



AY 2006 – 2007
Program Review

Manufacturing Technology



A. Program Overview

The Manufacturing Technology Program includes three distinct technical areas:

- Computer Aided Design
- Machining Technology
- Welding

The program offers Technical Certificates in three areas of emphasis:

- Manufacturing Technology – Computer Aided Design
- Manufacturing Technology – Machine & Manufacturing Trades
- Manufacturing Technology – Welding

The program offers Associate of Applied Science degree in three areas of emphasis:

- Manufacturing Technology – Computer Aided Design
- Manufacturing Technology – Machining Technology
- Manufacturing Technology – Welding

and the Associate of Science degree with a Manufacturing Technology emphasis.

The manufacturing program, or some of the technical areas in the program, has been offered at Mesa State College for more than 30 years. The current structure of the program was established in the early 1990s in response to changes in the manufacturing businesses in the region. The local manufacturing companies advised that there were few jobs for graduates with narrowly focused training in one of the three areas that are now under this program. The suggestion was that we begin offering a program that provided some classes in all three areas to any student that was pursuing a degree in manufacturing related studies. The eventual outcome of that advice was the current structure in which all students in the program will take at least one course in each of the technical concentrations that they are not pursuing and a Blue Print Reading class that emphasizes manufacturing processes in a variety of situations. This provides graduating students with a better understanding of the manufacturing activities that they will encounter upon entering the workforce in our community.

The curriculum in each technical area is updated periodically to reflect changes in area businesses. The most recent major change occurred in the welding program during the 2005-06 school year. The program was revised so that the curriculum reflects the equipment and material changes that had evolved over the past 10 years.

B. Goals and Objectives

The goal of the program is to provide students with the skills necessary to become productive employees in the manufacturing businesses throughout our five county community college service area. The objectives that flow from this goal are:

- Provide skill development classes in the areas of Welding, Machine Trades, and Computer Aided Design (CAD).

- Expose all program participants to the variety of technical activities involved in regional manufacturing businesses (Welding, Machine Trades, and CAD).
- This goal and these objectives relate to the Mesa State College mission to maintain a community college role in our service area that will provide vocational and technical programs that will meet service area needs.

C. Program Need

i.) Enrollment, Graduation rates, and other relevant data

- All of the data provided by the Office of Institutional Research (IR) in Appendix A indicate that the need for the manufacturing program has increased during the past two years. This point is emphasized by the following data points:
- Program majors have increased from 114 in 2001-2002 to 198 in 2005-2006 – (Table 1.). Nearly 2,300 credit hours are generated by the program annually (Table 2).
- Program graduates have increased from 22 in 2000-2001 to 42 in 2005-2006 – (Table 3.).

ii.) Other considerations

- These bits of data indicate that there is a need for the skills provided through this program that current students and potential students recognize the need. The increase in majors and graduates and credit hours support this conclusion.
- The staff and faculty receive constant anecdotal data to support the need for this program through regular contact with area businesses and advisory groups.
- There has not been any time in recent years that we have not had job openings posted in all three technical areas of this program.
- In addition to job openings, there are continuous requests for students interested in paid internships. This makes retention of students challenging as shown in Table 4.
- Many employees are willing to pay the cost of classes to complete degrees if students will come to work now.
- Most manufacturers in the region are continuously advertising for employees with these skills.
- The activities of the Grand Junction Economic Partnership (GJEP), our local economic development program, are focused on bringing manufacturing businesses to our service area. This is not the only focus of the group, but it has been a principal focus and will remain one of the primary efforts of the group. The ability of Mesa State to train and develop a workforce to meet this economic development activity will continue to be an important function.
- The recent rapid expansion in the energy industry throughout our service area has placed additional stress on the manufacturing skills provided through this program. The energy industry does not use these skills in the same manner that a manufacturing business would, but the skills are highly valued by the industry. Welders are in constant demand to build and repair components of

exploration and production facilities. Machine trades skills are needed for repair and maintenance purposes. CAD skills are necessary for documentation of equipment and distribution system layout and records. The short term and long term projections for the continued development of energy resources indicate that there will be an increasing demand for the skill sets provided through this program.

D. Summaries of Resources

i). Unique characteristics of the program

The focus of this program is on the training of individuals to meet the skilled needs of area manufacturers. The unique aspect of this focus is that the program attempts to provide students with a broad set of skills to meet the needs of the small manufacturers that represent most of the manufacturing in our service area. The employees of the businesses commonly need to fill multiple roles within the organization. For example, employees seldom operate one machine all the time or assemble the same product everyday, as might occur in a large plant with hundreds of employees.

Companies in our service area by and large have less than 50 employees and expect workers to be trained in multiple skill sets. Generally these skill sets must develop on the job over time. It is, however, the intention of the manufacturing program to provide students with a primary set of skills in one of these three areas; welding, machine trades, or CAD, and provide an introduction to skill development in both of the other technical areas. Graduates of the program will have an understanding of the skills in all three areas and should more easily develop the multiple skill sets needed at the manufacturing business where they become employed. This effort to provide a general set of skills and a concentrated set of skills is fairly unique. Most programs concentrate on one skill set and produce graduates with a degree in one of the technical areas that are included in the manufacturing program at Mesa State College.

ii) Faculty and Staff

The faculty in the Manufacturing Program are all experienced, skilled technicians from the manufacturing sector.

Brigitte Wilson, Director of Manufacturing Program, is a Civil Engineer with many years of professional engineering experience and 7 years of teaching experience. Brigitte's teaching duties are primarily in the CAD program. She is also working on a Ph.D. in the Community College Leadership Program at Colorado State University.

Darrel McKay is the lead instructor in Welding. Darrel has over 30 years of experience in welding and fabrication in all of the manufacturing and energy

related industries present in our area. Darrel also provides special services to create and build decorative metal work for the construction industry in the region and creates metal sculpture and artwork.

Bill McCracken serves as lead instructor in the Machine Trades program. Bill has over 20 years of machine production experience in a variety of manufacturing plants in several states. Bill has an A.A.S. in Manufacturing

Denis Thibodeau is the lead instructor in the CAD program. Denis has extensive industry experience in mechanical and architectural businesses. Denis has an A.A.S. in CAD.

The program has 7 full-time faculty, along with a number of adjunct faculty who are currently working in manufacturing and engineering positions in Grand Junction (Table 5 and vitae in Appendix B). Table 6 summarizes workloads for program faculty. These faculty members provide instruction in specialized classes or general support of the instructional program.

iii.) Physical facilities

The facilities for the CAD program are adequate for current and foreseeable enrollment needs. The facilities for the Welding and Machine Trades programs are cramped but adequate. We are planning to add an outdoor fabrication area during the 2006-2007 school year. This addition will provide much needed space for projects in the welding and machine trades programs.

iv.) Instructional equipment

The instructional equipment available in the CAD program meets the minimum expectations for the delivery of relevant instruction. We are upgrading the computers as rapidly as our resources allow. The software used in area industry is changing at a pace that is difficult to keep up with, but we have been able to stay close to current industry practices.

The instructional equipment available to the Welding program is excellent. The lab facilities underwent a major upgrade during the 2005-2006 school year. Over \$40,000 worth of new equipment and facilities upgrades were completed. This upgrade provides equipment that represents current industrial practices and processes.

The instructional equipment available to the Machine Trades program is representative of that which is used in area manufacturing plants. There is a wide variety of machinery available that represents all but the latest state-of-the-art machine tools. Students in the program gain a very appropriate set of experiences that will prepare them for the regional workforce. We have received a large amount of donated equipment and tooling for this program in recent years. The

support of area manufacturers has continued to be an important aspect of the machine trades program. All aspects of the program use information technology systems that are appropriate for the specific technical applications common in regional manufacturing businesses. Institutional support in this area of instruction has been excellent.

v.) Library

The library and video resources available to the program is quite adequate. Faculty requests for materials have been supported annually.

vi.) Unique sources of revenue and expenditures

This program requires the use of current industry equipment and processes. Those items that support current practices are generally very expensive and need to be upgraded continuously. This is an expensive program and depends on institutional and business support to maintain adequate training/educational services.

