AY 2012 – 2013
Program Review

Manufacturing Technology

COLORADO MESA UNIVERSITY

AY 2012-2013

Program Review/Manufacturing Technology

WESTERN COLORADO COMMUNITY COLLEGE

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1. Introduction and Program Overview

A. Program Description

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

B. History

The manufacturing program, or some of the technical areas in the program, has been offered at Colorado Mesa University for more than 35 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 employment opportunities for graduates have changed. 21st century manufacturing requires graduates to have an understanding of all processes and graduates are much more successful after studying manufacturing as a whole. 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 and an Introduction to Manufacturing 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 2010-2011 school years. The program was revised so that the curriculum reflects the equipment and material changes that had evolved over the past 10 years.

C. Recommendations and Progress from AY 2006 -2007 External Review-

Recommendation- A formal and uniform assessment process to be developed.

Progress- the Lumina assessment process is being implemented.

Recommendation- Develop a more aggressive marketing strategy for workforce development and needs assessment with local manufacturers.

Progress- New advertising commercials and radio spots have been implemented to reach the public. Western Colorado Community College has hired a Career Services Specialist to assist with creating internships and job-shadowing opportunities with local manufacturers.

Recommendation- Increase enrollments in the Welding Program.

Progress- Enrollments have increased to full capacity since last review.

Recommendation- Protect Machining Program's Computerized-Numerical Control equipment from the harsh welding environment.

Progress- Machining program was moved to the Archuleta Engineering Center in a climate controlled clean laboratory space.

Recommendation- Remove older and non-operational equipment from the machining area.

Progress- Old and non-operational machine tools were discarded during the move to the Archuleta Engineering Center. The outdated Computerized-Numerical Control equipment was updated to newly purchased Haas machine tools.

Recommendation- Library resources lacking for the manufacturing programs.

Progress- Western Colorado Community College now has a dedicated library representative.

Recommendation- Syllabi are created in multiple formats, which can cause confusion for students.

Progress- Syllabi have been reformatted to a standard document used by all faculty for courses at Western Colorado Community College.

D. Mission Statement and Goals-

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 is to:

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 Colorado Mesa University's mission to maintain a community college role in our service area that will provide vocational and technical programs that will meet service area needs.

E. Program Curricular Support of Other Major/Minors/General Education-

The following course have been added to the Colorado Mesa University/University of Colorado, Boulder Bachelor of Science Mechanical Engineering Degree Program-
MAMT 102 Machining Fundamentals- provides mechanical engineering students with hands-on metal working practical applications.
The following courses have been added to the Colorado Mesa University Associate of Applied Science and Bachelor of Science Mechanical Engineering Technology Degree Program-
MAMT 115 Introduction to Machine Shop- provides mechanical engineering technology students with hands-on metal working practical applications.
MAMT 151 Numerical Controls Machining I- provides mechanical engineering technology students with basic CAD-CAM processes.
MAMT 155 Numerical Controls Machining II- provides mechanical engineering technology students with advanced CAD-CAM processes.
WELD 151 Industrial Welding- provides mechanical engineering technology students with basic welding processes.

F. Locational/Comparative Advantage-

Western Colorado Community College (WCCC) is an open admission, comprehensive community college providing higher education instruction for academic transfer programs and career technical programs. WCCC offers a variety of certificate programs that can be completed in nine months, associate degree programs that average two years in length, and many skills courses for career upgrade. Expert faculty, effective teaching practices, and strong advisory committees are key components in WCCCs commitment to maintaining high quality instruction. Students of all ages and all levels of academic preparation attend Western Colorado Community College.

Compared with other community colleges, Western Colorado Community College is a division of Colorado Mesa University (CMU), which allows 2-year and certificate seeking students the ability to participate in the university experience. WCCC students have access to resident dormitories, athletics, clubs, campus organizations, campus wellness and recreational services not available at traditional community college campuses.

G. Unique Characteristics-

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 every day, 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 CMU/WCCC.

H. Other Information/data

See Appendix, A. CCSSE-Community College Survey of Student Engagement

I. Describe the program's Curriculum in terms of its breadth, depth, and level of the discipline.

Curriculum- Manufacturing (Breadth)

ASSOCIATE OF APPLIED SCIENCE; MANUFACTURING TECHNOLOGY – MACHINING TECHNOLOGY COURSE REQUIREMENTS

(52 semester hours)

Core Classes

CADT 101 Introduction to Computers
CADT 108 CAD - Mechanical
MAMT 101 Introduction to Manufacturing
MAMT 102 Fundamentals of Machining (University of Colorado Mechanical Engineering 4-year degree only)
MAMT 105 Print Reading / Sketching
MAMT 106 Geometric Tolerancing
MAMT 115 Introduction to Machine Shop

MAMT 120 Machine Technology I
MAMT 125 Machine Technology II
MAMT 130 Machine Technology III
MAMT 140 Job Shop Machining II
MAMT 170 Practical Applications
MAMT 148 Introduction to Manufacturing
MAMT 151 Numerical Machining I
MAMT 155 Numerical Machining II
MAMT 160 Properties of Materials
MAMT 207 Intro to Numerical Control
PHYS 100 (or higher) Concepts of Physics
TSTG 220 Industry Employment Practices
WELD 151 Introduction to Welding

Electives (3 semester hours - may need advisors approval)

GENERAL EDUCATION REQUIREMENTS (Minimum 15 Semester hours)
Communication (6 semester hours)
ENGL 111 English Composition
ENGL 112 English Composition
OR
ENGL 111 English Composition **and**
SPCH 101 Interpersonal Communication **or**
SPCH 102 Speechmaking
Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)
MATH 107 Career Mathematics
Social Sciences, Natural Science, Fine Arts, or Humanities or Selected Applied Studies Courses * (Minimum 6 semester hours)

OTHER LOWER DIVISION REQUIREMENTS
Wellness (2 Semester hours)
KINE 100 Health and Wellness
KINA 1XX Various options

CERTIFICATE OF PROFICIENCY; MANUFACTURING TECHNOLOGY – MACHINE AND MANUFACTURING TRADES REQUIREMENTS
MAMT 105 Print Reading / Sketching
MAMT 106 Geometric Tolerancing
MAMT 115 Introduction to Machine Shop
MAMT 120 Machine Technology I
MAMT 125 Machine Technology II
MAMT 130 Machine Technology III
MAMT 140 Job Shop Machining II
MAMT 170 Practical Applications
MAMT 148 Introduction to Manufacturing
MAMT 151 Numerical Machining I
MAMT 155 Numerical Machining II
MAMT 160 Properties of Materials

Curriculum-(Depth)

These programs offer classroom instruction and related laboratory work with hands-on activities in the use of tools and operation of equipment found in manufacturing. Students work in the areas of blueprint reading, computer numerical control (CNC) machining, general machining, machine maintenance, computer-aided drafting and related mathematics. These programs are designed to meet industry-based standards set by 21st century manufacturing standards. Attitude and quality of workmanship is stressed. Career options include: entry-level machinist, CNC operators, process technician, engineering technician and manufacturing inspection technician.

Program Strengths

Option to transition into a Bachelor of Applied Science (B.A.S.) in Business Administration at Colorado Mesa University
HAAS Technical Education Center (HTEC)
Feature Cam Training Center (FTC)
Students have the opportunity to progress into 2 separate 4-year engineering programs (CU/CMU Mechanical Engineering, CMU Mechanical Engineering Technology)
Cross-training is provided in computer-aided drafting, machining, and welding programs to give students a broader understanding and skill base in manufacturing
Hands-on, application-based curriculum
Class activities that focus on application and problem solving

Curriculum (Level)

Associate of Applied Science Machining **Technology**

Certificate- Machine and Manufacturing Trades

Program Currency

Changes to the curriculum since the last program review include:

Addition of MAMT 102 Fundamentals of Machining for CU/Boulder Mechanical Engineering degree.
Creation of the 2-year and 4-year CMU Mechanical Engineering degree programs where 3 MAMT courses are required.

Program Delivery

These programs offer classroom instruction and related laboratory work with hands-on activities. The program is industry-based with current upgraded CNC machines and software. Tours are given each year to local manufacturing facilities to allow students to see manufacturing first hand. Internships are available to students during their Spring semesters.

Curriculum- Computer Aided Design

Curriculum- (Breadth)

ASSOCIATE OF APPLIED SCIENCE; MANUFACTURING TECHNOLOGY COURSE REQUIREMENTS
(52 53 semester hours)

Core Classes
CADT 101 Introduction to Computers
CONC 104 Architectural/ Civil Print Reading
CADT 106 Computer Aided Design
CADT 107 Advanced Computer Aided Design
CADT 108 CAD - Mechanical
CADT 109 CAD - Mechanical Advanced
CADT 110 CAD Application
CADT 130 CAD - Civil
CADT 135 CAD - Civil II
CADT 140 Architectural Theory
CADT 141 Structural Materials
CADT 142 CAD - Residential Architecture
CADT 143 CAD - Commercial Architecture
CADT 210 Project
MAMT 101 Introduction to Manufacturing
MAMT 105 Print Reading / Sketching
MAMT 106 Geometric Tolerancing
MAMT 115 Introduction to Machine Shop
OR
WELD 151 Introduction to Welding

Electives (6 semester hours - may need advisors approval)

GENERAL EDUCATION REQUIREMENTS (Minimum 15 Semester hours)
Communication (6 semester hours)
ENGL 111 English Composition
ENGL 112 English Composition
OR
ENGL 111 English Composition **and**
SPCH 101 Interpersonal Communication **or**
SPCH 102 Speechmaking
Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)
MATH 113 College Algebra**
Social Sciences, Natural Science, Fine Arts, or Humanities or Selected Applied Studies Courses * (Minimum 6 semester hours)

OTHER LOWER DIVISION REQUIREMENTS

Wellness (2 Semester hours)
KINE 100 Health and Wellness
KINA 1XX Various options

Curriculum (Depth)

This program prepares students for career opportunities in drafting and design through learning activities involving two-dimensional designs and advance to three-dimensional designs, including solid-based and parametric modeling. Students learn drafting concepts and the processes of orthographic projection, pictorial drawing, dimensioning, and geometric construction by hand and with computer-aided design (CAD) software and equipment. Students will gain fundamental knowledge of mechanical (technical), civil, and architectural drafting. The majority of the student's work will be completed on the computer. A project in the area of the student's interest will tie the course to real world concepts.

Program Strengths

Option to transition into a Bachelor of Applied Science (B.A.S.) in Business Administration at Colorado Mesa University
New hardware and software
Hands-on, application-based curriculum
Cross-training is provided in computer-aided drafting, machining, and welding programs to give students a broader understanding and skill base in manufacturing
Instruction based on current computer-aided drafting software
Class activities that focus on application and problem solving

Curriculum (Level)

Associate of Applied Science -Computer-Aided Design

Certificate- Computer-Aided Design

Program Currency

Changes to the curriculum since the last program review include:

Drop: CADT 120 Intro to Still Images, CADT 102 Architectural/ Civil Print Reading

Add: CADT 210 Project, CONC 104 Architectural/ Civil Print Reading
Each year software is updated to the newest version of AutoDESK software, changes in software titles for the CADT130, 135 classes from AutoDESK LDD to AutoDESK Civil 3D and CADT 142, 143 classes from AutoDESK Architecture to AutoDESK Revit.

Program Delivery

While delivery is mostly lecture-based using overhead projector, several field trips are scheduled, there are also guest lecturers that help our students understand what the daily work is like in the Civil, Architectural and Mechanical / Technical engineering world.

The lectures cover the current software in each discipline, integrating real world concepts with national standards.

