs
   No additional costs will be associated with this minor. All required and elective courses are currently being taught on a regular basis and there is existing capacity for additional enrollment in terms of classroom seats, laboratory space, and available equipment. Based on inquiries, enrollment is estimated at 5-10 students per year with additional capacity in existing courses. There will be a negligible increase to advising workload.

6. Planned Implementation Date
   This minor will be offered Fall 2014.

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Introduced to Senate: 06 November 2013
Approved by Senate: 20 November 2013
Approved by Administration: 26 November 2013