E. Effectiveness

i.) Accreditations:

- In the process of becoming a Manufacturing Skills Standards (MSSC) testing and accreditation center.

ii.) Changes since last program Review:

- This is the first year of review for the manufacturing department.

iii.) Assessment of student activities (Appendix C):

1. Machining

- a. Student shall demonstrate knowledge to perform tasks of entry level machining employment. Graduate survey item, usefulness of training, generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- b. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance. Graduate survey items, solve problems and follow directions generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- c. Student will demonstrate effective use of communication skills appropriate to machining field. Graduate survey, use of effective oral communication and use of effective written communication, generated and sent by Student Services. Positive graduate follow-up survey

shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

- d. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study. Graduate survey items, use math skills to solve practical and/or theoretical problems, generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

2. Welding

Student shall demonstrate knowledge to perform tasks of entry level welding employment. Graduate survey item, usefulness of training, generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

- a. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance. Graduate survey items, solve problems and follow directions generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- b. Student will demonstrate effective use of communication skills appropriate to the welding field. Graduate survey, use of effective oral communication and use of effective written communication, generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- c. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study. Graduate survey items, use math skills to solve practical and/or theoretical problems, generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

3. Computer-Aided Drafting (CAD)

- a. Student shall demonstrate knowledge to perform tasks of entry level CAD employment. Graduate survey item, usefulness of training, generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

- b. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance. Graduate survey items, solve problems and follow directions generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- c. Student will demonstrate effective use of communication skills appropriate to the CAD field. Graduate survey, use of effective oral communication and use of effective written communication, generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.
- d. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study. Graduate survey items, use math skills to solve practical and/or theoretical problems, generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations.

Faculty success data:

i) Teaching

- a. Manufacturing faculty continues to prepare students to successfully obtain employment in 21st century manufacturing fields.
- b. Manufacturing faculty attend training sessions in welding, CAD and machining to keep skills up to date. Training includes FeatureCam, Solidworks, American Welding Society (AWS) and AutoCAD.

ii) Advising

Manufacturing faculty advise each student in their respective majors on class scheduling, graduation requirements and timelines required with respect to class offerings. Manufacturing faculty also participate in SOAR sessions at Mesa State main campus and the Bishop Campus.

iii) Service

Manufacturing faculty serve as advisors in SkillsUSA. Manufacturing faculty work closely with local industries implementing internships and assist employers with filling employment needs with students. Manufacturing faculty volunteer in the community in many facets; Lions Club, take on projects from the community, volunteer with the Mesa County Public Library Literacy Program.

F. Strengths Identified

- Students show effective use of entry level skills related to their work area.
- Students show effective use of communication skills.
- Students demonstrate knowledge of personal work characteristics that contribute to effective work performance.
- Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

G. Areas needing strengthening identified by the review

Assessment of students at national level

H. Vision:

i.) Proposals for strengthening program

- Becoming a Manufacturing Skills Standards (MSSC) testing and accreditation center allowing our students to be MSSC certified.
- Becoming an American Welding Society (A.W.S) testing facility. Allowing our students and employers in the community be A.W.S. certified.
- Becoming a test site for the American Design Drafters Association (ADDA).International allowing our students and community to be conveniently ADDA certified.
- Continue implementation of the “Work Ethics” model
- Continue implementation of “Project Based Learning”
- Develop full offerings of program for night classes
- Continue to monitor what industry is doing to make sure we are training our students with the software and technology that best suits potential employers as well as our students.

ii) Program priorities requiring additional resources

- Becoming a Manufacturing Skills Standards (MSSC) testing and accreditation center allowing our students to be MSSC certified.
- Becoming an A.W.S testing facility. Allowing our students and employers in the community be A.W.S. certified.
- Becoming a test site for the American Design Drafters Association (ADDA). International allowing our students and community to be conveniently ADDA certified.
- Professional development
- We are always in need of funding for software and hardware. The programs change every year and the demand for faster computers is never-ending. Typically the computers are not fast enough to run the new software after two to three years.



Appendix A

Program Statistics for Past Five Years



Table 1. Unduplicated Headcount of Majors by Program, AY 2002 - 2006

TECHNOLOGY		2001-2002					2002-2003				
Degc	Description	Majr1	Majr2	Majr3	Majr4	TOTAL	Majr1	Majr2	Majr3	Majr4	TOTAL
AAS	Mfg Tech Cluster-CAD Technolog	62	0	3	0	65	65	0	4	0	69
CERT	Mfg Tech Cluster-Comp Draft T	5	0	25	0	30	6	0	32	0	38
CERT	Mfg Tech Cluster-Mach Mfg Trad	1	0	6	0	7	3	0	4	0	7
AAS	Mfg Tech Cluster-Mach Tech	36	1	4	0	41	34	0	3	0	37
CERT	Mfg Tech Cluster-Welding	3	0	2	0	5	4	0	4	0	8
AAS	Mfg Tech Cluster-Welding	7	0	2	0	9	15	0	2	0	17
TECHNOLOGY TOTAL		114	1	42	0	157	127	0	49	0	176

TECHNOLOGY		2003-2004					2004-2005				
Degc	Description	Majr1	Majr2	Majr3	Majr4	TOTAL	Majr1	Majr2	Majr3	Majr4	TOTAL
AAS	Mfg Tech Cluster-CAD Technolog	60	0	8	0	68	70	0	8	0	78
CERT	Mfg Tech Cluster-Comp Draft T	10	0	24	0	34	11	0	27	1	39
CERT	Mfg Tech Cluster-Mach Mfg Trad	0	0	0	0	0	5	0	2	0	7
AAS	Mfg Tech Cluster-Mach Tech	35	0	7	0	42	25	1	2	0	28
CERT	Mfg Tech Cluster-Welding	7	0	4	0	11	12	0	8	0	20
AAS	Mfg Tech Cluster-Welding	16	0	3	0	19	21	0	4	0	25
TECHNOLOGY TOTAL		128	0	46	0	174	144	1	51	1	197

TECHNOLOGY		2005-2006				
Degc	Description	Majr1	Majr2	Majr3	Majr4	TOTAL
AAS	Mfg Tech Cluster-CAD Technolog	69	0	10	0	79
CERT	Mfg Tech Cluster-Comp Draft T	11	0	27	1	39
CERT	Mfg Tech Cluster-Mach Mfg Trad	5	0	2	0	7
AAS	Mfg Tech Cluster-Mach Tech	25	1	2	0	28
CERT	Mfg Tech Cluster-Welding	12	0	8	0	20
AAS	Mfg Tech Cluster-Welding	21	0	4	0	25
TECHNOLOGY TOTAL		143	1	53	1	198

Table 2. HEADCOUNT AND FULL-TIME EQUIVALENT MAMT ENROLLMENTS AY 2006

Level/Tuition Classification	Headcount		Credit Hours		FTE	
Undergraduate						
In-State	1,261	93.9%	2,160	94.0%	72.0	94.0%
Out-of State	82	6.1%	139	6.0%	4.6	6.0%
Subtotal	1,343	100.0%	2,299	100.0%	76.6	100.0%
Graduate						
In-State	0	-	0	-	0.0	-
Out-of State	0	-	0	-	0.0	-
Subtotal	0	-	0	-	0.0	-