Curriculum- Welding Technology

Curriculum (Breadth)

ASSOCIATE OF APPLIED SCIENCE; MANUFACTURING TECHNOLOGY- WELDING TECHNOLOGY- COURSE REQUIREMENTS

(63 semester hours)
Core Classes
CADT 101 Introduction to Computers
CADT 108 CAD – Mechanical
MAMT 105 Print Reading / Sketching
MAMT 150 Intro to Numerical Control
MAMT 160 Properties of Materials
TSTG 150 Fluid Power
TSTG 220 Industry Employment Practices
OR
TSTG 120 Industrial Safety Practices
WELD 110 Shielded Metal Arc Welding
WELD 117 Oxy/Fuel & Plasma Cutting
WELD 133 Metal Fabrication Methods
WELD 144 Welding Business Operations
WELD 211 GMAW/FCAW
WELD 230 Gas Tungsten Arc Welding
WELD 240 PIPE Welding
WELD 270 Practical Applications
Electives (6 semester hours - may need advisors approval)

GENERAL EDUCATION REQUIREMENTS (Minimum 18 Semester hours)
Communication (6 semester hours)
ENGL 111 English Composition
ENGL 112 English Composition
Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)
MATH 113 College Algebra** or UTEC 107
Social Sciences, Natural Science, Fine Arts, or Humanities or Selected Applied Studies Courses * (Minimum 6 semester hours)

OTHER LOWER DIVISION REQUIREMENTS

Wellness (2 Semester hours)
KINE 100 Health and Wellness
KINA 1XX Various options

Curriculum (Depth)

The Welding Technology Degree program is designed to provide training and the opportunity to become proficient at SMAW, GWAW, GTAW, FCAW, OAW, OAC, PAC, CAC on plate and SMAW on pipe. Students study welding, cutting, layout fabrication, fluid power, pneumatics and technical math. Safety, attitude and quality of workmanship are stressed throughout this course. The Welding AAS degree prepares students for advanced level placement in a wide range of jobs in the welding industry and is designed to meet competency based standards set by the American Welding Society.

Program Strengths

Career outlook is very good, as the number of jobs for welders is projected to grow faster than average for all occupations over the next decade. Employment growth will create many new jobs, but total job openings will be significantly larger because many skilled welders are expected to retire and will need to be replaced. Median hourly wage- earnings of $22.68 in May 2008 reported by US government.

Curriculum (Level)

Associate of Applied Science- Welding Technology

Certificate- Welding Technology

Program Currency

The welding program had some changes made to some courses a few years ago. We finished this process with cleaning up the catalog descriptions, adding some core welding classes into the catalog and deleting unused and unneeded classes. The changes are designed to simplify and streamline the welding program. The welding program uses the competency based national standards of the American Welding Society. Our manufacturing technology advisory committee has read and approved the program changes.
WCCC is an AMERICAN WELDING SOCIETY (AWS) S.E.N.S.E. Certified School. (Schools Excelling through National Skills Education)
The A.W.S. SENSE program began in the mid-nineties with a grant from the United States Departments of Education and Labor to standardize welder training in the U.S. Our Welding certificate is based on SENSE Level I – Entry Welder. Our Welding degree is based on both the SENSE Level I – Entry Welder and the SENSE Level II - Advanced Welder.

Delete: WELD 115 Welding and Structural Theory. (2)
Delete: WELD 118 Oxy-Fuel Welding and Cutting. (1)
Delete: WELD 118L Oxy-Fuel Welding and Cutting Lab.(1)
Delete: WELD 120 Shielded Metal Arc Welding II. (1)
Delete: WELD 120L Shielded Metal Arc Welding II Lab. (5)
Delete: WELD 140 Job Shop (3)
Delete: WELD 170 Practical Applications. (3)
Delete: WELD 240L Pipe Welding Laboratory. (7)

Add: WELD 117 Oxy/Fuel & PAC, not in catalog descriptions.(3)
Add: WELD 145 New: Welding Business Operations. (3)
Add: WELD 230 GTAW, not in catalog descriptions. (3)
Add: WELD 270 New: Prac. Apps. Replacement for WELD 170 (3)
(Required for Welding Degree Only : Capstone Course)
Modify: WELD 110 SMAW update catalog course description. (3)
Modify: WELD 117 Oxy/Fuel to Oxy/Fuel and Plasma Arc Cutting.(3)
Modify: WELD 133 Fab/layout to Metal Fabrication Methods. (3)
Modify: WELD 151 Ind. Welding to Intro. To Welding Processes. (3)
(Required for CADT, MAMT, and TSTG degree. Full Semester.)
Modify: WELD 211 GMAW/FCAW update catalog course description.(3)
Modify: WELD 230 GTAW , update catalog course description. (3)
Modify: WELD 235 Adv. GTAW, update catalog course description. (3)
(Elective for Welding Degree Students Only.)
Modify: WELD 240 Pipe Welding, update catalog course description. (3)
Modify: WELD 261 Testing & Inspection, update catalog description. (3)
Modify: WELD 299 Internship, update credits. (3)

Program Delivery

Program delivery is based on classroom lecture and hands-on exercises in the welding lab. Lecture, video, and text book materials are covered in a practical manor. This engages students to utilize, challenge and demonstrate the basic principles and theory of the different welding processes. Exams, quizzes and open discussion are a key component in the classroom. Labs accompany every lecture.

Labs are used to develop the necessary skills associated with welding. The instructor gives all students a practical demonstration of the test book material covered in lecture. Students then work independently on their own weld coupons for the remainder of the lab. A practical weld test is given to perform at the end of the semester. The weld test is then visually and destructively tested to AWS standards by the instructor. Degree students are required to take a capstone course. The capstone course is designed to test the competency of the student. The student is to apply their acquired welding knowledge to build a welding project from start to finish. The students are guided by the instructor and then graded accordingly.

J. WCCC Analysis of Student Demand and Success

Enrollment by major, concentration(s) and minors (See Excel Spreadsheet attachment)
Enrollment by student level (See Excel Spreadsheet attachment)
Credit hours (fall and spring terms) by course level (See Excel Spreadsheet attachment)
Credit hours by student level (See Excel Spreadsheet attachment)
Course-specific enrollments, subtotaled by level (See Excel Spreadsheet attachment)

Number of Graduates

	2007-08	*2008-09*	*2009-10*	*2010-11*	*2011-12*
CAD	23	29	11	13	4
MAMT	4	10	10	4	7
WELD	13	10	3	3	6

K. Student success/recognition, (job placements, awards, ect)

All departments compete in SkillsUSA. The post-secondary machining automated manufacturing team took first place in the SkillsUSA state competition and ninth place at the national competition in 2010. The post-secondary welding dept. had a student graduate inducted into the National Technical Honor Society in 2012.

Machining Technology

Student graduates have been successfully placed with local manufacturers such as Capco, Inc., Lewis Engineering, GPD Global Inc., Western Slope Industries, TDM Machine Shop Inc., Leitner-Poma, Bulldog Machine, Spendrup Fan Co., and Wren Industries. The machining program maintains a robust internship program with Lewis Engineering. The demand for machinists has been very high and the program has not been able to supply enough graduates to meet local demand.

Assistant Technical Professor Bill McCracken has started to place students enrolled in the engineering programs into these positions to meet demand.

Welding Technology

Students have gained rewarding employment with local welding and fabrication shops in the Grand Valley, Utah, Wyoming and North Dakota. Employer feedback has been more than positive. Resulting in companies paying for their current employee's to obtain a welding certificate from WCCC. Internships have a history leading into fulltime employment for students.

Computer Aided Design

Student graduates have been successfully placed with local drafting firms, such as Mesa County, City of G.J., Western Slope Industries. When the economy took a downturn, there have not been as many readily available jobs on the Western Slope of Colorado, as Engineering firms have closed. Former students have been forced to move to the Denver area and have found Engineering and Architectural work there. Two students from the Manufacturing Computer Aided Design program were part of the first class to graduate from the CMU Engineering program this past year. Several students have gone on to receive the BS degree from CMU and UOC. A welding student taking CADT-106 designed and built an outdoor cat condo for Roice Hurst Humane Society. The Civil Class has done several survey's for local non-profits to help with design.

L. Other

Instructor Vita (see attached Vita PDF)
Surveys (see appendix B)

M. Program Resources

Faculty

CAD- 1 full-time faculty member and 2 part-time faculty members have a ratio FTES: FTEF of 7.0 averaged over the last 5 years of data.

MAMT- 1 fulltime faculty member and 2 part-time faculty members have a ratio FTES: FTEF of 6.84 averaged over the last 5 years of data.

WELD- 1 fulltime faculty member and 2 part-time faculty members have a ratio FTES: FTEF of 8.2 averaged over the last 5 years of data.

Trends show a decline in CAD in FTES: FTEF from 2007-08 at 8.2 to 2011-012 at 7.2.
Increase in MAMT in FTES: FTEF from 2007-08 at 6.7 to 2011-012 at 8.1.
Significant increase in WELD in FTES: FTEF from 2007-08 at 3.8 to 2011-012 at 10.5.

Budget; (See attached Budget PDF files)

N. Student credit hours per full-time faculty (FTEF) averaged from past 5 years:

CAD- 495.6
MAMT- 511.8
WELD- 423.8
Trends show a decline in CAD from 2007-08 at 854 to 2011-012 at 434.
Increase in MAMT from 2007-08 at 496 to 2011-012 at 537.
Significant increase in WELD from 2007-08 at 277 to 2011-012 at 523
.

On the average the full-time CAD instructor teaches 74.4% of the course and student credit hours and the part-time instructors teach 25.6%. The MAMT full-time instructor teaches 56.4% of the course and student credit hours and the part-time instructors teach 43.6%. The MAMT professor was the Manufacturing and Industrial Services (MIS) Department Head for the last 3 years and was the Principle Investigator for a $477,000 National Science Foundation Grant and was given release time to attend duties. The WELD full-time instructor teaches 61.6% of the course and student credit hours and the part-time instructors teach 38.4%. The WELD full-time instructor taught 100% of the course and student credit hours in the 2011-2012 school years.

O. Faculty Achievements

Computer Aided-Design

Faculty member achievements have been to continue to improve skills every summer taking classes and training for the latest CAD programs. 2012 Civil 3D, 2013 workshop, Revit 2013 workshop, 2010 Numerical Control Machining I & II, 2009 Solidworks workshop, 2008 Revit Workshop, 2007 Civil 3D workshop, 2006 Architectural Desktop workshop, 2005 GIS workshop, 2004 Solidworks Workshop and 2003 AutoCAD workshop. Assisted students on a project to reverse engineering an existing Environmental Erosion Trailer for the Colorado River and Riparian Study Center. The students made a set of plans from an existing trailer so that other trailers could be made.

Students did preliminary Architectural and Site design for Habitat for Humanity on their new building located at 2936 North Avenue Grand Junction, CO. Service on the WCCC Scholarship Committee, 2003-2010 Skills USA Advisor, 2010-2012 CMU Assessment Committee.

Faculty member has written 2 books for the CADT-130 and CADT-135 class over the last 14 years. Currently Delta Montrose Technical College is using the books in their CAD classes. Faculty member has written several AutoCAD tutorials and taught for CED 2003 - 2010.

Community service- 2003-2007 Ice Skating Inc.
2003-2008 Coach of little league baseball, basketball, & football.
2003-2006 Buddy Werner volunteer.
2003-2006 Advising board for Lincoln Orchard Mesa Elementary.
2003-2008 Publish Orchard Mesa Little League Program Book.
Advisor for the Manufacturing CAD Department at WCCC.

