

## 2007 MASTER PLAN/PROGRESS REPORT

**Academic Program:** BS Engineering Technology, Electronics and Instrumentation Concentration

**Person Responsible:** Brent Garner, Electronics and Instrumentation Program Coordinator

**Date Submitted:** 6/28/07

**Mission:** The Bachelor of Science in Engineering Technology with concentrations in Electronics and Instrumentation builds upon the skills developed at the associate level and prepares graduates to fill supervisory or technical expert positions in industry, as well as providing a background for graduate study. Because these concentrations share many courses and instructors, they have been considered to be “closely related” by Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (TAC of ABET), and will be treated as such for this document. In order to prepare students for employment in these areas, students will meet the following program outcomes, which indicate the skills developed by the program.

**Institutional Mission Reference:** These concentrations are related to the institutional mission in that they offer baccalaureate degrees that lead directly to employment as entry-level electronics or instrumentation technicians with the opportunity for further advancement into supervisory or advanced technical support positions in local industry, providing them with the skilled technicians needed for their economic growth.

### Assessment Methods Utilized:

- Standardized Exam (nationally normed)
- Standardized Exam (state-normed)
- Major Field Examination
- Internally-developed Examination
- Student Opinion Survey (SOS)
- National Survey of Student Engagement (NSSE)
- Employer Survey
- Graduate Survey
- Alumni Survey
- Exit Survey/Interview/Exam
- Program-specific Survey
- Scoring of Essay
- Portfolio Evaluation
- Capstone Project
- Presentation
- Research Paper
- Research Project
- Course Summary
- Excel Spreadsheet
- Access Database
- Other - Please describe: Lab exercises, Lab average

### Data Repository Location:

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- Program coordinator's MSU office
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**Student Learning Outcome 1:** Graduates apply critical thinking in academic and professional environments.

<u>Expected Level of Achievement</u>	<u>Actual Data From Assessment</u>	<u>Actions/Decisions</u>
<p>75% of co-op students score at 75% or higher on Questions 2 and 5 from TECH 250 and 450 Supervisor's Review.</p> <p>75% of students enrolled in TECH420, a senior projects course, score a 75% on the project performance portion of the course grade.</p> <p>75% of students will demonstrate troubleshooting of existing software programs and create new software programs for use in electronics and process systems – in particular those using programmable logic controllers and higher-level computer language programming for microcontrollers by scoring a 75% or higher on the following assessment methods:</p> <ul style="list-style-type: none"> <li>* Final exam questions in INST304 with PLC programming content</li> <li>* Survey questions from INST304 with PLC programming content</li> <li>* Final exam results from ELTR310</li> <li>* Survey questions from ELTR310</li> </ul> <p>Comment: The third achievement item was Outcome 2 on the 2006 MP/PR for the B.S. concentration in ELTR/INST.</p>	<p>In the 2006-07 academic year, 100% of students scored at 75% or higher on the assessed questions from the Supervisor's Review.</p> <p>In the 2006-07 academic year, 67% of students scored a 75% or higher on the project performance score.</p> <p>In the 2006-07 academic year, 75% of students met the expected level of achievement of 75% on the assessments from listed courses. The ELTR310 Final Exam assessed item had fewer than 75% of the students scoring less than a 75%.</p>	<p>Continue to monitor student outcomes during the 2007-08 academic year. No actions will be taken based on the results from the 2006-07 academic year.</p> <p>Faculty will discuss ideas about how to improve student performance in project courses such as TECH420.</p> <p>Faculty to discuss strategies to improve student programming performance.</p>

**Student Learning Outcome 2:** Graduates formulate and express ideas effectively through oral, written, and/or technological communications in academic and professional environments.