**Table 3. ONE-YEAR RETENTION RATE FOR FIRST-TIME MANUFACTURING TECHNOLOGY 2000
Mesa State College**

Major			Retained		Completed		Not Retained		Total	
Level	Code	Program Name	Subsequent Fall		Certificate/Degree		Subsequent Fall		# %	
			#	%			#	%	#	%
A.A.S.										
	1331	Machining Technology	7	77.8%	0	0.0%	2	22.2%	9	22.2%
	1332	Welding Technology	7	63.6%	0	0.0%	4	36.4%	11	36.4%
	1333	Computer Aided Design	26	55.3%	3	6.4%	18	38.3%	47	44.7%
Certificate										
	1336	Computer Aided Design	4	100.0%	0	0.0%	0	0.0%	4	0.0%
	1337	Machine and	2	50.0%	0	0.0%	2	50.0%	4	50.0%
	1338	Welding Technology	0	0.0%	1	20.0%	4	80.0%	5	100.0%
TOTAL			46	57.5%	4	5.0%	30	37.5%	80	95.0%

**Table 4. Certificates and A.A.S. in Awarded in Manufacturing Technology by Major Code,
Academic Years 2001 - 2005**

Major Level	Major Code	Program Name	Degree Attainment				
			2001	2002	2003	2004	2005
Certificate							
	1336	Computer Aided Design Technology	9	14	13	9	12
	1337	Machine and Manufacturing Trades	1	1	1	3	4
	1338	Welding Technology	0	0	1	0	3
A.A.S.							
	1331	Machining Technology	3	11	6	12	11
	1332	Welding Technology	3	3	4	0	2
	1333	Computer Aided Design Technology	6	7	13	10	10
TOTAL			22	36	38	34	42

**Table 5. Manufacturing Technology Faculty by Tenure Status, 2004-2006
Mesa State College**

	Manufacturing Technology	2003-2004 FTE		2004-2005 FTE		2005-2006 FTE	
		FTE	%	FTE	%	FTE	%
Status							
	Tenure	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Tenure-Track	0.0	0.0%	0.0	0.0%	0.0	0.0%
	Total Tenure	0.0	0.0%	0.0	0.0%	0.0	0.0%
	FT Instructor	7.0	97.2%	6.0	98.4%	4.0	78.4%
	PT Instructor	0.2	2.8%	0.1	1.6%	1.1	21.6%
TOTAL		7.2	100.0%	6.1	100.0%	5.1	100.0%

Table 6. MAMT WORKLOAD 2005 - 06 BY PROGRAM

PROGRAM	TRACK	COURSE CREDIT HOURS	HEADCOUNT ENROLLMENT	STUDENT CREDIT HOURS	FTEF	FTES	FTES/ FTEF
CADT Total	A Total	89	721	1,179	3.71	39.30	10.60
		89	721	1,179			
MAMT Total	A Total	67	304	503	2.79	16.77	6.01
		67	304	503			
WELD Total	A Total	61	282	555	2.54	18.50	7.28
		61	282	555			
Grand Total		217	1,307	2,237	9.04	74.57	8.25

MESA STATE COLLEGE
Manufacturing Technology

CAMPUS	DISCIPLINE	LEVEL	CHS	TOTAL FACULTY COMPENSATION	(A) TOTAL OTHER COMPENSATION	(B) OTHER CURRENT EXPENDITURES	(C) OTHER INSTRUCTION	(D) ACADEMIC SUPPORT	(C) STUDENT SERVICES	(E) INSTITUTIONAL SUPPORT	(C) PLANT	TOTAL COSTS	COSTS/ CREDIT HOUR
2004 Main	MAMT	LOWER	512	\$ 54,550	-	\$ 20,518		\$ 22,624	\$ 9,600	\$ 8,772	\$ 8,152	\$ 124,216	243
2004 Main		UPPER	-										
2004		TOTAL	512	\$ 54,550	-	\$ 20,518		\$ 22,624	\$ 9,600	\$ 8,772	\$ 8,152	\$ 124,216	#DIV/0!
2005 Main	MAMT	LOWER	495	\$ 52,410		\$ 17,058	\$ 1,755	\$ 21,448	\$ 9,110	\$ 7,052	\$ 7,630	\$ 116,463	235
2005 Main		UPPER	-										
2005		TOTAL	495	\$ 52,410	-	\$ 17,058	\$ 1,755	\$ 21,448	\$ 9,110	\$ 7,052	\$ 7,630	\$ 116,463	#DIV/0!

- (A) Includes department head stipends and support staff.
- (B) Includes course fees and travel.
- (C) Allocated by % of total credit hours.
- (D) Allocated by % of total Faculty FTE.
- (E) Includes Institutional scholarships.



Appendix B

Faculty Vitae



VITAE

Brigitte S. Wilson, Instructor
Applied Technology
Mesa State College/WCCC
2508 Blichmann Avenue
Grand Junction, CO 81503

Phone: 970/255-2713
Fax: 970/255-2626
email: bwilson@mesastate.edu

Professional Preparation

Ph. D. Community College Leadership, Colorado State University	In progress
Masters of Business, University of Phoenix	1997
Bachelors of Science in Civil Engineering, Colorado State University	1992
Graduated from German Language School	1983

Professional Certifications

Registered Professional Engineer #32053	1997
Certified 3ds Max Software	1997
AutoCAD training	1997

Professional Credentials

Credential from the State of Colorado Secondary and Post secondary:
CAD
Math

Professional Organizations

Skills USA – Advisor 2004-present

Appointments

Mesa State College/Western Colorado Community College, Grand Junction, CO
Faculty; Instructor; CAD (1999 – Present)

- Extensive experience developing curriculum and teaching technical subject across several disciplines including AutoCAD, Computer Animation, Fluid Power, Blueprint Reading, Geometric Tolerancing, Hazardous Waste Management, and high-school math
- Department Chair for Manufacturing Technology (CAD, Machining, Welding) – 3yrs
- Continual curriculum improvement to keep pace with current technology
- Designing and developing program and curriculum for computer animation AAS and certificate
- Designed, developed and taught Computer Animation for Technology curriculum for all CAD students

Delta Montrose Votech, Delta Colorado
Adjunct Faculty, Instructor; AutoCAD (2000)

Wastren Inc., Grand Junction, CO

Project Engineer (1999-2001)

Hydrology and hydraulic calculations, Monticello, Utah – Served as project engineer responsible for hydrologic and hydraulic calculations for 15 square mile drainage basin including creek realignment, culvert design, drop structure design, and erosion control. Work was performed in support of remediation activities at the Monticello Mill Tailings Site. Hydrology calculations were performed using TR-55 method and USGS regression analysis. AutoCAD 14 and Softdesk 8 were used to complete the project.

Harding Lawson, Grand Junction, CO

Project Engineer (1998-1999)

Stormwater planning, Gas Hills, Wyoming – Prepared stormwater pollution prevention plans in support of ongoing remediation/construction projects at former uranium mining and milling facilities. Plan modifications were prepared in accordance with permit requirements and designed to address ongoing construction activities.

Hydrology study, Rifle, Colorado – Project engineer responsible for performing engineering calculations to support a post-remediation dewatering project at a former uranium mill tailings site in Rifle, Colorado. Calculations used to support design of system to lower groundwater levels in portion of the site.

Construction cost estimating, Uravan, Colorado – Project engineer responsible for developing construction cost estimates to refurbish historical buildings and structures at the former Uravan uranium mill facility. The buildings are being refurbished in accordance with the approved closure plan for the facility.

Feasibility study, Uravan, Colorado – Performed engineering evaluation/cost analysis for former uranium mill facility. Evaluation focused on the assessment of three separate land use and associated risk scenarios for the site. Responsibilities included review of engineering plans and specifications and development of cost estimates for the three scenarios.

Acklam Associates, Inc., Grand Junction, CO

Senior Engineer (1997-1998)

Subdivision design, Grand Junction, Colorado - Served as project engineer on residential development project, which included grading, drainage, utilities, and road design. Responsibilities included preparation of design packages and presentation of packages to city and county agencies for review and approval. Software implemented was AutoCAD 14 and Survcadd for civil engineering design purposes.

RUST Geotech, Grand Junction, CO

Design Engineer (1992-1997)

Mill tailings remediation, Grand Junction, Colorado – Served as engineering lead for \$1.5 million environmental remediation project. The project was located along the banks of the Colorado River and involved excavation and removal of uranium mill tailings from

an abandoned municipal landfill, dewatering calculations, infiltration gallery design and construction, and re-vegetation. Responsibilities included preparation of design plans and specifications, permitting, cost estimating, and construction oversight.