Machining

Faculty member achievements have been to update machining to reflect best practices in work force manufacturing facilities. Continued the Haas Technical Education Center Program and FeatureCAM Training Center status at WCCC and updated the CNC machining program to incorporate solid modeling from Computer-aided Drafting and Engineering classes.

Faculty member has developed and staffed weekend machining seminars for the Mechanical Engineering students to train them to safely operate the equipment in the machining technology lab for their program's first-year and final projects.
Students majoring in manufacturing are able to move through classes in a timely manner by learning required skill sets in each course as approved by the Manufacturing Advisory Committee.
Supervision of Student Research/Project(s)-
Faculty member serves as the faculty advisor for students projects submitted to Colorado Mesa University Annual Student Showcase.
Journal Articles-National Science Foundation "ATE Projects Impact- Partners with Industry for a New American Workforce"- "Integrated Learning Systems: A Model Approach" 2008
The Source Magazine "Manufacturing at Western Colorado Community College" 2011
Faculty member presented the Integrated Learning Systems concept at The National American Career and Technical Conference in Nashville, Tennessee on November 20, 2009.
Exhibited the Integrated Learning Systems Model in Washington D.C. at the National Science Foundation, American Association of Community Colleges Conference in 2007, 2008 and 2009.

Grants (proposed or funded)

Faculty member submitted and received a $10,000 grant from the Encana Corporation in October 2011 for the Integrated Learning Systems class to fund research on compressed natural gas dual vehicle conversions.
Faculty member served as Principle Investigator on a $466,000 National Science Foundation grant awarded to CMU/WCCC.
Faculty member is also a Co-principle Investigator for a $680,000 pending National Science Foundation grant earmarked to train students in a cross-curricular alternative fuels and small engine training program.
Grand Junction Chamber of Commerce - "Classroom Improvement Mini-Grant" Awarded to Western Colorado.
Community College Manufacturing/Machining Department - $100.00 May, 2007.
Hamilton Sundstrand - "The Future of Manufacturing Technology" Awarded to Colorado Mesa University.
CMU/WCCC Manufacturing/Machining Department - $5000.00, July 18, 2003.

Honors and Awards

Faculty Member is on Colorado Governor John Hickenlooper's Manufacturing Tactical Team, December 2011-present
Member of The Mesa County Manufacturing Council, August 2009-present
The Staff Service Award, Mesa State College, Grand Junction, CO (May 10, 2007) 10-year Service award May 2012.
Faculty Member serves as a campus tour guide every year for sophomore tours.
Faculty Member substitute teaches the high school machining, CAD and welding classes as needed on a volunteer basis.
Faculty Member has served as a member of the ad-hoc curriculum oversight committee in December 2010.
Faculty Member has served as a member of the Distinguished Faculty review committee Spring 2011.

Faculty Member has served as Crisis Team member of WCCC since 2005 to present.
Faculty Member has served on the WCCC Grants Committee 2010 to present.
Faculty Member has served as the Department Head for the Manufacturing and Industrial Services Department at Western Colorado Community College. The departments that are under direct supervision are- The Secondary and Post-secondary Transportation Programs, the Secondary and Post-secondary Welding Programs, the Secondary and Post-secondary Machining Programs, the Post-secondary Construction- Supervision Program and the Post-secondary Construction- Craft Program and the Post-secondary Electric Lineman Program.
Faculty Member has served as Crisis Team member of WCCC since 2005.
Faculty Member has served as an advisor for SkillsUSA since 2002 – Managing the district manufacturing competition at WCCC and transporting our students to Denver, Golden, Colorado Springs and Pueblo to participate in the state competition.
Faculty Member has served as the WCCC faculty advisor to the Skills USA national competition in Kansas City, MO.

Community

Faculty Member has served available as a guest speaker to local industries.
Faculty Member has been a volunteer and served on the P.T.O at Chipeta Elementary since 2005.
Faculty Member has participated in the classroom assisting teachers with projects for elementary students.
Faculty Member has served on the Mesa County School District 51 Accountability Committee for Chipeta Elementary School and Redlands Middle School.
Faculty Member has served as one of the WCCC representatives at the Electronics Expo held at Two Rivers in Grand Junction showcasing the innovative, green, energy conscience projects that students in our programs have developed.
Faculty Member has served as the coordinator for ProtoCamp since June 2009 and will offer another weeklong summer science camp for local middle school students.
Faculty Member has put together the team of faculty and student assistants. Protocamp faculty consists of instructors from WCCC and Mesa County School District 51. The student assistants are chosen from the technical programs at WCCC and the engineering department at CMU.
Faculty Member has scheduled the team meetings and we collectively decide on curriculum, schedule and camp duties. Last year we had 36 middle school students participate in the weeklong camp. This year we expect the same numbers and have identified a national competitive robotics program that will be integrated into the camp if funding becomes available.
Faculty Member maintains relationships with local manufacturers and local organizations such as the Lions Club, local businesses such as Brown's Cycles, Lewis Engineering, TDM Machine, Bulldog Machine, C5 Medical Werks, Capco Inc. and local inventor's by working on projects supplied to my students from them.
Faculty Member also maintains internships and employment opportunities for our students with local industries and has placed students at Lewis Engineering, TDM Machine, Bulldog Machine, C5 Medical Werks, Western Slope Industries and Capco Inc.

Welding

Faculty Member coordinates Annual Department Evaluation as well as Student Semester Evaluation.
Faculty Member stream lined and cleaned up the post-secondary welding program.
(All WELD classes are three credit hours and full semester in length. All 100 series classes start in the fall and 200 series classes are taught in the spring.)

Exhibits

Created projects for SkillsUSA and managed SkillsUSA local and district competition to showcase the talents of our welding students.

Professional Memberships

AMERICAN WELDING SOCIETY MEMBER- 1989 - PRESENT
UNITED STEEL WORKER'S UNION MEMBER- 1988 – 2003

Honors and Awards
Faculty Professional Development Award - CMU- 2003 AND 2012
Faculty Professional Development Award - WCCC- 2012
Served on the WCCC council.
Served on the WCCC curriculum committee.
Served on various WCCC Hiring Committees.
On Saturdays faculty member helps Grand Junction High School students with their graduation requirement of thirty community service hours.
Advising post-secondary students when instructor is not available. Organization of the sophomore tours of the high school welding program.
Interviews and selection of the future welding students. Advising all students of career opportunities and college choices.

Faculty advisors are assigned as students declare majors in the manufacturing cluster. Each instructor meets with students in their respective programs in the beginning of each semester and maps out a plan of study and graduation pathway for each student. The faculty assists students with course enrollments for each semester.
Teaching effectiveness is measured each year by the department head during the annual evaluation process. Faculty in the manufacturing cluster have maintained a highly proficient or excellent status during the last 5 years.

Budget- See Appendix C-

Library Curriculum Assessment
Tomlinson Library
Colorado Mesa University

The following form is a snapshot of the library's collection in support of a program review.

Date of assessment: October 2012

Collection under review: Manufacturing Technology with 3 areas of emphasis: Computer-aided Design Technology, Machining Technology, and Welding Technology

Program level: **Certificate** **Associates** Bachelors Masters

Delivery mode: _____

Library Liaison: Aimee Brown

1. Current Collection Review

   The Library collection was assessed using the Library of Congress subject headings listed below divided into the 3 areas of emphasis in the Manufacturing Technology program.

   - Computer-aided Design
   - Machining, Machine-shop Practice, and Machine-tools
   - Welding

   a. Reference Sources:

   There are three titles on these subjects in the Reference Collection published in 2000 or earlier.

   b. Monographic Sources:

   A summary of monographic and audio-visual sources and an analysis of their dates of publication are below.

   Computer-aided Design

   The library has 23 books in the general collection with this subject heading. 17% of these were published in 2000 or later.

   Machining Technology

   The library has 38 print books and 25 e-books in the general collection with the subject headings Machining, Machine-shop Practice, or Machine-tools. The e-books were all published in 2007 or later. 14% of the print books were published in 2000 or later.

   Welding Technology

   The library has 59 print books, 7 e-books, 1 DVD set and 4 VHS tapes in the general collection with the subject heading Welding. The e-books were published in 2004 or later and the DVD set was published in 2007. 7% of the print books were published in 2000 or later.

   - Age Analysis of Monographic Collection

   There are 32 recently published titles related to this program available as e-books. 11% of the print books were published in the last 10 years.

   c. Periodicals:

The library provides access through our licensed article databases to 5 periodicals in full text online through the current issue that cover these subjects. They include:

- *Computer-Aided Design & Applications*
- ***Modern Machine Shop***
- ***Production Machining***
- ***Welding Journal***
- ***World of Welding***

d. Electronic Resources:

The library subscribes to the licensed article databases Academic Source Complete and Business Source Complete which provide access to articles on manufacturing technology. Below is a list of the number of full-text articles published in 2000 or later specifically in trade journals that a search for the subject terms below produced.

Business Source Premier

- Computer-aided Design: 1,749
- Machine shops: 665
- Machining: 2,261
- Welding: 2,008

Academic Search Premier

- Computer-aided Design: 748
- Machine shops: 11
- Machining: 119
- Welding: 107

2. Recommendations for additions to the collection:

The addition of a welding DVD set and e-books supporting this program have improved access to current materials. In consultation with the faculty, the collection needs to be weeded and additional materials should be added to ensure that the materials available are relevant and in formats most convenient for students to access.

Library Director: Sarah Cron Date: October 18, 2012

P. Student Learning Outcomes
Machining Technology

COURSE:	Communication Apply business communication using listening, verbal and written forms that are needed for entry level employment in the Machining Industry.	Computational Apply Mathematical concepts for the Machining industry to meet entry level employment requirements.	Critical Thinking Research, evaluate, synthesize and apply information/data relevant to the Machining industry.	Specialized Knowledge Demonstrate knowledge of terminology, symbols, business practices, principles and application of associated technical skills in the Machining industry.	Applied Learning Perform the necessary applied Machining skill sets to fulfill the needs of entry level employment in the Machining industry.	Other Demonstrate ethical and civic responsibility necessary for employees in the Machining industry.
MAMT 101	X		X	X		X
MAMT 102	X	X	X	X	X	X
MAMT 105	X	X	X	X	X	X
MAMT 106	X	X	X	X	X	X
MAMT 110	X	X	X	X	X	X
MAMT 115	X	X	X	X	X	X
MAMT 120	X	X	X	X	X	X
MAMT 125	X	X	X	X	X	X
MAMT 130	X	X	X	X	X	X
MAMT 135	X	X	X	X	X	X
MAMT 140	X	X	X	X	X	X
MAMT 145	X	X	X	X	X	X
MAMT 148	X	X	X	X	X	X
MAMT 150	X	X	X	X	X	X
MAMT 151	X	X	X	X	X	X
MAMT 155	X	X	X	X	X	X
MAMT 160	X	X	X	X	X	X
MAMT 170	X	X	X	X	X	X
MAMT 196	X	X	X	X	X	X
MAMT 207	X	X	X	X	X	X
MAMT 250	X	X	X	X	X	X
MAMT 250L	X	X	X	X	X	X
MAMT 295	X	X	X	X	X	X
MAMT 296	X	X	X	X	X	X

