Department Annual Report

2012-2013

Manufacturing Department

Tooling and Manufacturing

920, 908

Document Prepared By:

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2012-2013
Department Information

Current year goals

1. Increase program enrollment, the partnerships will increase program majors by 30 to 40 percent.
2. Increase facility utilization, will need dedicated classrooms close to the machine shop.
3. Offer advanced machining classes. Both the GEM and AMP programs will require the advanced CNC classes; the new faculty will be responsible for the updating and the delivery of the classes.
4. Hire new faculty to handle the increased enrollment from the AMP and GEM programs.

Goal number one of increasing the program majors was archived with the increased classes due to AMP and GEM programs.
Goal number two of increasing the faculty utilization was reached as the instructors were teaching at or near their maximum load. The classrooms will continue to be looked at, the classrooms attached to the machine tool lab are already being used by Ferris State University.
Goal number three to offer the advanced machining classes was achieved as both AMP, GEM and the associates degree now requires the advanced CNC class.
Goal number four was not reached as the additional position was put on hold for a year. The position will be added the next school year.

Goals for next year
Hire new faculty to handle the increased enrollment from the AMP and GEM programs.
Continue to increase program enrollment

Internal collaborations and partnerships
Work with the welding faculty to schedule classes for the AMP and GEM groups.

External collaborations and partnerships
The department works closely with the Advisory Boards and companies represented by the AMP and GEM manufacturing cohort groups.
The Department also worked with the Skills USA to facilitate the Tooling Manufacturing and CNC state high school competition at Grand Rapids Community College.

Departmental needs for support from other departments within the college
The department works closely with admissions and counseling.

Program accreditation Updates
N/A

Description of departmental advising plan and outcomes
Student advising is a continuous process by department faculty. The technology area faculty are the best advisors to our student since they know what will be required of the students in industry. Faculty advise students during their office hours as well as during class periods, where appropriate. The department advising plan is on the webpage at grcc.edu/manufacturing

Updates About Student Organizations and Achievements
N/A

Other department updates

The state wide Skills USA competition was held at GRCC this year. The Tooling and Manufacturing full time and adjunct faculty assisted in this event.

Faculty & Staff

Departmental Professional Development Activities (Contractual Obligations for Departmental Faculty Development/6 hours)
Margaret Sesselmann provided training on the new carp format being used currently at GRCC. She also went through her shortcuts and lessons learned on how to make the changes quickly.

Lynnae Selberg and Erin Busscher provided training on the use of My Degree Path and how we can use the program to assist students with their academic plan.

Two representatives from Amatrol provided training on their E-learning products for many of the technology areas. We have requested a site license for the upcoming school year and will implement their product into more areas. The Amatrol representatives also showed us how to request and use temporary access to evaluate E-learning content that they support.

Faculty Professional Development Activities- Year End Summary
Jeffery Tyler took classes to work toward his PHD.

Faculty Development Plans for Upcoming Year
The faculty will plan for next year will include Academic Program Review training. Katie Daniels will also give more in-depth training on how to do assessment projects, how to document the data, and how to understand the results. We will also have more training on the Faculty Evaluation System.

EOL/Release Time Work

Mike Kiss is given release time as the Apprenticeship Coordinator at GRCC. The apprenticeship program continues to add student’s into a variety of technology area classes and is a feeder into several degree programs.

**Faculty & Staff Accomplishments/Awards**
Jeffery Tyler reached the ten year mark at Grand Rapids Community College.

**Program Data - Perkins Indicators**

5P2: Student Participation in Nontraditional Fields
S:\School of Workforce Development\Workforce Development\PERKINS\CORE INDICATOR LEVELS\2011-2012\Tooling & Manufacturing

Program performance levels were 0.0% and did not meet the state standard

2P1: Credential, Certificate, or Degree Attainment
Program performance levels for 2P1 were 5.5% below the state standard.

5P1: Student Completion in Nontraditional Fields
Program performance levels for 5P1 were 21.95% below the state standard.

4P1: Student Placement
The program exceeded the state performance level by 30%.

3P1: Student Retention and Transfer
The program performance levels for 3P1 were 4.78% under the state standard.

1P1: Technical Skills Attainment
N/A

**Summary**
The department continues to encourage potential female students into the program. The certificate program has many part time students who are taking classes for their employers. The department encourages certificate and degree attainment while stressing the importance of these achievements during class and student counseling sessions.

**Curriculum**

**Course Improvement Projects**
Jeff Tyler updated MN235C module in Holland. He changed the final exam and labs to reflect what is current in the industry.

Program Improvement Projects
Jeffery Tyler will work with the new temporary Machine Tool faculty to establish continuity through the MN119 and MN235 courses.

Course Document (CARP) Updates completed this year
MN 200
MN 213
MN 213A
MN 213B
MN 235
MN 238
MN 119
MN 214A
MN 214B
MN 217
MN 236

Assessment of Student Learning

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Program Outcomes</th>
<th>Student Learning Outcomes at the Program Level and Associated ILOs</th>
<th>Assessment Project Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tooling &amp; Manufacturing</td>
<td>Prepare students for employment in the manufacturing trades by providing learning opportunities that are in line with and meet industrial expectations/standards. Prepare students for higher/transfer education</td>
<td>Students will be able to demonstrate proper manual machining operations. (Critical thinking ILO) Students will be able to demonstrate proper use of computer numerical controlled machining equipment.</td>
<td>Student Learning Outcome to be assessed &amp; specific objective/competencies (if applicable)/ILO to be assessed: Students will be able to demonstrate proper manual machining operations. (Critical thinking ILO) Assessment Project description:</td>
</tr>
</tbody>
</table>
by providing learning opportunities that establish required foundational skills.

(Critical thinking ILO)

Students will exhibit proper machine shop procedures. (Personal responsibility ILO)

Students will keep a safe and clean work environment. (Personal responsibility ILO)

Students will be assessed on their ability to machine a part using the vertical milling machine.

**Assessment Methods:**

**Direct/Indirect Measures of Student Learning**

Students will be judged on product accuracy and the time to complete the project.

**Data Collection Strategies**

Student observation while in progress with a final inspection report. The report is a rubric, used in the industry.

**Data Analysis/Reporting Strategies**

Inspect part to determine student proficiency. An analysis of the data should indicate possible areas of remediation.

**Assessment Timeline**

Once each semester in MN119 course.

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**Measures of Student Learning**

Students will be assessed on their ability to machine a part using the vertical milling machine.

**Initial Data and Findings**

The application of the above Student Learning Assessment has demonstrated a deficiency in three of the assessed areas. These areas include:

1. The conformation and/or facilitation of proper machine set-up.
2. The determination, calculation, and setting of proper speeds and feeds necessary for effective machine tool operation.
3. The critical observation of the affect in-process debris is having on a safe working environment.

**Curricular or Pedagogical Changes Implemented**
In an effort to improve these areas for the next semester assessment, the following steps will be taken:

1. Additional class time will be devoted to covering the variables necessary for proper machine set-up in an effort to focus student efforts in a more critical/linear path to achieve desired results for the given task.
2. Additional class time will be devoted to covering Speed/Feeds variables (tool material/type, workpiece material), the critical determination and selection of proper Cutting Speed variables, and the proper calculation and consistent use of required RPMs.
3. Additional instructional efforts will be made to demonstrate critical observation and/or reflection of potential unsafe working conditions that may arise from created in-process debris.

Data and Findings (post improvement/change)
This same test will be administered next year and the results will be compared to see if the changes had any effect on the outcomes.