Bioremediation and stabilization treatability study, Grand Junction, Colorado - Responsible for conducting a bioremediation and stabilization treatability study on a radioactive soil mixed with a RCRA hazardous waste oil at a U.S. Department of Energy facility in Grand Junction, Colorado. Responsible for preparing engineering work plans, statements of work, and construction specifications to support the treatability study. Responsibilities also included preparing cost estimates and schedules for assigned work tasks.

Mill tailings remediation, Monticello, Utah – Project engineer for excavation and removal/disposal of mill tailings contamination from residential properties throughout the town of Monticello. Responsibilities included preparation of design plans and specification, cost estimating, construction oversight, and owner contact/coordination. All work was conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

U.S. Forest Service, Fort Collins, CO

Civil Engineer Tech (1990-1992)

Project engineer responsible for the preparation of wastewater system report and design specifications and engineering report for flood control of Forest Service facilities, as well as performing total station land surveys. As a construction inspector, responsibilities included oversight and quality assurance of work performed by the subcontractor on the job site. Responsibilities also included preparation of AutoCAD construction and specification drawings.

Hedrick and Associates, Chesterland, OH

Civil Engineer Aid (1989-1989)

Development design, Chesterland, Ohio - Responsible for coordination of engineering activities to support subdivision development. Responsibilities included assisting in construction design, preparing earthwork cut/fill calculations, and performing survey calculations.

PROFESSIONAL AND CAREER RESUME

DARREL J. MCKAY
2075 I ROAD
FRUITA, COLORADO 81521
(970) 858-8196

NATIVE RESIDENT OF COLORADO BORN OCTOBER 27, 1952

**ATTENDED MESA COUNTY SCHOOL DISTRICT 51 SCHOOLS,
GRADES ONE THROUGH 12.**

GRADUATED FROM CENTRAL HIGH SCHOOL MAY 1971.

**ATTENDED MESA STATE COLLEGE - 1 ACADEMIC YEAR AND 1
SEMESTER.**

**TRAINED FOR TWO YEARS AT TULSA SCHOOL OF WELDING, TULSA
OKLAHOMA FROM JAN. 1973- 75. WORKED AS APPRENTICE PIPE FITTER
AT TEXACO REFINING DURING THAT PERIOD.**

**RETURNED TO COLORADO 1974 EMPLOYED BY CALVERT WESTERN
EXPLORATION. MANAGED FABRICATION AND RIG MAINTAINENCE
SHOP IN GRAND JUNCTION. SUPERVISED 65 EMPLOYEES AND SUB-
CONTRACTORS THROUGH 1977. SOLD TO NICOR DRILLING DEC. 1978.**

**1979 - 1983 OWNED AND OPERATED MCKAY WELDING COMPANY.
MANUFACTURING OF SKI LIFT COMPONENTS , INDUSTRIAL FIELD AND
PLANT MOBILE WELDING SERVICES.**

**1984 - 1991 OWNED AND OPERATED MCKAY SPECIALTY FABRICATION.
OILFIELD SERVICES INCLUDING MACHINE SHOP, PORTABLE WELD
TESTING SERVICES. CONTRACTED WITH NATIONAL SUPPLY COMPANY
FABRICATING DRILLING RIGS AND SPECIALTY DRILLING
EQUIPMENT, TRUCK AND TRAILER BODY LOAD OILFIELD SERVICING
UNITS. SOLD BUSINESS IN DECEMBER 1991**

**1992 - DEC. 1993 CONTRACTED WITH ULTRASYSTEMS (CALIFORNIA)
ON A TWO YEAR MAINTAINENCE TURNAROUND PROJECT AT UNOCAL
OIL SHALE PROJECT . MANAGED THREE WELDING AND WELD TESTING
CREWS IN PARACHUTE PROJECT AREA , INCLUDING C/A AND C/B
TRACTS.**

1994 – JUNE 1995 CONSTRUCTION AND SAFETY INSPECTOR FOR CHEM-NUCLEAR GEOTECH. OPERATIONAL CONTRACT WITH THE U.S. DEPT. OF ENERGY, GRAND JUNCTION, CO. AND MONTICELLO, UT. PROJECTS OFFICES. TRAINED FOR AND INSTRUCTED OSHA COMPLIANCE, EXCAVATION PROCEEDURES, CRANE AND RIGGING SAFETY AND PROJECT MANAGEMENT.

JULY 1995 – 1997 (APRIL) OPENED U.S. PROJECTS. SPECIALIZING IN DESIGN, FABRICATION, MACHINE SHOP AND FIELDS OPERATIONS FOR NEWLY PATENTED COILED TUBING SERVICE EQUIPMENT. SOLD BUSINESS IN MAY 1997.

MAY 1997 – DEC. 1999 INSTRUCTOR – WELDING . MESA STATE COLLEGE/UTEC.

JAN. 1999 – DEC. 2000 MANUFACTURING SUPERINTENDANT FOR HAMBIL AND ASSOCIATED, LOMA, COLORADO. ORNAMENTAL AND ARCHITECTURAL IRONWORK. MANAGED BLACKSMITHING FORGE, FABRICATION AND FIELD INSTALLATION CREWS.

JAN. 2001 – PRESENT. OWN AND OPERATE GRAND VALLEY FORGE, L.L.C.. RESIDENTIAL AND COMMERCIAL FABRICATOR AND SUPPLIER FOR CUSTOM ORNAMENTAL IRONWORK.

CAREER GOALS AND OBJECTIVES:

I WOULD LIKE TO RETURN TO TEACHING AS MY PRIMARY CAREER. I HAVE ACCOMPLISHED MANY OF MY PERSONAL AMBITIONS AND BUSINESS INTERESTS AND HAVE FOUND THAT INSTRUCTION HAS BEEN MY MOST REWARDING ENDEAVOR.

AS A LIFE LONG RESIDENT OF WESTERN COLORADO, I WISH TO REMAIN HERE AS A SUPPORTIVE MEMBER OF THE COMMUNITY, AND UTEC MAY WELL BE THE BEST PLACE TO REALIZE THESE GOALS.

William J. McCracken Jr.
Instructor of Manufacturing
Mesa State College
School of Applied Technology
Bishop Campus
2508 Blichmann Avenue
Grand Junction, CO 81505

Phone: 970-255-2666
FAX: 970-255-2626
E-mail: wimccrac@mesastate.edu

Education

U.S. Navy	Machinery Repairman A-School Certificate	1978
Piddington & Associates	Dalic Process Electroplating	Certificate 1980
Hamilton Sundstrand Training	Geometric Tolerancing	Certificate 1995
Hamilton Sundstrand Training	Quality Assurance	Certificate 1995
Hamilton Sundstrand Training	Fundamentals of Gauging	Certificate 1995
Hamilton Sundstrand Training	Supply Chain Management	Certificate 1999
Hamilton Sundstrand Training	Self-directed Work Teams	Certificate 1999
Engineering Geometry Systems	FeatureCAM 2.5D CAD/CAM	Certificate 2002
Engineering Geometry Systems	FeatureCAM 3-D CAD/CAM	Certificate 2003
Colorado State University	Vocational Teacher Credential	Credential 2002
Mesa State College	Machining Technology	AAS 2003
Colorado State University	Provisional Teacher License	License 2004

Experience

Mesa State College/Western Colorado Community College, Grand Junction, CO
Faculty-Instructor-Manufacturing Department-Machining Technology (2002-Present)
Teaching within the manufacturing/machining disciplines.
Faculty Senate Representative since 2003 to present.
Crisis Management team member since 2003 to present.
Responsible for equipment procurement, program development and renewal.