Computer Aided Design Technology

COURSE:	Communication Apply business communication using listening, verbal and written forms that are needed for entry level employment in the Computer Aided Design industry	Computational Apply Mathematical concepts for the Computer Aided Design industry to meet entry level employment requirements.	Critical Thinking Research, evaluate, synthesize and apply information/data relevant to the Computer Aided Design industry.	Specialized Knowledge Demonstrate knowledge of terminology, symbols, business practices, principles and application of associated technical skills in the Computer Aided Design industry.	Applied Learning Perform the necessary applied CAD skill sets to fulfill the needs of entry level employment in the Computer Aided Design industry.	Other Demonstrate ethical and civic responsibility necessary for employees in the Computer Aided Design
CADT 101	X	X		X		X
CADT 106	X	X	X	X	X	X
CADT 107	X	X	X	X	X	X
CADT 108	X	X	X	X	X	X
CADT 109	X	X	X	X	X	X
CADT 110	X	X	X	X	X	X
CADT 130	X	X	X	X	X	X
CADT 135	X	X	X	X	X	X
CADT 140	X	X	X	X	X	X
CADT 141	X	X	X	X	X	X
CADT 142	X	X	X	X	X	X
CADT 195	X	X	X	X	X	X
CADT 196	X	X	X	X	X	X
CADT 210	X	X	X	X	X	X
CADT 296	X	X	X	X	X	X

Welding Technology

COURSE:	Communication Apply business communication using listening, verbal and written forms that are needed for entry level employment in the Welding Industry.	Computational Apply Mathematical concepts for the Welding industry to meet entry level employment requirements.	Critical Thinking Research, evaluate, synthesize and apply information/data relevant to the Welding industry.	Specialized Knowledge Demonstrate knowledge of terminology, symbols, business practices, principles and application of associated technical skills in the Welding industry.	Applied Learning Perform the necessary applied Welding skill sets to fulfill the needs of entry level employment in the Welding industry.	Other Demonstrate ethical and civic responsibility necessary for employees in the welding industry.
WELD 110	X	X	X	X	X	X
WELD 117	X	X	X	X	X	X
WELD 133	X	X	X	X	X	X
WELD 144	X	X	X	X	X	X
WELD 151	X	X	X	X	X	X
WELD 196	X	X	X	X	X	X
WELD 211	X	X	X	X	X	X
WELD 230	X	X	X	X	X	X
WELD 235	X	X	X	X	X	X
WELD 240	X	X	X	X	X	X
WELD 261	X	X	X	X	X	X
WELD 270	X	X	X	X	X	X
WELD 295	X	X	X	X	X	X
WELD 296	X	X	X	X	X	X
WELD 299	X	X	X	X	X	X

Q. FUTURE PLANS

Welding Technology
Program Description:

Welding Technology Certificate and Degree program is designed to provide training and opportunity to become proficient at SMAW, GWAW, GTAW, FCAW, OAW, OAC, PAC, CAC-A on plate and SMAW on pipe. Students study welding, cutting, layout, fabrication, fluid power, pneumatics and technical math. Safety, attitude and quality of workmanship are stressed throughout this course. The welding certificate prepares students for entry level positions in the welding industry. The welding AAS degree prepares students for both entry level or advanced placement in a wide range of jobs in the welding industry and is designed to meet competency based standards set by the American Welding Society.

Program Success:

The secondary welding technology classes have been at maximum capacity for eight years and will continue at that pace. The post-secondary welding technology classes are at maximum capacity and will continue now that the college hired a full time instructor and students are boosting their skills to become more marketable.

Program Mission:

The Welding Technology Program is committed to student success and to continually improve
the classroom/lab learning experience and environment and to be the premier welding training center between Denver and Salt Lake City.

Program Vision:

The Welding Technology Program is committed to all WCCC students to have that opportunity to learn welding processes in a safe environment as their career option. "Attitude, demeanor, and dedication to the welding industry are essential qualities as instructors set the example for their welding students.

Program Goals:

Implement safety first practices in the welding classroom and lab.
Implement an equipment rotation program such as CMU computer rotation program.
Showcase the welding class projects to WCCC students, CMU students, parents, advisory committee members and business owners.

Program Instructor Needs:

WCCC has two fulltime dedicated welding instructors. Jason Sinclair with his expertise in art, small business ownership, railroad welding and pipe welding. Kevin Kern, with his expertise in welding projects (SKILLS USA, etc.), bridge fabrication and structural welding. This well rounded team is in need of professional development in two areas one being certified as AWS / API welding inspectors and as AWS certified welding educators. This is the priority so we can certify our welding students. The second area of professional development is advanced training at the Lincoln Electric Company for motor sports welding. This is the direction that the welding program is moving forward with offerings in the near future such as Motorsport Fabrication Methods and Motorsports Chassis Building. Funding would be approximately $8,000.00 for the AWS national CWI and CWE certifications and $ 4,000.00 for the training at Lincoln Electric.

Program Needs:

Equipment rotation program at $12,500.00 per year. This would replace old, worn-out, or non-working equipment with new state of art high technology equipment. All welding machines are computer driven, therefore the maximum service life in a school is 10 years.

There are 23 welding machines now beyond the 10 year point from a total of 41 welding

machines. Rotation would keep equipment current and updated.

Upgrade supply budget to $25,000.00 annually. In ten years costs increased 300 %.
Equipment purchases of $18,000.00 for the layout and sheet metal lab. Equipment listed in the 2011-2012 budget request forms.
Equipment purchases of $25,000.00 for replacement of old, worn-out, or non-working equipment. Need to upgrade Ironworker, pipe bevellers, grinders, chop saws, CNC shape cutter, layout tables and material storage racks.
Additional lab space: 1200 square feet lab space needed to add and implement motorsports fabrication and motorsports welding classes to the welding technology AAS degree program. (Interdepartmental Chassis Building and Welding)
Equipment purchases of 25,000.00 for motorsports fabrication and welding lab.
Two laptop computers will be needed.
Total cleaning of the welding lab.
Painting of the welding lab.
Ventilation and air filtration systems added and upgraded.
Drainage in the driveway corrected.
Electrical upgrades in layout and motorsports labs.

Computer Aided Design
Program Description:

Computer Aided Design Certificate and Degree program is designed to provide training and opportunity to become proficient in numerous Computer Aided Design Programs. Students begin working with two-dimensional designs and advance to three-dimensional designs, including solid-based and parametric modeling. Students learn drafting concepts and the processes of orthographic projection, pictorial drawing, dimensioning, and geometric construction by hand and with computer-aided design (CAD) software and equipment. Students will gain fundamental knowledge of mechanical, civil, and architectural drafting.

Program Success:

The secondary CAD classes have been below maximum capacity for 3 years. The post-secondary CAD classes are at below maximum capacity also.

Program Mission:

The CAD Program is committed to student success and improvement of the classroom/lab learning experience and to be the premier CAD training center between Denver and Salt Lake City.

Program Vision:

The CAD Program is committed to all WCCC students to have that opportunity to learn Computer Aided Design processes in a safe environment as their career option.
Attitude, demeanor, and dedication to the Drafting / Design industry are essential qualities as instructors set the example for their students.

Program Goals:

Implement safety first practices in the CAD classroom and lab.
Implement an equipment rotation program such as CMU computer rotation program
Showcase the CAD class projects to WCCC students, CMU students, parents, advisory committee members and business owners.

Program Instructor Needs:

WCCC has one fulltime dedicated CAD instructor. Denis Thibodeau has been the lead instructor for several years. There are also part time instructors as needed. This team is in need of professional development on a continual basis, CAD programs change each year, thus the need for ongoing continuing education.

Program Needs : Five Year

Equipment rotation program every 3 years instead of 5 years.
Yearly software upgrade.

Machining Technology
Growth

The Machining program is seeing growth; we would like to have 3 full MODS of H.S. machining and the college program is expanding due in part to the expansion of machining courses that have been added to the Mechanical Engineering, Mechanical Engineering Technology Baccalaureate and the Mechanical Engineering Technology degree programs. We are experiencing growth in manufacturing jobs in the in the Grand Valley and. US. Western Colorado Community College is here to lead the way with highly qualified skilled workers.
Integration with existing WCCC programs through cross-disciplinary project-based learning is in the beginning stages. The expansion of this pedagogy benefits students with experiences and learning from their peers while problem solving on cross-curricular activities. The model was developed through the National Science Foundation Integrated Learning Systems grant and has shown to help develop student interest in disciplines outside of their chosen discipline. The skills that student's develop in these integrated courses are the skills sought after by our business partners.
The Manufacturing/Machining program is involved in the initial stages of implementing "Project Lead the Way" (PTLW) for junior and senior students from local School District 51 high schools.

PLTW 's Pathway To Engineering (PTE) program for high schools offer students an array of advantages, from career readiness and hands-on learning experience to college preparatory–level classes, labs and creative exercises. PTLW sets the highest standards for rigorous, focused and engaging study, developing students' innovative, collaborative, cooperative, critical-thinking and problem-solving skills.
The program is designed to appeal to all students, from those already engaged in STEM-related fields to those who find themselves uninterested in traditional science and math curricula. The courses help students make the critical connection between STEM principles and solving the real challenges in our communities and the world.
PLTW classes are hands-on, based in real-world experience, and engaging for students and teachers. They are most often offered as electives and complement required classes in science and math.
Benefits of the PLTW program include:
Comprehensive, turnkey curriculum package.
Online resources and professional communities.
Program based on national standards.
Teacher training (PLTW Core Training) through affiliate universities.
Conferences for school counselors and administrators that demonstrate how courses fit into students academic and career paths.
End-of-Course assessments.
Access to a nationwide support network that includes master teachers, university affiliates, state education officials, business and industry partners and professional associations.

Capital Improvements

With growth comes a need for capital investments. We would like to see the size (square footage) of the machine shop grow, we have a computer laboratory classroom that can sustain 10 – 12 students and foresee an expansion need to accommodate 20 – 25 students. Without more square footage in the machine shop laboratory, we cannot expand the number of machines. We currently have 2 CNC lathes, 2 CNC mills, 7 manual vertical mills, and 8 manual lathes; this means that we can have a maximum class size of 15 students (which is what the H.S. classes are currently set at). The problem with this is that often times there are more than 7 students that need a mill at the same time. We believe that 3 more vertical mills and 2 more manual lathes would be sufficient for growth. In addition we will need to replace 4 of the manual lathes within the next 5 years. The purchase of more computers will also be necessary; we currently have 10 computers in our classroom. The computers are a vital tool to the educational success for both high school and college programs. The high school students get exposed to FeatureCAM, as well as completing all required book work electronically.

Instructor Training

It is crucial that the instructors of the Machining Program stay up to date with current technologies being used in industry today. The instructors will have to ensure that they are visiting with local area manufacturing shops/leaders to ensure that industry needs are being met in the way of trained, qualified, and skilled workers. Training is mandatory for instructors teaching in the PTLW curriculum. FeatureCAM training is also mandatory for instructors to maintain the manufacturing departments FeatureCAM Training Facility status.

Business Partnerships

Local and regional business partnerships are crucial for the success of the machining/manufacturing programs. There are currently strong ties to local industry but there is a need for expansion regionally. Internships, job shadowing and employment opportunities need to be fostered with regional manufacturing businesses.

Appendix A

CCSSE

Community College Survey of Student Engagement

Western Colorado Community College

2011 Key Findings

Table of Contents

CCSSE
Community College Survey of Student Engagement

Key Findings: A Starting Point

The Key Findings report provides an entry point for reviewing results from Western Colorado Community College's administration of the 2011 Community College Survey of Student Engagement (*CCSSE*). The report provides college-specific data in an easy-to-share format including benchmark comparisons between the college, top-performing colleges, and the *CCSSE* cohort. It also highlights aspects of highest and lowest student engagement at the college, as well as results from five of the *CCSSE* special-focus items on promising educational practices. Select faculty survey (*CCFSSE*) data are also highlighted (cohort data are provided for colleges that did not administer *CCFSSE*).

