Assessment Guide

Program or Discipline: Manufacturing Technology Division: Advanced Technology

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This guide is intended as a tool to help you plan assessments of student learning for the purpose of planning improvements—to identify where students may hit bumps in the road, or where course scope or sequence may not be aligned with program learning outcomes or the core abilities. You may want to start with concerns about some part of your curriculum. The assessment process may also help you identify where students are achieving outcomes at higher rates than you expected.

Part 1: Student Learning Outcomes – Determine Expectations (CONTENT to be assessed)

Process	Program or discipline response
A. List expected learning outcomes. (Describe knowledge, skills, abilities, or attitudes upon completion of program or significant discipline work)	The graduate will: • demonstrate the use of setups and operation of all standard machine tools employed by the modern machine shop. • demonstrate and use industrial safety standards for safe operation of all machine tools. • access library, computing, and communications services and obtain information and data from regional and national networks. • use basic math skills, formulas and right angle trigonometry. The CNC Option graduate will also: • set up, program, and operate 3 Axis CNC milling machines with a G-code controller and 2 Axis CNC lathes with a G-code controller. • design parts with CAM software and apply to CNC machine tools.

Process	Program or discipline response

B. Identify where expected outcomes are addressed in the curriculum. In which courses will students demonstrate each program/discipline outcome?

Manufacturing Technology	Program			Support Courses					General Education						
	MFG 197 Manufacturing Technology	MFG 201 CNC Mill	MFG 202 CNC Lathe	HE 125 Workplace Safety or Alternative	WLD 151 Fundamentals of Metallurgy	WLD 121 Shielded Metal Arc Welding 1	DRF 167 CAD 1	ENRG 280 Cooperative Education*	Arts and Letters *	CS 120 Concepts of Computing *	CS 160 Orientation to Programming	MTH 076 Applied Geometry for Technicians	MTH 086 Applied Algebra for Technicians	WR 115W Intro to College Writing	Human Relations Requirement
Associate Degree Credit Hours (107 Total Credits)	66	6		3	3	4	4		3	4		4	4	3	3
Two-year Certificate Credit Hours (85 Total Credits)	66	6		3								4		3	3
Program Learning Outcomes															
Demonstrate employability skills required for initial employment and advancement in the industry that include: attendance, proper attire, customer relations, following directions, working in teams, and understanding work rules and ethics.	P	P		P	S	S	S	P	S	S		S	S	S	S
Demonstrate safe work practices and tool usage while performing operations in a shop environment.	P	P		P	S	P	S	P							
Demonstrate the use of standard machine tools employed by the modern machine shop.	P	P		P	P	S	S	S							
Operate 3 Axis CNC milling machines and 2 Axis CNC lathes using G-code controllers.	P	P		S			S								
Demonstrate technical abilities in researching, accessing and interpreting written, computer program or web-based reference materials.	P	P			S	S			P					P	
Use basic mathematics skills, formulas and right angle trigonometry.	P	P					P					P	P		
Core Abilities															
Communicate effectively.	P	P		S	S	S	S	S	S	S				P	P
Think critically and solve problems effectively.	P	P			P	P	P		S	S		P	P	P	P
Increase understanding of the relationship between self and community, including self-awareness and personal responsibility.	S	S		S				P							P
Explore academic disciplines of liberal arts, social sciences, and physical sciences.				S	S	S	S		P	P		P	P	P	P
Learning College Principles															
Learners are active partners in the learning process.	P	P													
Learners are self-directed.	P	P			P	P	P								
Multiple learning options for diverse learners.	P	P													
Learning is promoted across organizational boundaries.	S	S		P	P	P	P	P	P	P		P	P	P	P
Learning is substantive and documented.	P	P													
Assessment Methods															
Technical Skill Performance Observation/Evaluation	P	P													
Employability Skills Evaluation	P	P													
Group Project	S	S													
Journaling	S	S													
Library Research	S	S													
Oral Report/Presentation	S	S													
Peer Assessment	S	S													
Portfolio	S	S													
Pre and Post Test	P	P													
Project Evaluation	P	P													
Quizzes	S	S													
Self Assessment	P	P													
Written Report	S	S													
Written Tests/Examinations	S	S													

P = this is a primary course for meeting the program learning outcome, core ability, learning college principle, or assessment method.
S = this course meets some of the program learning outcome, core ability, learning college principle or assessment method.

Part 2: Assessment Methods – Determine Timing, Cohort(s), Assign Responsibility (PEOPLE assignments)

Process	Program or discipline response
C. Determine at least two methods to assess each outcome at the end of the program with at least one direct assessment of learning.	Students learn machine tool setups *Students projects are graded for competencies. * Students read and study book chapters and take a post test for each one. Students learn right angle trigonometry • Students take final exam in trig • Trig used and graded in shy projects Employer and co-op education assesses students skills
D. Describe level of expected performance, including conditions of assessment and criteria for success.	Expected performance must meet industry standards for employment as machinist. All students must complete projects with a passing grade or redo project.
E. If appropriate for key course sequences, identify assessment methods for learning outcomes.	N/A
F. If appropriate, identify and collect baseline information on entering students.	All entering students complete a bio with highest math class completed and their previous mechanical experience.
G. Establish a 3-5 year schedule for assessment, including who will interpret results. Which students will be assessed? When will the assessments take place? Which outcomes will you assess this year? (Suggestion: assess a maximum of 3 outcomes per year, except in specially accredited career technical programs)	Instructor will assess annually. Instructor will assess and interpret blueprint reading this term.
H. Determine how you will assess outcomes on an annual basis. Who will conduct the assessments? Who will tabulate data? Who will analyze the results? When will the work be completed?	Outcomes will be assessed and grade book records kept by the instructor on term and annual basis.

3. Now you have a plan to implement—go forth and assess!

Part 4: Closing the Loop – Interpreting and Sharing Results to Enhance Institutional Effectiveness (COMMUNICATION)

Process	Program or discipline response
I. Identify the next steps, including any planned changes to curriculum or pedagogy. What do you expect to learn from these assessment efforts? Determine how and with whom you will share interpretations.	From these assessments we will determine if students are ready for employment in a very competitive industry. Assessment interpretations will be shared with prospective employers by sharing student grades.