Hamilton Sundstrand Aerospace

Class 4 Machinist-Tool & Fixture Design (1995-2002)
Program, set-up and operate CNC machines.
Certified inspector for aerospace components.
Design tooling and fixtures as needed by engineering.
Update work completed in shop floor control systems.
Qualified measuring instrument and gauging set-up contact.
Served as Team Leader for Tooling Department, Ethics Committee Chairperson, Safety Representative, Wellness Committee Representative and other leadership roles.

Synergistic Activities

SkillsUSA-Advisor	2003-Present
Volunteer for the Mesa County Library Literacy Program	2003-2004
Mesa State Student Orientation Advisor	2004-Present
Welding Faculty Search Committee	2004
Vice President of Community College Affairs Search Committee	2006

Denis Thibodeau

- Objective** To obtain a position in instruction of Computer Aided Drafting
- Experience** 1996–Present Western Colorado Community College
2508 Blichmann Ave
Grand Junction, CO 81525
- Instructor**
- Teaching several disciplines in Computer Aided Drafting.
 - Curriculum Development.
 - Advising
 - Scholarship and other committees
- 1995 - Present Your Best Friends LLC
2708 US HWY 50
Grand Junction, CO 81503
- Owner**
- Designed and Built Boarding & Grooming Kennel.
 - Manage kennel with spouse, have 5 kennel techs and 1 groomer.
 - Order supplies for retail sales.
 - Payroll
 - Care of animals
 - Maintenance of kennel
- Education** 1990–1992 Rogue Community College Grants Pass, OR
- AAS Manufacturing Computer Aided Design.
- Interests** Volunteer for youth activities, ranching, sports.

DENIS THIBODEAU

DEPARTMENT: MANUFACTURING TECHNOLOGY-COMPUTER AIDED DRAFTING

E. Effectiveness

- iv) 1 Ten years teaching at WCCC.
- 2 Advise students.
- 3 Continue taking classes to maintain technical expertise in field.
- 4 Skills USA advisor, Scholarship committee, several hiring committee's.
- 5 Our students have taken 1st place in state Skills USA technical and architectural drafting for the past 7 years. Last year our students succeeded in 5th place in the national Skills USA technical and architectural contests.

DENIS THIBODEAU

DEPARTMENT: MANUFACTURING TECHNOLOGY-COMPUTER AIDED DRAFTING

H

Vision

- i) Continue to monitor what industry is doing to make sure we are training our students with the software and technology that best suits potential employers as well as our students.

- ii) We are always in need of funding for software and hardware. The programs change every year and the demand for faster computers is never-ending. Typically the computers are not fast enough to run the new software after two to three years.



Appendix C

Assessment Plan and Results



Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

**Mesa State College
Assessment Report**

Assessment Record for
Manufacturing/CAD

Assessment Period: 2004 2005
Date Submitted:

Includes Assessment reports for those
Instructional Programs listed below:

Title of Instructional Degree
Program
(Associates, Bachelors, Masters, Inc.)

Degree Level

Computer Aided Design Technology

Associate of Applied Science

Computer Aided Design Technology

Certificate of Occupational Proficiency

Submitted by:

Brigitte Sundermann, Department Head

Department Chair or Faculty Assessment Representative

**Mesa State College
Assessment Report**

Assessment Record for
Manufacturing/CAD

Degree Program:

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level C.A.D. employment.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

3. Student will demonstrate effective use of communication skills appropriate to C.A.D. field.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

5. Student shall apply C.A.D. theory to specific technical specialty using reasoning and ability to work independently.

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005

Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level C.A.D. employment

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Graduate survey item 4d (**usefulness of training**) generated and sent by student services. Positive graduate follow-up survey shows 80% good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:
Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____%.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (**technical knowledge**) and 3d (**quality of work**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:
Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____.

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005

Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (solve problems) and 6k (follow directions) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. *Results* _____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (willingness to learn) and 3h (follow instructions) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program

Action required is: _____.

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to C.A.D. field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Graduate survey items 6c (**use effective oral communication**) and 6d (**use effective written communication**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:
Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (**effective written communication**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:
Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____.

Mesa State College
Assessment Report

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005

Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (use math skills to solve practical and/or theoretical problems) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (mathematical problem solving skills) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Mesa State College
Assessment Report

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

5. Student shall apply C.A.D. theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Graduate survey item 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:
Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:
Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3e (**work quality**) and 3p (**organizational ability**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:
Positive expectation/employer satisfaction shows 80% or above results. Results _____%.

Use of Results to Improve Instructional Program
Action required is: _____.

Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

Assessment Record for
Manufacturing/CAD

Assessment Period: 2004 2005
Date Submitted: Oct-05

Includes Assessment reports for those
Instructional Programs listed below:

Title of Instructional Degree
Program
(Associates, Bachelors, Masters, Inc.)

Degree Level

Computer Aided Design Technology

Associate of Applied Science

Computer Aided Design Technology

Certificate of Occupational Proficiency

Submitted by:

Brigitte Sundermann, Department Head

Department Chair or Faculty Assessment Representative

**Mesa State College
Assessment Report**

Degree Program:

Assessment Record for
Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level C.A.D. employment.
2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.
3. Student will demonstrate effective use of communication skills appropriate to C.A.D. field.
4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.
5. Student shall apply C.A.D. theory to specific technical specialty using reasoning and ability to work independently.

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level C.A.D. employment

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 4d (**usefulness of training**) generated and sent by student services. Positive graduate follow-up survey shows 80% good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *16% of students responded. 100% of respondents rated usefulness of training good to very good.*

Use of Results to Improve Instructional Program

Action required is: *None.*

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (**technical knowledge**) and 3d (**quality of work**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results *100% of respondents rated technical knowledge and quality of work good to very good.*

Use of Results to Improve Instructional Program

Action required is: *None.*

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005

Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (**solve problems**) and 6k (**follow directions**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *37% of students responded, 71% rated good to very good in solving problems with 29% reporting average. 100% of respondents rated good to very good in following instructions.*

Use of Results to Improve Instructional Program

Action required is: *offer more project based assignments to encourage problem solving.*

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (**willingness to learn**) and 3h (**follow instructions**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results *100% of respondents rated very good in willingness to learn.*

Use of Results to Improve Instructional Program

Action required is: *None.*

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to C.A.D. field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6c (**use effective oral communication**) and 6d (**use effective written communication**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *26% of students responded, 100% of respondents rated very good in use effective oral communication and 100% rated good to very good use of effective written communications.*

Use of Results to Improve Instructional Program

Action required is: *None.*

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (**effective written communication**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results *67% rated very good effective written communication, while 33% rated average.*

Use of Results to Improve Instructional Program

Action required is: *offer more project based assignments involving written communication.*

Mesa State College
Assessment Report

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (**use math skills to solve practical and/or theoretical problems**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results **47% of students responded. 50% rated good to very good, 50% rated average.**

Use of Results to Improve Instructional Program

Action required is: *offer more project based assignments including mathematical problem solving skills.*

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (**mathematical problem solving skills**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results **100% of respondents rated good to very good.**

Use of Results to Improve Instructional Program

Action required is: _____.

**Mesa State College
Assessment Report**

Degree Program: Manufacturing/CAD

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and intended outcome number entered in the blank spaces.

5. Student shall apply C.A.D. theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results **36% of students responded. 43% rated very good, 57% rated average.**

Use of Results to Improve Instructional Program

Action required is: *offer critical and analytical problem based assignments.*

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3e (**work quality**) and 3p (**organizational ability**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:

Positive expectation/employer satisfaction shows 80% or above results. Results **100% of respondents rated very good on work quality, 66% reported very good on organizational ability and 33% rated average on organizational ability.**

Use of Results to Improve Instructional Program

Action required is: *offer assignments teaching organization.*

Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

Assessment Record for
Manufacturing Technology -
Machining

Assessment Period: 2004 2005
Date Submitted:

Includes Assessment reports for those
Instructional Programs listed below:

Title of Instructional Degree
Program

Degree Level

(Associate, Bachelors, Masters, etc.)