Promising Practices for Student Success

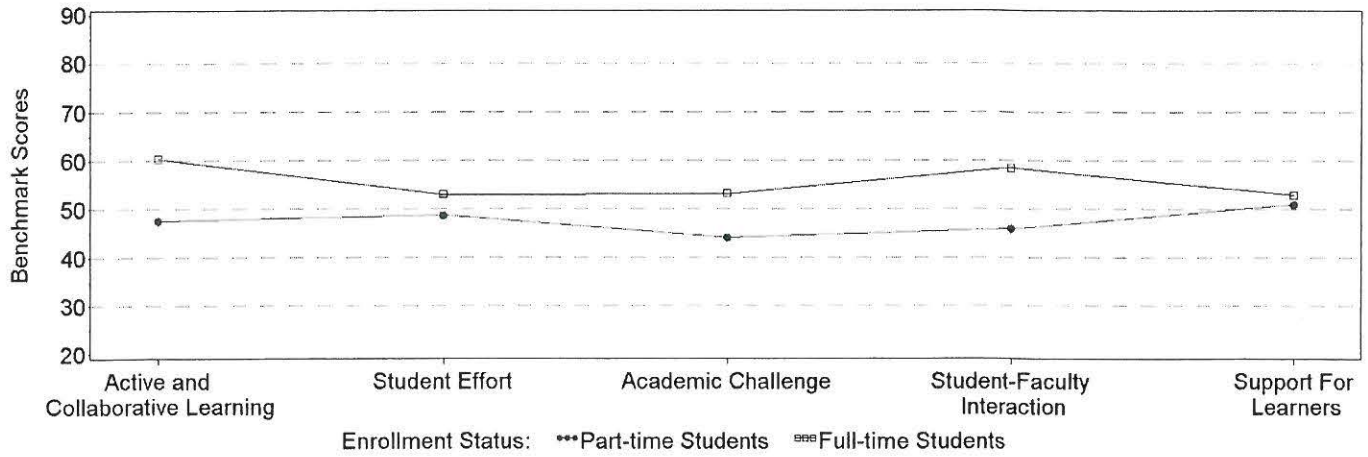
In each annual administration, *CCSSE* has included "special-focus items" to allow participating colleges and national researchers to delve more deeply into areas of student experience and institutional performance of great interest to the field. The 2011 special-focus items are part of a special national study focused on community college students' participation in a defined collection of "promising practices" for which there is emerging evidence of effectiveness in strengthening student learning, persistence, and attainment. This study will link data from the 2011 *CCSSE* special-focus items; related items on the 2011 faculty survey (*CCFSSE*), which explore the extent of faculty members' use of the identified promising practices in their teaching; and institutional data collected from the new Community College Institutional Survey (CCIS) that address questions about how these promising practices are implemented across varied institutions. Additionally, a corresponding special-focus module will be included in the 2011 *SENSE* survey administration.

This data collection will provide empirical confirmation of promising educational practices in community colleges; quantification of the extent to which those practices are part of the current experience of our students; and information about whether participation in these types of practices varies across subgroups of students. Ongoing data analysis will provide new evidence of how student participation in these practices is related to overall student engagement, academic progress, and college completion.

Benchmark Overview by Enrollment Status

Figure 1 below represents Western Colorado Community College's *CCSSE* benchmark scores by students' enrollment status.

Figure 1



Benchmarks of Effective Educational Practice

The *CCSSE* benchmarks are groups of conceptually related survey items that address key areas of student engagement. The five benchmarks denote areas that educational research has shown to be important to students' college experiences and educational outcomes. Therefore, they provide colleges with a useful starting point for looking at institutional results and allow colleges to gauge and monitor their performance in areas that are central to their work. In addition, participating colleges have the opportunity to make appropriate and useful comparisons between their performance and that of other groups of similar colleges.

Performing as well as the national average or a peer-group average may be a reasonable initial aspiration, but it is important to recognize that these averages are sometimes unacceptably low. Aspiring to match and then exceed high-performance targets is the stronger strategy.

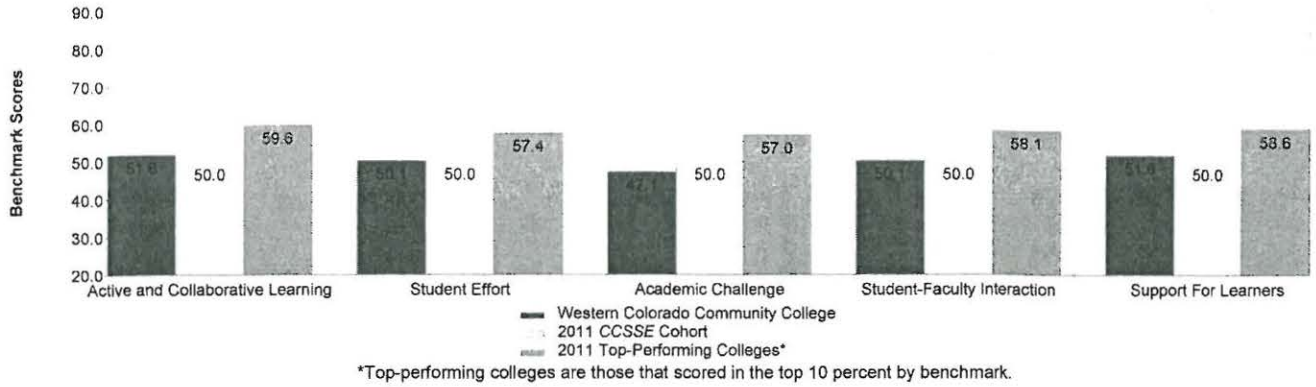
Community colleges can differ dramatically on such factors as size, location, resources, enrollment patterns, and student characteristics. It is important to take these differences into account when interpreting benchmark scores—especially when making institutional comparisons. Furthermore, the Center for Community College Student Engagement has adopted a policy on "Responsible Uses of *CCSSE* Data," available at www.ccsse.org.

CCSSE uses a three-year cohort of participating colleges in all core survey analyses. The current cohort is referred to as the 2011 *CCSSE* Cohort (2009-2011) throughout all reports.

CCSSE Benchmarks

- ★ **Active and Collaborative Learning.** Students learn more when they are actively involved in their education and have opportunities to think about and apply what they are learning in different settings. Through collaborating with others to solve problems or master challenging content, students develop valuable skills that prepare them to deal with real-life situations and problems.
- ★ **Student Effort.** Students' own behaviors contribute significantly to their learning and the likelihood that they will successfully attain their educational goals.
- ★ **Academic Challenge.** Challenging intellectual and creative work is central to student learning and collegiate quality. These survey items address the nature and amount of assigned academic work, the complexity of cognitive tasks presented to students, and the rigor of examinations used to evaluate student performance.
- ★ **Student-Faculty Interaction.** In general, the more contact students have with their teachers, the more likely they are to learn effectively and to persist toward achievement of their educational goals. Through such interactions, faculty members become role models, mentors, and guides for continuous, lifelong learning.
- ★ **Support for Learners.** Students perform better and are more satisfied at colleges that provide important support services, cultivate positive relationships among groups on campus, and demonstrate commitment to their success.

Figure 2



*Top-performing colleges are those that scored in the top 10 percent by benchmark.

Notes: Benchmark scores are standardized to have a mean of 50 and standard deviation of 25 across all respondents. For further information about how benchmark scores are computed, please visit www.ccsse.org.

Aspects of Highest Student Engagement

Benchmark scores provide a manageable starting point for reviewing and understanding *CCSSE* data. One way to dig more deeply into the benchmark scores is to analyze those items that contribute to the overall benchmark score. This section features the five items across all benchmarks (excluding those for which means are not calculated) on which the college scored highest and the five items on which the college scored lowest in comparison to the 2011 *CCSSE* Cohort.

The items highlighted on pages 4 and 5 reflect the largest differences in mean scores between the institution and the 2011 *CCSSE* Cohort. While examining these data, keep in mind that the selected items may not be those that are most closely aligned with the college's goals; thus, it is important to review the full Institutional Report on the *CCSSE* online reporting system.

Figure 3 displays the aggregated frequencies for the items on which the college performed most favorably compared with the 2011 *CCSSE* Cohort. For instance, 57.6% of Western Colorado Community College students (n=302), compared with 47.7% of other students in the cohort, responded 'Often' or 'Very often' on item 4f.

Figure 3

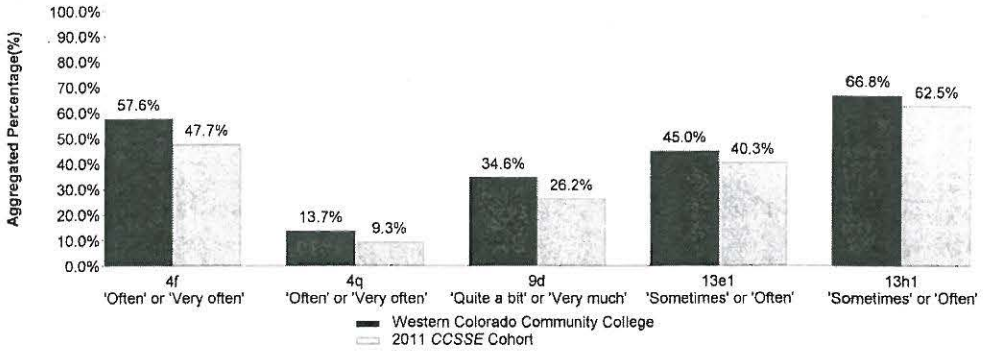


Table 1

Benchmark	Item Number	Item
Active and Collaborative Learning	4f	Worked with other students on projects during class
Student-Faculty Interaction	4q	Worked with instructors on activities other than coursework
Support for Learners	9d	Helping you cope with your non-academic responsibilities (work, family, etc.)
Student Effort	13e1	Frequency: Skill labs (writing, math, etc.)
Student Effort	13h1	Frequency: Computer lab

Notes:

For Item(s) 4, 'Often' and 'Very Often' responses are combined.

For Item(s) 9, 'Quite a bit' and 'Very much' are combined.

For Item(s) 13, 'Sometimes' and 'Often' are combined.

Aspects of Lowest Student Engagement

Figure 4 displays the aggregated frequencies for the items on which the college performed least favorably compared with the 2011 *CCSSE* Cohort. For instance, 38.9% of Western Colorado Community College students (n=302), compared with 50.3% of other students in the cohort, responded 'Often' or 'Very often' on item 4c.

Figure 4

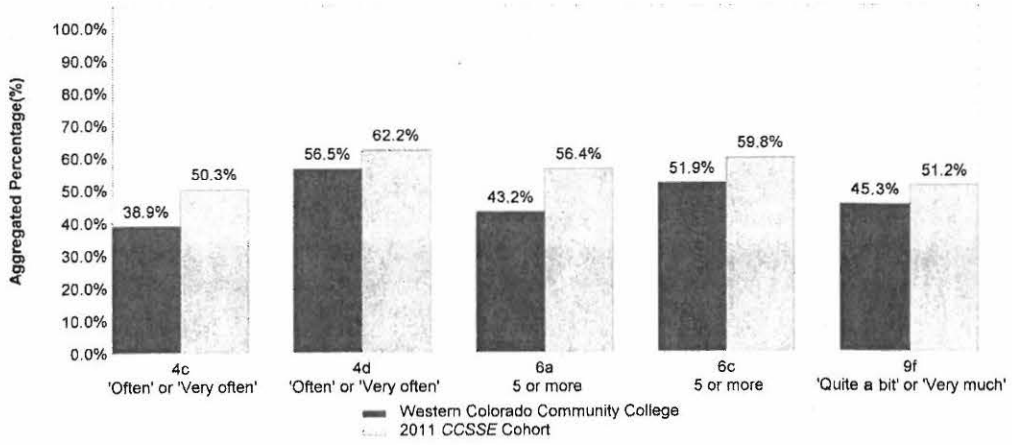


Table 2

Benchmark	Item Number	Item
Student Effort	4c	Prepared two or more drafts of a paper or assignment before turning it in
Student Effort	4d	Worked on a paper or project that required integrating ideas or information from various sources
Academic Challenge	6a	Number of assigned textbooks, manuals, books, or book-length packs of course readings
Academic Challenge	6c	Number of written papers or reports of any length
Support for Learners	9f	Providing the financial support you need to afford your education

Notes:

For Item(s) 4, 'Often' and 'Very Often' responses are combined.

