**East Central College**

**Precision Machining Department**

**Assessment Plan**

**(Updated Spring 2013)**

The aim of the department’s assessment plan for the next four years will be to:

1. Assess selected learning outcomes and practices that are inherent in the entire Precision Machining course sequence to embody Problem Solving and Development to real world applications and standards.
2. Establish a four year cycle of course assessment, with attention to both individual course improvements and continuity between sequential courses.
3. Embed and assess ECC’s Common Learning Objectives

**I. Rationales**

Assessments of the following rationales for learning outcomes are based on conditions under which the competencies are demonstrated and the criteria-performance will be satisfactory when the objectives are mastered.

* Learning Objective/Outcome
* Demonstrate basic functions, safety, and measurement.
* Demonstrate mastery of application, processes, and setup.
* Explain math concepts utilized and interpretation.
* Translate manual techniques into Numerical Control Programming.
* Translate Application, process, and setup procedures.
* Demonstrate mastery of software to streamline development, part creation and programming.
* Perform professional applications of technology for Production.

Conditions under which the competencies will be demonstrated are with written assessments generated both departmentally and externally consisting of various question types (multiple choice, true/false and written statements) covering all areas of the core classes. Criteria-Performance will be satisfactory when the students identify and demonstrate knowledge of the given rationales. Standardized exams such as the NOCTI test (given as an exit exam given Capstone) and Technical Skill Assessments (based on NIMS credentialing and given within the appropriate course) will be administered each semester.

**II. CLO Assessment**

The department will assess the CLO of Critical and Creative Thinking by administering the Science Reasoning CAAP test on a rotating basis in their courses with a Higher Order Thinking designation, which are Introduction to Computer Numerical Control Machining Mill and Lathe lecture and Computer Aided Manufacturing lecture. Starting Fall 2013, the Science Reasoning CAAP test will be administered as an entry skills assessment with subsequent testing every 3 years. Starting Spring 2014 post-tests using the Science Reasoning test will be administered in previous designated classes with repeated assessment every 3 years.

The institution’s CLO for Communication will be assessed annually via ECC’s common embedded rubric in Introduction to Computer Numerical Control Machining Lab. Ethics and Social Responsibility in Machining Capstone will also be assessed annually using the assessment tool developed by the AQIP action project committee.

**III. Course review will follow the cycle illustrated:**

1st Year: Machine Tool 1, Blue Print Reading and Design, and Intro to CNC

2nd Year: Machine Tool 2, Computer Aided Manufacturing, and CNC Lathe

3rd Year: Machine Tool 3, CNC Mill, GDT & SPC, and Solid Works

4th Year: Machine Tool 4, Materials & Metallurgy, and Machining Capstone

The above cycle will ensure the review of subsequent courses immediately follows that of previous courses. Items utilized for individual course assessment, continuity, and retention throughout course sequences will include:

* Revision of course goals and learning outcomes
* Success rates as they relate to NIMS credentials
* Review of departmental assessments through item analysis and alignment with course objectives
* Success rates as they relate to performance in previous courses
* Enrollment numbers by pathway of course entry
* NIMS/other embedded assessments in selected courses

Data for the above items will originate from both the Precision Machining Department’s own records, as well as the Institutional Research Department.

Additional items that will be reviewed once a year include textbooks and course materials, (including technology) and course descriptions and prerequisites.

**IV. Accreditation**

East Central College’s Precision Machining Program is accredited through the National Institute of Metal Working Skills (NIMS). As of June 19th 2013, the program has been re-accredited till June 19th, 2018 for level 1 and 2 machining skills. Starting in the fall of 2018, the re-accreditation process will start again and the process is as follows:

Section 1: Procedures for Training Programs

* An abbreviated self-evaluation form is submitted and a one day on-site evaluation is conducted. Instructional staff NIMS credentials reviewed, as well as records of annual facility reviews by the advisory committee.

Section 2: On-site Evaluation Teams

* Evaluation Team members conduct interviews with instructional staff, administration, advisory committee members, training partners, employers, and trainees, as well as, review facilities, equipment, and all relevant program documentation for the applicant training program.

Section 3: Elements of the On-Site Evaluations

* Documentation reviewed, including surveys, curriculum, program brochures and related materials, written policies regarding safety, inventory listings, maintenance schedules, advisory committee minutes, program plan, student records, work-place and skill competition information, articulation agreements, instructor evaluation polices, and instructor certificates. Student observations and student feedback reviewed. Interviews with instructors, administration, employers, and advisory committee members

Section 4: Recertification Decisions

* Decision – NIMS will assess the on-site evaluation team ratings and recommendations, and decide on the recertification status of the program (award or deny).

**V. Advisory Committee**

East Central College Precision Machining Program advisory committee consists of local business owners and or sponsors of the Manufacturing Industry. Meetings are held twice a year to discuss the topics related to the machining field and or adjustments that may be needed to the program to meet industry needs and changes. A process for creating and implementing a 3 year cycle of advisory committee members will be developed Fall 2013. Assessment of the effectiveness of the advisory committee will be assessed annually beginning Spring 2014 using ECC’s advisory committee rubric.

**VI. Program Review Schedule:**

As part of the program review schedule for the Mathematics/Physics and Engineering/IET and PM division, Precision Machining will report in 2014 and every five years thereafter.

**VI. Assessment Report**

Starting Spring 2015, an assessment report will be submitted to the college on a rotation of every other year containing averages of scores of learning outcomes and rationales (including common learning objectives). It will also include updates and recommendations from advisory board meetings, reports on technical skills assessments related to NIMS credentialing processes within the division, graduate follow-up, and status of reaccreditation process.