Machine Technology

Associate of Applied Science

Manufacturing Technology

Associate of Science

Manufacturing Technology

Certificate of Occupational Proficiency

Submitted by:

William J. McCracken Jr., Instructor

Department Chair or Faculty Assessment Representative

Mesa State College
Assessment Report

Degree Program:

**Manufacturing Technology-
Machining**

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level machining employment.
2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.
3. Student will demonstrate effective use of communication skills appropriate to machining field.
4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.
5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

Mesa State College
Assessment Report

Manufacturing Technology-
Degree Program: Machining

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level machining employment.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 4d (**usefulness of training**) generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (**technical knowledge**) and 3d (**quality of work**) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Mesa State College
Assessment Report

Manufacturing Technology -
Degree Program: Machining

Assessment Period Covered: 2004 to 2005

Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (solve problems) and 6k (follow directions) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (willingness to learn) and 3h (follow instructions) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Mesa State College
Assessment Report

Manufacturing Technology -
Degree Program: Machining

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to machining field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6c (use effective oral communication) and 6d (use effective written communication) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (effective written communication) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Mesa State College
Assessment Report

Manufacturing Technology -
Degree Program: Machining

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (use math skills to solve practical and/or theoretical problems) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (mathematical problem solving skills) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Mesa State College
Assessment Report

Manufacturing Technology -
Degree Program: Machining

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 6a (**solve problems**) and 6i (**think critically and analytically**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:

Positive expectation/employer satisfaction shows 80% or above results. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

Assessment Record for
Manufacturing Technology -
Machining

Assessment Period: 2004 2005
Date Submitted: Oct-05

Includes Assessment reports for those
Instructional Programs listed below:

<u>Title of Instructional Degree Program</u>	<u>Degree Level</u> (Associate, Bachelors, Masters, etc.)
Machine Technology	Associate of Applied Science
Manufacturing Technology	Associate of Science
Manufacturing Technology	Certificate of Occupational Proficiency

Submitted by: William J. McCracken Jr., Instructor
Department Chair or Faculty Assessment Representative

Degree Program:

**Manufacturing Technology-
Machining**

Assessment Period Covered: 2004 to 2005

Date Submitted: Oct-05

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level machining employment.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

3. Student will demonstrate effective use of communication skills appropriate to machining field.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

**Manufacturing Technology-
Degree Program: Machining**

Assessment Period Covered: 2004 to 2005

Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level machining employment.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 4d (usefulness of training) generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 100% very good. 4 of 15 student response.

Use of Results to Improve Instructional Program

Action required is: None.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (technical knowledge) and 3d (quality of work) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results 100%.

Use of Results to Improve Instructional Program

Action required is: None.

**Manufacturing Technology -
Degree Program: Machining**

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (solve problems) and 6k (follow directions) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 50% very good, 50% good. 4 of 12 student response.

Use of Results to Improve Instructional Program

Action required is: None.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (willingness to learn) and 3h (follow instructions) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results 100%.

Use of Results to Improve Instructional Program

Action required is: None.

**Manufacturing Technology -
Degree Program: Machining**

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to machining field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6c (use effective oral communication) and 6d (use effective written communication) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 25% very good, 50% good, 25% average. 4 of 15 student response.

Use of Results to Improve Instructional Program

Action required is: 6c,6c, instructor to have students present process plans for critique in class.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (effective written communication) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results 100%.

Use of Results to Improve Instructional Program

Action required is: None.

**Manufacturing Technology -
Degree Program: Machining**

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (use math skills to solve practical and/or theoretical problems) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 25% very good, 25% good, 50% average. 4 of 15 student response.

Use of Results to Improve Instructional Program

Action required is: 6e, incorporate practical math skills in the laboratory and theoretical math skills in the classroom.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (mathematical problem solving skills) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results 100%.

Use of Results to Improve Instructional Program

Action required is: None.

**Manufacturing Technology -
Degree Program: Machining**

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 25% very good, 25% good 25% average, 25% poor. 4 of 15 student response.

Use of Results to Improve Instructional Program

Action required is: 6i, have students develop process plans and inspection sheets for assigned projects.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 6a (**solve problems**) and 6i (**think critically and analytically**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:

Positive expectation/employer satisfaction shows 80% or above results. Results 100%.

Use of Results to Improve Instructional Program

Action required is: None.

Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

Assessment Record for
Manufacturing Technology -
Welding

Assessment Period: 2004 2005
Date Submitted:

Includes Assessment reports for those
Instructional Programs listed below:

Title of Instructional Degree
Program

Degree Level

(Associate, Bachelors, Masters, etc.)

Welding

Associate of Applied Science

Welding

Certificate of Occupational Proficiency

Submitted by:

Darrel McKay, Instructor

Department Chair or Faculty Assessment Representative

Degree Program:

Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005

Date Submitted: _____

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level welding employment.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

3. Student will demonstrate effective use of communication skills appropriate to welding field.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level welding employment.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 4d (usefulness of training) generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: ____%.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (technical knowledge) and 3d (quality of work) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology - Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (solve problems) and 6k (follow directions) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (willingness to learn) and 3h (follow instructions) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results _____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to welding field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6c (use effective oral communication) and 6d (use effective written communication) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ___ %.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (effective written communication) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results ___ %.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (use math skills to solve practical and/or theoretical problems) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (mathematical problem solving skills) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results ____%.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: _____

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item and 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 6a (**solve problems**) and 6i (**think critically and analytically**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:

Positive expectation/employer satisfaction shows 80% or above results. Results ___%.

Use of Results to Improve Instructional Program

Action required is: _____.

Program Assessment for:

Assessment Period

Date Submitted:

Column 1

Expanded Statement of Institutional Purpose

Column 2

Program Intended Educational Outcomes

Column 3

Means of Program Assessment and Criteria for Success:

Column 4

Summary of Data Collected:

Column 5

Use of Results

Mission Statement

Goal Statement

Assessment Record for
Manufacturing Technology -
Welding

Assessment Period: 2004 2005
Date Submitted: Oct-05

Includes Assessment reports for those
Instructional Programs listed below:

<u>Title of Instructional Degree Program</u>	<u>Degree Level</u> (Associate, Bachelors, Masters, etc.)
Welding	Associate of Applied Science
Welding	Certificate of Occupational Proficiency

Submitted by: Darrel McKay, Instructor
Department Chair or Faculty Assessment Representative

Degree Program:

Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005

Date Submitted: Oct-05

Expanded Statement of Institutional Purpose Linkage:

Institutional Mission Reference:

The mission of Technology Education is to provide the training needed to develop the knowledge, skills, and attitudes that students will require to lead productive lives and to foster life-long learning skills that will engage them to meet today's and tomorrow's challenges, empowering them to compete on a local, national, and global level in the technical field for which they have been trained.

College/University Goal(s) Supported:

To meet the individual needs of each student, whether it be an employee retraining for new skills, a returning student, or a new student seeking career guidance. Each shall have the specific training necessary so that they may achieve their personal goals.

Intended Education (Student) Outcomes:

1. Student shall demonstrate knowledge to perform tasks of entry level welding employment.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

3. Student will demonstrate effective use of communication skills appropriate to welding field.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

1. Student shall demonstrate knowledge to perform tasks of entry level welding employment.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item 4d (usefulness of training) generated and sent by student services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: ____%.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Responses to questions 3a (technical knowledge) and 3d (quality of work) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers felt that graduates were able to perform quality of work. Fails/meets/surpasses expectations. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology - Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

2. Student will demonstrate an understanding of personal work characteristics that contributes to effective job performance.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6a (solve problems) and 6k (follow directions) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 0%, no responses to survey.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to questions 3f (willingness to learn) and 3h (follow instructions) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales are from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results 0%, no responses to survey.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

3. Student will demonstrate effective use of communication skills appropriate to welding field.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6c (use effective oral communication) and 6d (use effective written communication) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results 0%, no responses to survey.

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3k (effective written communication) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectations. Results 0%, no responses to survey.