For Item(s) 6, '5 to 10,' '11 to 20,' and 'More than 20' responses are combined.

For Item(s) 9, 'Quite a bit' and 'Very much' are combined.

2011 *CCSSE* Special-Focus Items

The Center adds special-focus items to *CCSSE* each year to augment the core survey, helping participating colleges and the field at large to further explore fundamental areas of student engagement. The 2011 special-focus items elicited new information about students' experiences associated with promising educational practices such as early registration, orientation, freshman seminars, organized learning communities, and student success courses. Frequency results from the first five "promising practices" items for Western Colorado Community College (n=253) and the 2011 *CCSSE* Cohort are displayed across pages 6 and 7.

Figure 5: During the current semester/quarter at this college, I completed registration before the first class session(s).

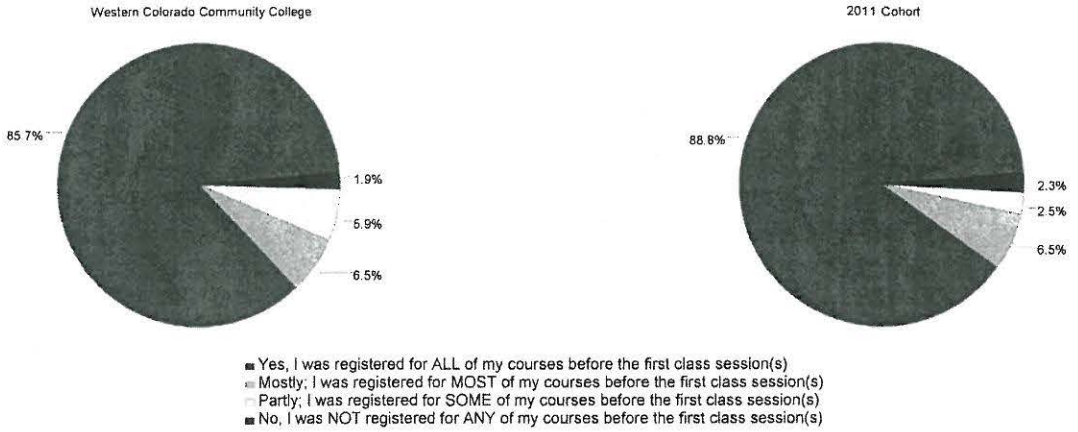


Figure 6: The ONE response that best describes my experience with orientation when I first came to this college is...

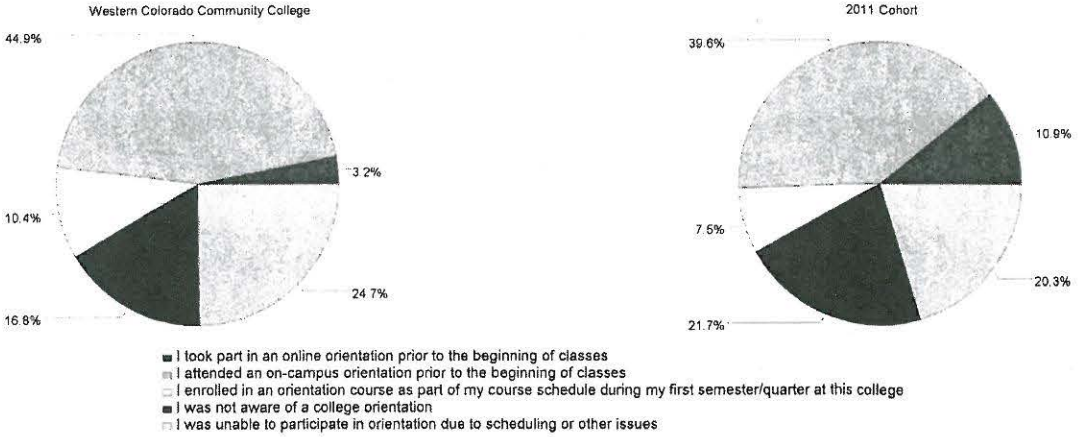


Figure 7: During my first semester/quarter at this college, I participated in a structured experience for new students (sometimes called a "freshman seminar" or "first-year experience").

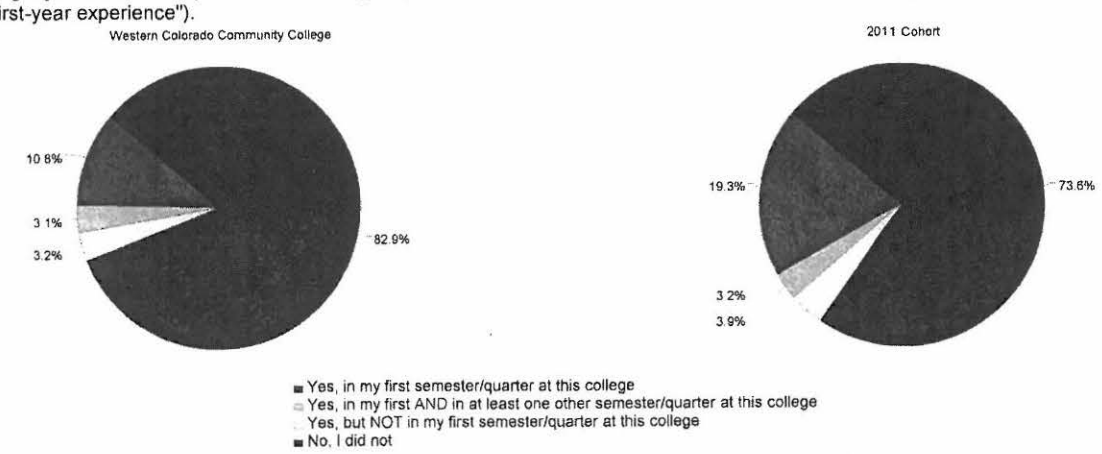


Figure 8: During my first semester/quarter at this college, I enrolled in an organized "learning community" (two or more courses that a group of students take together).

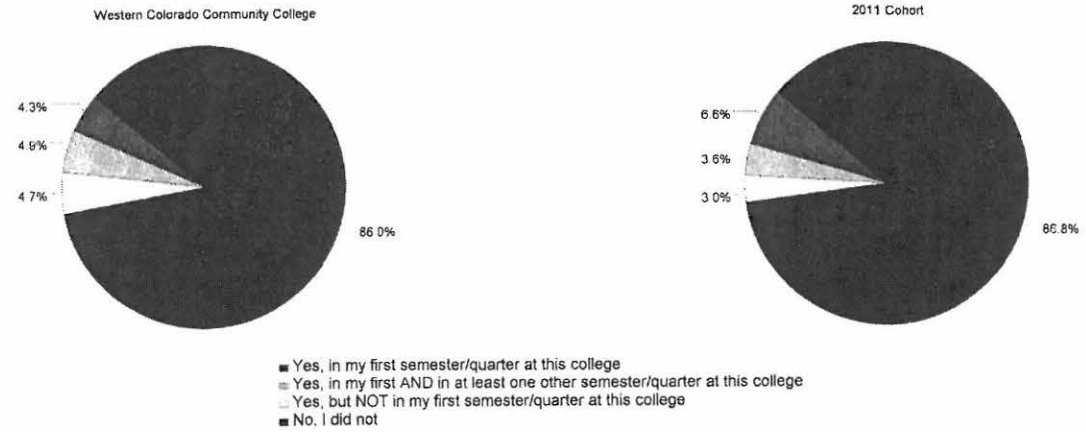
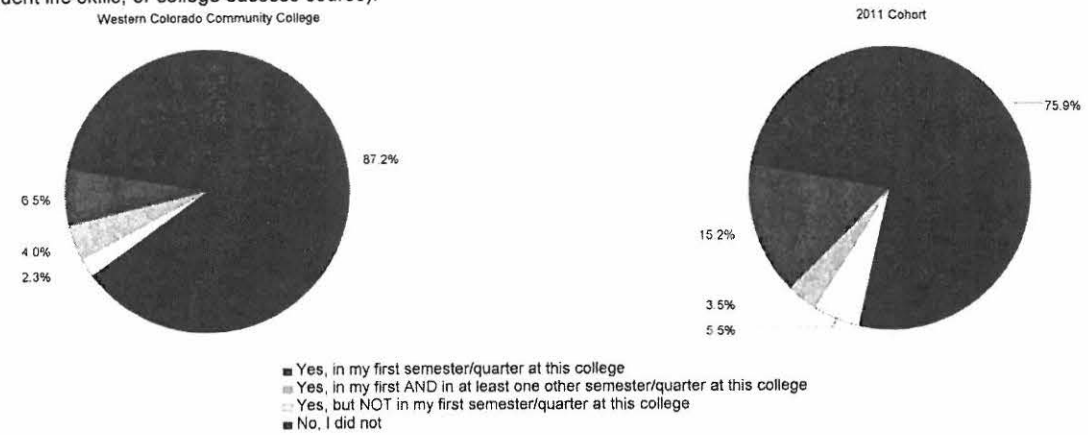


Figure 9: During my first semester/quarter at this college, I enrolled in a student success course (such as a student development, extended orientation, study skills, student life skills, or college success course).

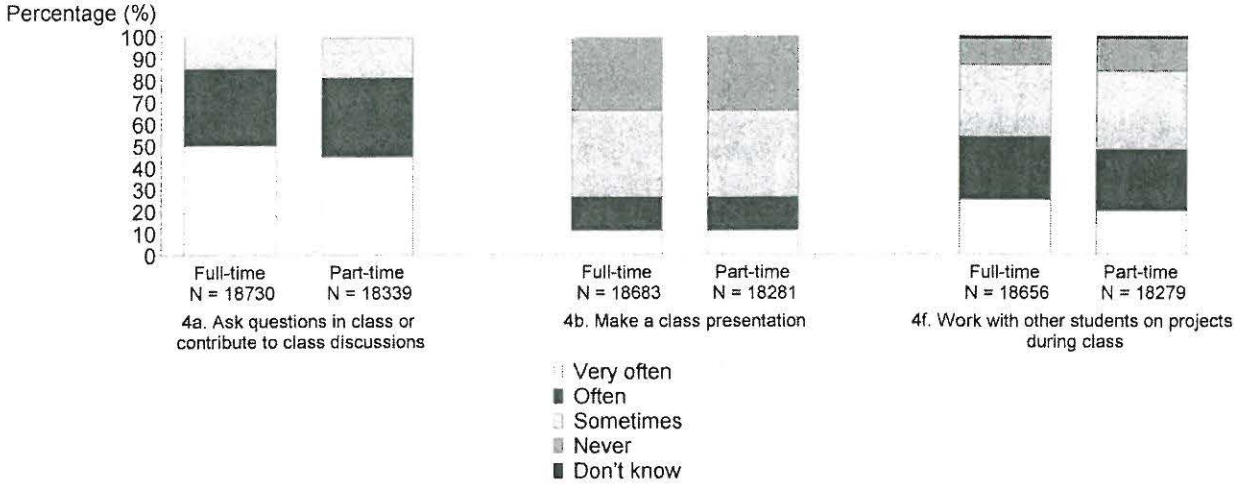


CCFSSE

The Community College Faculty Survey of Student Engagement (*CCFSSE*), designed as a companion survey to *CCSSE*, elicits information from faculty about their teaching practices; the ways they spend their professional time, both in and out of class; and their perceptions regarding students' educational experiences. *CCFSSE* data not only help participating colleges identify areas of strength, but also enable them to recognize challenges or gaps that may require further consideration. The *CCFSSE* results displayed below reveal full- and part-time faculty members' perceptions of three in-class student experiences. Cohort data are provided for colleges that did not administer *CCFSSE*.