<u>Expected Level of Achievement</u>	<u>Actual Data From Assessment</u>	<u>Actions/Decisions</u>
<p>75% of co-op students score at 75% or higher on Questions 1 and 4 from TECH 250 and 405 Supervisor's Review.</p>	<p>In the 2006-07 academic year, 100% of students scored at 75% or higher on the assessed questions from the Supervisor's Review.</p>	<p>Continue to monitor student outcomes during the 2007-08 academic year. No actions will be taken based on the results from the 2006-07 academic year.</p>
<p>75% of students enrolled in TECH420, a senior projects course, score a 75% or higher on the final report portion of the course grade.</p>	<p>In the 2006-07 academic year, 67% of students scored a 75% or higher on the project report.</p>	<p>Faculty will discuss ideas about how to improve student performance in project courses such as TECH420.</p>
<p>75% of students enrolled in TECH250 or 450 score a 75% or higher on the final report portion of the course grade.</p>	<p>In the 2006-07 academic year, 80% of students scored a 75% or higher on the course report</p>	<p>Continue to monitor student outcomes during the 2007-08 academic year. No actions will be taken based on the results from the 2006-07 academic year.</p>
<p>75% of students score a 75% or higher on the lab report average in ELTR314.</p>	<p>In the 2006-07 academic year, 100% of students scored a 75% or higher on the lab report average.</p>	<p>Continue to monitor student outcomes during the 2007-08 academic year. No actions will be taken based on the results from the 2006-07 academic year.</p>

**Student Learning Outcome 3:** Graduates analyze the global community to make sound judgments in academic and professional environments.

<u>Expected Level of Achievement</u>	<u>Actual Data From Assessment</u>	<u>Actions/Decisions</u>
<p>75% of students will comprehend the requirements of employees and supervisors in the global marketplace by scoring a 75% or higher on the following assessment methods:</p> <ul style="list-style-type: none"><li>* Final exam from TECH403</li><li>* Course survey from TECH403</li><li>* A mean of <math>\geq 4</math> on TECH250 and 450 Supervisor's Review.</li></ul> <p>Comment: This was Outcome 3 on the 2006 MP/PR for the B.S. concentration in ELTR/INST.</p>	<p>In the 2006-07 academic year, 100 % of students met the expected level of achievement of 75% on the assessments from listed courses.</p> <p>The Final Exam result was not available due to a VL leaving the area after the Fall 2006 semester.</p>	<p>Continue to monitor student outcomes during the 2007-08 academic year. No actions will be taken based on the results from the 2006-07 academic year.</p>

**Student Learning Outcome 4:** Graduates will acquire the knowledge to make purchasing decisions for current electronic and instrumentation equipment.

<u>Expected Level of Achievement</u>	<u>Actual Data From Assessment</u>	<u>Actions/Decisions</u>
<p>75% of students will acquire the knowledge to make purchasing decisions for current electronic and instrumentation equipment by scoring a 75% or higher on the following assessment methods:</p> <ul style="list-style-type: none"><li>* Final exam questions in INST304 with PLC hardware content</li><li>* Survey questions from INST304 with PLC hardware content</li><li>* Final exam results from ELTR314 that deal with lab equipment tradeoffs</li><li>* Survey questions from ELTR314 that deal with lab equipment tradeoffs</li></ul> <p>Comment: This was Outcome 1 on the 2006 MP/PR for the B.S. concentration in ELTR/INST.</p>	<p>In the 2006-07 academic year, 70.5% of students met the expected level of achievement of 75% on the assessments from listed courses. <u>Since the goal was for 75% of students to meet the performance indicator the outcome was not met.</u> A total of 4 assessments from 2 courses was used for this outcome. Two assessments had a fewer than 75% of students scoring less than 75%. These classes and assessed items are: INST304 Course Survey questions dealing with this outcome and the ELTR314 Final Exam embedded questions dealing with this outcome.</p>	<p>Efforts to include performance on this outcome will include a review of course topics dealing with purchasing decisions before the final exam and the course survey are administered. Note that in one class the students performed well on the final exam, but the survey results were low, while in another class the survey results were high, but the performance on the final exam was low.</p>