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

4. Student shall demonstrate ability to use mathematical data and reasoning skills in relation to field of study.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey items 6e (use math skills to solve practical and/or theoretical problems) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 3m (mathematical problem solving skills) Student Services. Positive expectation/employer satisfaction shows 80% from good to very good. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Employers surveyed felt training was adequately useful for the job position. Fails/meets/surpasses expectation. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: _____.

Degree Program: Manufacturing Technology-Welding

Assessment Period Covered: 2004 to 2005
Date Submitted: Oct-05

Intended Educational (Student) Outcome:

NOTE: There should be one form C for each intended outcome on form B. Intended outcome should be restated in the box immediately below and the intended outcome number entered in the blank spaces.

5. Student shall apply theory to specific technical specialty using reasoning and ability to work independently.

First Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Graduate survey item and 6i (**think critically and analytically**) generated and sent by Student Services. Positive graduate follow-up survey shows 80% from good to very good satisfaction with having been taught a proper understanding of work expectations. Survey scales from poor to very good (1-5).

Summary of Assessment Data Collected:

Graduates surveyed felt training was adequately useful for their job position. Fails/meets/surpasses expectation. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: _____.

Second Means of Assessment for Outcome Identified Above:

Means of Program Assessment and Criteria for Success:

Employer survey. Employer satisfaction with graduates ability to do their job properly. Response to question 6a (**solve problems**) and 6i (**think critically and analytically**) Student Services. Positive employer satisfaction shows 80% satisfaction with graduates problem solving and critical thinking skills.

Summary of Assessment Data Collected:

Positive expectation/employer satisfaction shows 80% or above results. Results *0%, no responses to survey.*

Use of Results to Improve Instructional Program

Action required is: _____.

**External Reviewer Report
Manufacturing Technology
Prepared by Dr. Robert A. Hall**

Introduction: The Western Colorado Community College is a branch of Mesa State College. Their specialty is in providing career and technical education to the community of Grand Junction, Colorado and throughout the five county community college service area. The Manufacturing Program of the college, specifically, has a mission to provide students, new and returning, with the skills necessary to become productive employees in the manufacturing industry of the area. The objective is workforce development. The program is comprised of three distinct technical areas; Computer Aided Design (CAD); Machining Technology; and Welding Technology. Regardless of the certificate or degree tract of the student, they are all exposed to a variety of technical activities involved in regional manufacturing industry. The Manufacturing Program goals of WCCC directly relates to the Mesa State College mission to maintain a community college role in the service area that will provide vocational and technical programs to meet work force needs. Additionally, the link to area high schools for articulation and dual credit provides a career pathway for students to both a two and four year college education.

* * * * *

The report is organized into two main categories: strengths and challenges / recommendations. This reviewers input is as follows:

Strengths

- The reviewer was very pleased with the faculty and staff response to all of the requests for information and candor to questions posed about the Manufacturing Program and its deliverables. The faculty and staff thoroughly addressed each item which shows they are listening to and utilizing their resources at hand. Considering that this is the first time this type review has been conducted and with no history to fall back on, the internal review supports an external review well.
- Faculty all carry degrees of their discipline or have equal and significant industry experience and are skilled in their content areas.
- The reviewer is very impressed with the outstanding Manufacturing Team at WCCC. The faculty in the Manufacturing Program are all experienced, skilled technicians from the manufacturing sector. The leaders of the team – Dr. Dale Doty and Professor Brigitte Wilson – complement each other extremely well. Their varied backgrounds bring unique strengths to this review effort. These leaders are not only enthusiastic, but are obviously dedicated to student success. The extended team, faculty and staff, are obviously important contributors to the programs success.
- The reviewer applauds the collaboration with industry partners in the area that are advisors to the programs and hire WCCC graduates. The work force needs over the past 10 to 15 years has changed drastically and it is this collaboration that allows faculty and the college to improve and update programs to meet these needs.
- There appears to be strong support from the Grand Junction Economic Partnership (GJEP), as they are focused on bringing manufacturing businesses to the WCCC service area. This collaboration only strengthens the visibility of

this program in the community as it offers career pathways with the chance of employment to new students. The ability of WCCC to train and develop a workforce to meet this economic development activity will continue to be an important function of the manufacturing program.

- The outreach efforts to high schools through welding and machining technology are extremely important. Offering career pathways to high school students enhances the college's future enrollment. There has been significant effort toward recruiting high schools students into two year manufacturing programs and related fields through support from NSF and state economic development departments as it supports regional industrial growth.

- One of the major factors of this Manufacturing program is the unique focus on training individuals to meet the varied skilled needs of area manufacturers. Local business has vastly different needs than the energy industry. This program provides students with a broad set of skills to meet the needs of the small manufacturers that represent most of the manufacturing in your service area as well as the energy industry.

- This reviewer was also impressed with the current level of equipment provided for each discipline area.
 1. CAD equipment meets the minimum needs of industry which is difficult to keep up with as programs are upgraded annually and stretches the resources of a community college. There are also adequate computers and CAD licenses for students to work on after class at both campuses and in the library. (Memo in appendix)
 2. Instructional equipment in welding is as good as any in the field and provides students with real world experience.
 3. The type of equipment in machining is adequate to train students for the industry of this region as manual and CNC will be found in almost all shops.

- Facilities are neat and clean and well lighted and meet current needs of the programs. All areas of the school facilities appear well maintained and this is reflected in the attitude of the students I met.
- The affiliation with the MSSC for skills standards, the A.W.S. for the welders and the ADDA for the CAD program can only add to the attractiveness of the manufacturing program. Manufacturing is hi-tech today and needs to be shown that way.
- The library maintains a significant number of materials available for manufacturing subjects as well as the responsiveness shown to meet the needs of programs.
- The program syllabi are thorough and complete for every program. They provide in some cases more than is required for students and could be cumbersome.

Challenges/Recommendations – Areas the WCCC Team should continue to monitor and/or address.

- **Degrees:** I would recommend that all faculty have a minimum of an AAS degree as well as experience in the program discipline area in which they teach.
- **Assessment:** Although the faculty senate has involvement with program and student assessment I found no formal mission statement as to their responsibilities. In my discussions with Dr. Myra Heinrich, Gordon Koch, and Sonia Brandon, I was left with the impression that assessment was left to the manufacturing program course level with no formal report on student exit competencies for certificate or degree.

Recommendation: A formal and uniform assessment process be developed for programs and that each program and course has stated identifiable and measurable exit competencies. Courses should have at least 10 competencies; programs should have at least 5 major competencies for a certificate and 10 for a degree. The best examples of measurable competencies I reviewed were in the course structure for welding. **Examples** of assessment reports are in the appendix.

- **Workforce Development:** There is collaboration with the business and the industrial community, but I sensed that WCCC is one of those best kept secrets in Grand Junction. This is a common problem with community colleges trying to meet workforce needs of any community in the country. Since tuition is lower there is that impression that the value of the education must be lower. There needs to be clear priorities and consistent direction. With the change of administration that has happened and is underway, this can cause confusion with faculty and the community on priorities and mission. I see this affecting the manufacturing programs effectiveness. Although I reviewed the internal assessment, it was an inward assessment. I recommend an outward assessment to evaluate that you're delivering what the community needs. In my conversations with Mr. Tom Sargent and Gus Achey, although they are aware of the contribution the school makes, I think they felt that whole WCCC story isn't being told very well due to a lack of a college marketing strategy. Many of the college's successes aren't getting out, at times, leading to an under-appreciation of the college's contributions to the region. This can contribute to lower enrollment from those that would attend but choose a 4 year education as well as not attracting enrollments by older, working students.

Recommendation: If this program is to meet community needs I suggest a more aggressive marketing strategy to advise your service area of what is offered. Workforce development is the mission of the Manufacturing Program. Providing students with career pathways and advisement to the workforce is the responsibility of faculty and staff alike. I advise a needs assessment be conducted

of the industries you serve to make sure that the education and training you are providing is meeting their needs.