Faculty Perceptions of Student Experiences by Employment Status

Figure 10



	4a. Ask questions in class or contributed to class discussions		4b. Make a class presentation		4f. Work with other students on projects during class	
Response	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Very Often	49.8%	45.3%	11.3%	10.9%	25.2%	19.7%
Often	34.6%	36.1%	15.5%	14.8%	29.3%	27.7%
Sometimes	15.4%	18.3%	40.0%	39.5%	33.2%	36.5%
Never	0.2%	0.2%	32.9%	34.5%	11.6%	14.9%
Don't Know	0.1%	0.0%	0.3%	0.3%	0.7%	1.1%

Appendix B

Survey

Appendix B

Surveys

The Office of Institutional Research and Assessment conducts various assessment activities throughout the year. We survey Colorado Mesa University students on a variety of topics. Our office also works with the Faculty Senate Assessment Committee, providing departmental data for program assessment.

Survey	2008	2009	2010	2011	2012	2013
NSSE	X		X			X
CCSSE	X			X		
Student Opinion Survey		X	X	X	X	
Entering Student Survey			X	X	X	
SSI (Noel Levitz)		X			X	
EBI			X			
Dining Customer Satisfaction		X	X	X	X	
Montrose Needs Assessment		X		X		
Housing Satisfaction		X				
Jterm Survey		X				
Recreation Survey			X		X	
Student Orientation Survey			X	X	X	
Core Alcohol & Drug Survey			X			
Alumni Survey				X		
Student Activity Survey				X	X	
HS Counselor Survey				X	X	

Appendix C

Finance & Budget

Prior Year

Printed: 10/10/2012 3:18 PM
Fund 10 GENERAL FUND
Special Reporting Elemen General Instruction

2007/2008

Account	Description	Activity		M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510011	**Supplies/Mat-CAD**			$53.07	$2,851.99	$0.00	$3,000.00	$148.01	10-499-10-1030-0500-000-0000-2
Accts.Payable	Shipping/Triangles, etc.	$6.52	13050		07/26/2007				Card Services-Business Card
	Aplying Auto CAD 2008	$126.70	13134		09/19/2007				Mesa State College
	Lynda.com / Annual Subscription	$375.00	13160		09/19/2007				Card Services-Business Card
	Business Cards- Snyder	$29.31	13191		09/19/2007				Pyramid Printing Inc.
	Applying AutoCAD	$63.32	13184		09/19/2007				Mesa State College
	Blueprint Reading	$62.20	13387		12/03/2007				Mesa State College
	Office 2003 Simplified	$59.37	13248		10/18/2007				Card Services-Business Card
	Calipers	$31.98	13333		11/14/2007				Card Services-Business Card
	3ds Max Education Subscription annual renewal	$1,980.00	13341		11/14/2007				DLT Solutions Inc.
	Student salaries 10/07	$86.24	13438		12/18/2007				Mesa State College
	Student salaries 11/07	$153.75	13438		12/18/2007				Mesa State College
	Student salaries 12/07	$237.75	13567		02/19/2008				Mesa State College
	Applying AutoCAD	$63.35	13567		02/19/2008				Mesa State College
	Printer Cartridges	$257.38	13598		02/27/2008				Quill
	Computer Supplies for Skills Conference	$21.46	13731		04/24/2008				Snyder, Melanie
	Binders	$24.48	13842		06/11/2008				Office Depot
Cash Receipt	D. Dutton/CPR	($15.00)	137795		11/12/2007				
	M. Snyder/Long distance	($0.25)	941603		11/20/2007				
	B. Wilson	($9.68)	943009		03/19/2008				
Journal Entry	Long distance 7/07	$1.39			07/31/2007				AJ 2
	Copier charges 7/07	$0.40			07/31/2007				AJ 3
	Long distance 8/07	$5.50			09/12/2007				AJ 29
	Copier Charges 8/07	$242.70			09/12/2007				AJ 31
	Copier Charges 9/07	$168.55			10/02/2007				AJ 38
	Postage Costs 9/07	$3.63			10/02/2007				AJ 39
	Long Distance 9/07	$35.96			10/02/2007				AJ 40
	Copier Charges 10/07	$79.65			10/30/2007				AJ 55
	Long Distance 10/07	$68.27			10/31/2007				AJ 57
	Postage Cost 11/07	$3.02			12/06/2007				AJ 80
	Long Distance 11/07	$52.05			12/06/2007				AJ 81
	Copier Charges 11/07	$98.75			12/06/2007				AJ 82
	Long distance 12/07	$146.94			01/13/2008				AJ 111
	Copier Charges 12/07	$12.04			01/17/2008				AJ 113
	DLT Dolutions/3ds Max Education Subscr	($1,980.00)			01/17/2008				AJ 121
	Copier Charges 1/08	$15.76			01/31/2008				AJ 124
	Copier Charges 2/08	$19.82			03/06/2008				AJ 156
	Long Distance Charges 1/08-2/08	$27.37			03/06/2008				AJ 158

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number	
Journal Entry	Postage 3/08	$0.92		04/02/2008				AJ	172
	Copier Charges 3/08	$9.62		04/02/2008				AJ	174
	Long distance 3/08	$14.48		04/08/2008				AJ	185
	Copier Charges 4/08	$58.34		05/07/2008				AJ	186
	Long distance 4/08	$19.77		05/09/2008				AJ	199
	Long distance 5/08	$70.73		06/02/2008				AJ	207
	Copier charges 5/08	$3.84		06/02/2008				AJ	208
	Postage costs 5/08	$12.47		06/02/2008				AJ	209
	Long distance 6/08	$52.41		07/07/2008				AJ	256
	Copier charges 6/08	$0.66		07/08/2008				AJ	263
eporting Element 10	General Instruction		$53.07	2,851.99	0.00	3,000.00	$148.01		
Fund 10	GENERAL FUND		$53.07	2,851.99	0.00	3,000.00	$148.01		

Prior Year

Printed: 10/10/2012 3:18 PM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M-T-D Activity	Y-T-D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total:	$53.07	2,851.99	0.00	3,000.00	$148.01	

Prior Year

Printed: 10/10/2012 12:46 PM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2008 / 2009

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510011	**Supplies/Mat-CAD**		$0.00	$1,468.97	$0.00	$3,000.00	$1,531.03	10-499-10-1030-0600-000-0000-2
Accts.Payable	Document frames	$63.00	14036	09/11/2008				Office Depot
	Traingles	$123.90	13954	08/14/2008				Card Services-Business Card
	4 GB kit	$85.99	14019	09/11/2008				Card Services-Business Card
	Applying AutoCAD	$63.35	14103	10/14/2008				Mesa State College
	Copy of prints	$35.64	14108	10/14/2008				Plaza Reprographics
	B. wilson/Lunch for 3	$42.75	14096	10/14/2008				Grand Valley BOCES
	D. Thibodeau business cards	$13.92	14106	10/14/2008				Peczuh Printing Company
	Skeleton	$10.00	14163	11/12/2008				Card Services-Business Card
	Picture frames	$9.99	14163	11/12/2008				Card Services-Business Card
	Light bulbs	$23.76	14240	12/11/2008				Card Services-Business Card
	4 rolls of inkjet bond	$36.00	14257	12/11/2008				LK Survey Instruments Inc.
	Post it Notes	$23.70	14287	12/18/2008				Quill
	B. Sundermann business cards	$27.15	14420	02/24/2009				Peczun Printing Company
	Printer cartridges	$175.45	14462	03/11/2009				Quill
	Printer cartridge	$226.79	14552	04/15/2009				Quill
	11 x 17 copier paper	$7.00	14629	05/13/2009				Mesa County Valley School Dist
	Full Revit renewal	$86.99	14694	06/15/2009				Card Services-Business Card
Cash Receipt	B. Sundermann	($18.86)	234797	03/18/2009				
	B. Sundermann long distance	($2.32)	235921	05/15/2009				Cash
	M. Snyder	($1.12)	235939	06/14/2009				Cash
	B. Sundermann	($1.69)	235937	06/14/2009				Cash
Journal Entry	Postage costs 7/08	$1.68		07/25/2008				AJ 295
	Copier charges 7/08	$0.92		07/31/2008				AJ 297
	Long distance 7/08	$1.57		08/06/2008				AJ 300
	Long distance 8/08	$0.52		09/08/2008				AJ 314
	Copier charges 8/08	$88.22		09/10/2008				AJ 320
	Postage 9/08	$4.77		10/01/2008				AJ 325
	Long distance 9/08	$4.94		10/01/2008				AJ 326
	Copier charges 9/08	$18.08		10/06/2008				AJ 328
	Long distance 10/08	$5.09		11/10/2008				AJ 349
	Copier charges 10/08	$11.42		11/10/2008				AJ 350
	Copier charges 11/08	$21.60		12/09/2008				AJ 370
	Copier charges 12/08	$5.44		01/06/2009				AJ 379
	Postage costs 12/08	$1.26		01/06/2009				AJ 380
	Long distance 12/08	$1.08		01/09/2009				AJ 389
	Long distance 1/09	$6.17		02/04/2009				AJ 397
	Copier charges 1/09	$51.12		02/04/2009				AJ 398

Prior Year

Printed: 10/10/2012 12:46 PM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number	
Journal Entry	Long distance 2/09	$14.69		03/04/2009				AJ	410
	Copier charges 2/09	$43.10		03/04/2009				AJ	411
	Postage costs 3/09	$1.68		04/08/2009				AJ	430
	Copier charges 3/09	$30.38		04/08/2009				AJ	431
	Copier charges 4/09	$13.20		05/11/2009				AJ	444
	Long distance 4/09	$3.44		05/11/2009				AJ	446
	Long distance 5/09	$3.76		06/11/2009				AJ	462
	Copier charges 5/09	$16.50		06/11/2009				AJ	463
	Postage costs 5/09	$4.09		06/11/2009				AJ	464
	Long distance 6/09	$4.31		07/13/2009				AJ	491
	Copier charges 6/09	$0.28		07/13/2009				AJ	492
eporting Element 10	General Instruction		$0.00	1,468.97	0.00	3,000.00	$1,531.03		
Fund 10	GENERAL FUND		50.00	1,468.97	0.00	3,000.00	51,531.03		

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$0.00	1,468.97	0.00	3,000.00	$1,531.03	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