- Industry surveys – Seek input from members of the advisory committees, send it out to industry contacts, and develop strategies to ensure an appropriate number of responses.
- Job profiling – This is usually done by the likes of an ACT or Work Keys profiler. What must be developed is a data base that shows what essential skills are needed by technicians in CAD, Machining, and Welding. Additional job profiling will be a key activity over the next few years as the industry needs in your service are change with technology. This data can also be used to support grant activity your faculty is pursuing with other technical projects supported by NSF.
- **Student Success:** The CAD and Machining programs numbers though low are healthy. On first glance at Welding, it appears to be a program in decline with very low numbers attending and graduating. Three things should be noted:
 - WCCC has a large number of high school students using the welding lab. This is transparent to the FTE count. It is suggested that a way be found to grant articulation or dual credit to these students so they show up on the college roles.
 - Students are not completing certificates in Welding at the same rate as those in CAD and Machining. The energy business has been in a ramp up cycle now for at least 5 years. In conversations with my contacts in the area and with your faculty, welders are being hired as soon as they can hold a torch and strike an arc. This helps industry but not the students in the long run.
 - Industry needs to work with WCCC so students complete programs. This requires collaboration between the employers and the college. This is going to take some work but an effort needs to be made to keep Welding students in the program.

Recommendation: It is my fear that if action is not taken to show better numbers in welding, a program that IS needed, your administration could view it as a failing program and eliminate it.

- **Facilities:** The area between Welding and Machining should be closed off. Although there is negative pressure ventilation provided over the welding tables, it is not sufficient to remove the smoke and particulate from invading the machine tool area. This soot and particulate collects on your machining equipment and creates a problem with keeping your computer numerical controlled equipment clean and operational.

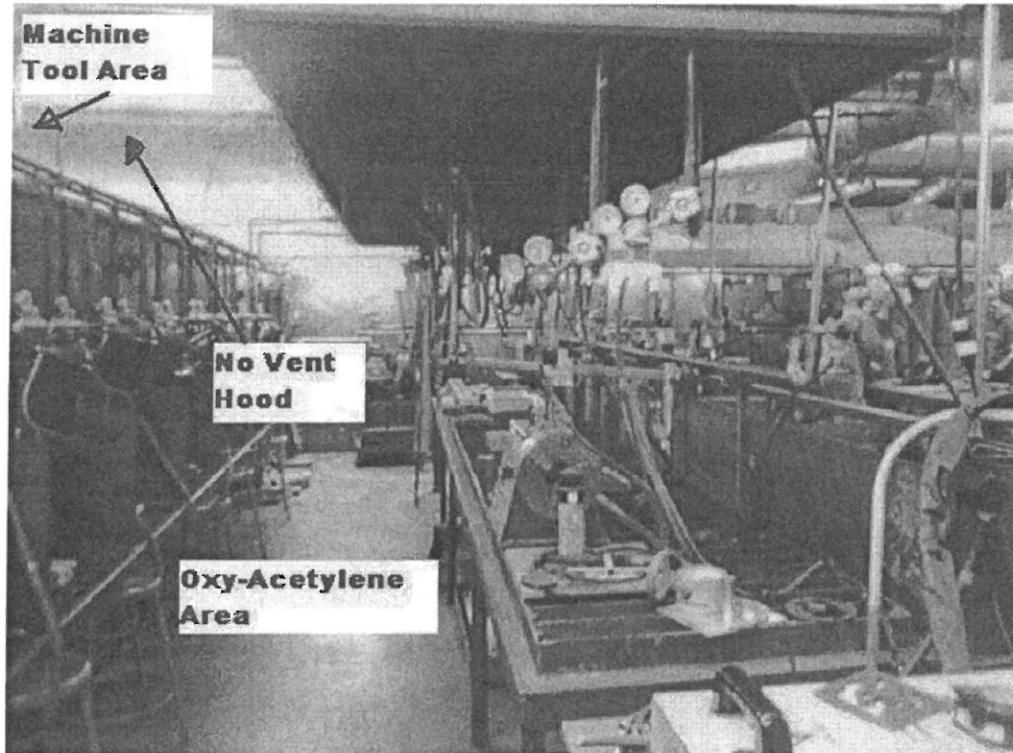


Figure 1

In figure one above the hood does not extend over the whole oxy-acetylene area allowing the smoke and “feathers” from the torches to migrate over the machine tool area. These areas need to be segregated.

Recommendation: Extend the wall to the ceiling and add a door between the two areas. This would enhance the ventilation of the welding lab and protect your very expensive CNC equipment.

- **Machine Tool:** This area is well laid out but has one very large old and none operating piece of equipment. After talking with faculty, it would be my suggestion to survey this and have it removed as soon as possible. It detracts from the lab and would give business and industry visitors the impression you do not maintain your equipment and therefore don't train your students well. The area in question could be used for a newer piece of equipment or a demonstration area for students.

Recommendation: The National Institute for Metalworking Skills (NIMS) is the nations only ANSI accredited developer of precision manufacturing skill standards and competency assessments. NIMS certifies individual skills against standards and accredits programs that meet its quality requirements. NIMS stakeholders represent over 6,000 American companies. It would enhance the Machining program if faculty were certified and could certify students. If a student walks in with a NIMS certification they are hired without further testing or question.

- **Library:** It has many publications but has not kept current on today's technology. At my request an age analysis was conducted on the publications and periodicals currently in the library. There were no current resources, 2001-2006, for: CAD/CAM; one for Machine Tool; none for Machining; two for Manufacturing Processes; three for Welding. (see appendix)

Recommendation: Since the Library does have resources for publications, there should be industry publication subscriptions purchased at academic prices to support currency in every manufacturing discipline taught at WCCC.

- **Syllabi:** I have reviewed the syllabi for the Manufacturing Program and although they are very complete, some are more like outlines used to teach the course than

a syllabus. Each instructor seems to have their own style and even that varies between some syllabi. Essentially they are all in different formats, and this can be confusing for students. A Syllabus is a document with an outline of the subject and summary of topics to be covered in a course. It is the detailed description of the learning outcomes, assessment tasks and other associated information relating to a subject issued to the student at the commencement of the subject. It is not the lesson plan.

Recommendation: Standardize the Manufacturing Program syllabi into one standard format for all courses with expectations, exit competencies, grading expectations and academic expectations. They should all be prepared by the instructor teaching the course as the content expert but should all be approved by the department head before being implemented. No syllabi should be dated over two years without an update or review. All syllabi should be maintained as a computer file and there should be only one master syllabus per course. Only the course owner with the approval of the department head makes changes to the syllabus to keep it current with course content, book used, and technology updates.

- **WEB Site:** The Web Site is not part of manufacturing but is used by students to access information about programs, faculty, courses of study and just college information in general. I found that the Mesa College WEB site was a little difficult to navigate through. As such I have included in the appendix part of this report two rubrics of evaluation of WBE Sites in general and a rubric for College Department Web Sites.

Summary: The manufacturing program is currently meeting the needs of your service area. The fact that this review is being requested internally is evidence that the college is serious about meeting its mission to provide a quality education for its students.

Therefore, the focus of the staff and faculty should be on 1. what are going to be the future needs in workforce development for the industry you serve and 2. what are the

career pathways you can offer your students to improve your enrollment and graduation numbers. The rest of this review is about those things that make the rest work better. I have included for your review and use examples of Student Assessment Rubrics for Welding and Photonics as well as a standardized syllabus consisting only of three pages. WCCC Syllabi need to be standardized. These are only meant to serve as examples of assessment tools and reports that meet the needs of a college accreditation review team. I suggest that they are used only as a guide in the process of developing your own assessment tools.

I would like to Dr. Cathy Barkley and her staff for the hospitality afforded me in hosting my visit to Mesa State and Western Colorado Community College. Overall, I was very impressed with the Manufacturing Program and applaud the faculty and staff of WCCC for the significant contribution they are making not only to the Grand Junction Community but to the four corners and southwest region in general.