2009/2010

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510011	**Supplies/Mat - CADD**		$10.10	$288.52	$0.00	$2,000.00	$1,711.48	10-499-10-1030-0600-000-0000-2
Accts.Payable	Beginner's Guide to Solid Works 09	$43.35	15021	09/22/2009				Mesa State College
	How to Cheat in 3ds Max	$39.95	15021	09/22/2009				Mesa State College
	Print cartridge	$226.79	15128	10/20/2009				Quill
	M. Snyder business cards	$41.50	15123	10/20/2009				Peczuh Printing Company
	Ink jet bond paper	$36.00	15533	04/29/2010				LK Survey Instruments Inc.
	Calculator batteries	$14.16	15185	11/13/2009				Office Depot
	Lynda com	$25.00	15167	11/13/2009				Card Services-Business Card
	Lynda.com	$25.00	15300	01/20/2010				Card Services-Business Card
	Lynda.com	$25.00	15300	01/20/2010				Card Services-Business Card
	Pop up Book-Peter Pan	$29.99	15365	02/21/2010				Card Services-Business Card
	Pop up Book-Alice in Wonderland	$23.42	15365	02/21/2010				Card Services-Business Card
	Copies	$40.00	15409	03/11/2010				Card Services-Business Card
	Copy paper, dvd+r	$145.77	15384	02/21/2010				Office Depot
	CD/DVD slim cases	$38.00	15384	02/21/2010				Office Depot
	Dated signature stamp	$41.39	15654	06/16/2010				Quill
Journal Entry	Copier charges 7/09	$0.92		08/10/2009				AJ 5
	Long distance 7/09	$3.80		08/11/2009				AJ 12
	Copier charges 8/09	$535.00		09/21/2009				AJ 25
	Long distance 9/09	$4.14		10/14/2009				AJ 39
	Copier charges 10/09	$17.00		11/11/2009				AJ 54
	Long distance 10/09	$0.90		11/11/2009				AJ 56
	Long distance 11/09	$3.97		12/15/2009				AJ 73
	Copier charges 12/09	$14.74		01/15/2010				AJ 89
	Copier charges 1/10	$38.36		02/09/2010				AJ 103
	Long distance 2/10	$1.38		03/09/2010				AJ 118
	Copier charges 2/10	$14.06		03/09/2010				AJ 120
	Long distance 3/10	$0.59		04/12/2010				AJ 139
	Copier charges 3/10	$22.38		04/12/2010				AJ 141
	Long distance 4/10	$0.79		05/10/2010				AJ 151
	Copier charges 4/10	$39.84		05/10/2010				AJ 153
	Long distance 5/10	$0.65		06/15/2010				AJ 169
	Quill/Dated signature stamp	($41.39)	15654	07/12/2010				AJ 197
	Long distance 6/10	$16.52		07/12/2010				AJ 199
eporting Element 10	General Instruction		$10.10	288.52	0.00	2,000.00	$1,711.48	
Fund 10	GENERAL FUND		$10.10	288.52	0.00	2,000.00	$1,711.48	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total:	$10.10	288.52	0.00	2,000.00	$1,711.48	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2010/2011

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510011	**Supplies/Mat - CADD**		$48.64	$1,529.82	$0.00	$2,000.00	$470.18	10-499-10-1030-0600-000-0000-2
Journal Entry	Copier charges 7/10	$3.08		08/09/2010				AJ 9
	Copier charges 8/10	57.98		09/10/2010				AJ 15
	Copier charges 9/10	$189.40		10/14/2010				AJ 25
	Copier charge 10/10	$6.42		11/04/2010				AJ 37
	Long distance 11/10	$1.50		12/09/2010				AJ 51
	Copier charges 11/10	$15.62		12/09/2010				AJ 52
	Copier charges 12/10-2/11	$37.66		03/16/2011				AJ 86
	Copier charges 3/11	$7.36		04/13/2011				AJ 99
	Copier charges 4/11	$9.40		05/17/2011				AJ 116
	Copier charges 5/11-6/11	$10.10		07/14/2011				AJ 148
eporting Element 10	General Instruction		$48.64	1,529.82	0.00	2,000.00	$470.18	
Fund 10	GENERAL FUND		548.64	1,529.82	0.00	2,000.00	$470.18	

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$48.64	1,529.82	0.00	2,000.00	$470.18	

General Fund Expenditure Report

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Grand Valley BOCES

2011/2012

GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510011	Supplies/Mat - CADD		$0.00	$1,529.82	$0.00	$2,000.00	$470.18	10-499-10-1030-0800-000-0000-2
Accts Payable	Compass lead	$15.35	16734	09/27/2011				Card Services-Business Card
	CD-R, DVD-R	$66.98	17056	01/12/2012				Office Depot
	HP portable USB 3.0 HD	$104.49	17056	01/12/2012				Office Depot
	Jewel cases	$41.78	17015	12/22/2011				Quill
	Portable USB HD	($104.49)	17134	02/15/2012				Office Depot
	Portable USB HD	$94.99	17134	02/15/2012				Office Depot
	Print cartridges	$1,229.72	17351	05/10/2012				Quill
	Plotter paper	$48.00	17440	06/12/2012				LK Survey Instruments Inc.
Journal Entry	Copier charges 7/11	$0.50		08/10/2011				AJ 6
	Copier charges 8/11	$0.94		09/20/2011				AJ 18
	Copier charges 9/11	$7.60		10/10/2011				AJ 25
	Copier charges 10/11	$9.62		11/15/2011				AJ 34
	Copier charges 11/11	$3.16		12/07/2011				AJ 42
	Copier charges 12/11	$1.04		12/22/2011				AJ 54
	Copier charges 1/12	$0.40		01/24/2012				AJ 61
	Copier charges 2/12	$3.42		03/07/2012				AJ 81
	Copier 3/12	$5.52		04/10/2012				AJ 90
	Copier charges 4/12	$0.16		05/08/2012				AJ 105
	Copier charges 6/12	$0.64		06/01/2012				AJ 142
eporting Element 10	General Instruction		$0.00	1,529.82	0.00	2,000.00	$470.18	
Fund 10	GENERAL FUND		$0.00	1,529.82	0.00	2,000.00	$470.18	

General Fund Expenditure Report

Printed: 10/10/2012 3:16 PM
Grand Valley BOCES

GENERAL FUND 10
Special Reporting Eleme General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total	$0.00	1,529.82	0.00	2,000.00	$470.18	

General Fund Expenditure Report

Printed: 10/10/2012 11:11 AM
Grand Valley BOCES

2012/2013

GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510011	Supplies/Mat - CADD		$0.00	$1.30	$0.00	$350.00	$348.70	10-499-10-1030-0600-000-0000-2
Journal Entry	Copier charges 8/12	$0.24		08/01/2012				AJ 15
	Copier charges 9/12	$1.06		09/01/2012				AJ 35
eporting Element 10	General Instruction		$0.00	1.30	0.00	350.00	$348.70	
Fund 10	GENERAL FUND		$0.00	1.30	0.00	350.00	$348.70	

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General Fund Expenditure Report

Printed: 10/10/2012 11:11 AM
Grand Valley BOCES

GENERAL FUND 10
Special Reporting Eleme General Instruction

Account	Description	Activity	Activity	Activity	Activity	Current Budget	Budget Balance	State Account Number
		Report Total	$0.00	1.30	0.00	350.00	$348.70	

Prior Year

Printed: 10/10/2012 3:18 PM
Fund 10 GENERAL FUND
Special Reporting Elemen General Instruction

2007/2008

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat-WELDING		($1,665.74)	$9,230.35	$0.00	$12,500.00	$3,269.65	10-499-10-1063-0600-000-0000-2
Accts.Payable	Business Cards - Kem	$29.31	13191	09/19/2007				Pyramid Printing Inc.
	AOSafety glasses - clear	$206.95	13236	10/18/2007				Airgas Intermountain
	Safety Glasses	$24.75	13236	10/18/2007				Airgas Intermountain
	Return DVD	$22.90	13160	09/19/2007				Card Services-Business Card
	Measuring Tapes, Impact Sockets, Ratchet, Hex	$169.02	13160	09/19/2007				Card Services-Business Card
	Gloves	$93.06	13160	09/19/2007				Card Services-Business Card
	Cookie Sheets, Roaster Sets	$79.86	13160	09/19/2007				Card Services-Business Card
	Brooms	$119.64	13160	09/19/2007				Card Services-Business Card
	Galvanized Reducer	$39.76	13160	09/19/2007				Card Services-Business Card
	Oxygen, Steel mix, Argon	$384.89	13236	10/18/2007				Airgas Intermountain
	Oxygen, Acetylene	$243.07	13236	10/18/2007				Airgas Intermountain
	Steel Flat Bar, Steel Angle	$1,001.40	13242	10/18/2007				Bonner Supply
	Gloves	$78.21	13248	10/18/2007				Card Services-Business Card
	Tungsten	$149.76	13236	10/18/2007				Airgas Intermountain
	Renewal AWS for Kem	$80.00	13238	10/18/2007				American Welding Society
	Renewal AWS for McKay	$80.00	13238	10/18/2007				American Welding Society
	Welding Superbook	$9.95	13333	11/14/2007				Card Services-Business Card
	Oxygen, Argon, Acetyline	$197.92	13236	10/18/2007				Airgas Intermountain
	Inside Protective Cover	($7.36)	13236	10/18/2007				Airgas Intermountain
	Inside Protective Cover	$7.36	13236	10/18/2007				Airgas Intermountain
	Rectangle Tube, Deck Plate	$199.40	13330	11/14/2007				Bonner Supply
	Argon, Steelmix	$108.10	13328	11/14/2007				Airgas Intermountain
	Tungoten	$43.14	13308	11/02/2007				Airgas Intermountain
	Tungoten	$43.40	13308	11/02/2007				Airgas Intermountain
	Wheel Brush, Grinding Wheel	$106.38	13343	11/14/2007				Grainger
	Wheel	$48.06	13343	11/14/2007				Grainger
	E7010G 5/32" Rod	$99.90	13328	11/14/2007				Airgas Intermountain
	Anti spatter	$49.27	13328	11/14/2007				Airgas Intermountain
	Torch SL60	$479.31	13328	11/14/2007				Airgas Intermountain
	HD22 50 Nozzle	$15.00	13328	11/14/2007				Airgas Intermountain
	ER7056 035X30#	$341.41	13328	11/14/2007				Airgas Intermountain
	Tip cleaner, Gasless Nozzel, etc.	$287.15	13328	11/14/2007				Airgas Intermountain
	Tweco Style, Standard & Tapered, etc.	$29.61	13328	11/14/2007				Airgas Intermountain
	1132 Mig Tip	$0.92	13328	11/14/2007				Airgas Intermountain
	Tungsten, Radnor, Nozzel, etc.	$301.88	13328	11/14/2007				Airgas Intermountain
	Tungsten	$30.40	13328	11/14/2007				Airgas Intermountain

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
	Scratch Brush	$29.16	13328	11/14/2007				Airgas Intermountain
	HD22-62 Nozzel	$77.80	13328	11/14/2007				Airgas Intermountain
	5/32 Excalibur, 1/8 Excalibur	$230.60	13328	11/14/2007				Airgas Intermountain
	11T30 Mig Tip	$0.46	13328	11/14/2007				Airgas Intermountain
	Oxygen, Argon	$95.69	13328	11/14/2007				Airgas Intermountain
	Rental Invoice	$0.47	13328	11/14/2007				Airgas Intermountain
	Oxygen, Argon, Steelmix	$221.04	13400	12/18/2007				Airgas Intermountain
	Batter, Core Deposit	$59.95	13403	12/18/2007				Bookcliff Auto Parts
	Argon, Acetylene	$400.38	13400	12/18/2007				Airgas Intermountain
	Fuses	$82.00	13428	12/18/2007				Home Depot Processing Center
	Spare parts kit	$377.49	13400	12/18/2007				Airgas Intermountain
	Flat Bar	$122.80	9627	12/21/2007				Bonner Supply
	Flat bar, square tue	$231.45	13465	01/19/2008				Bonner Supply
	Metal Trades Handbook & Training Manual	$68.50	13468	01/19/2008				Card Services-Business Card
	Argon, Steel mix	$333.20	13534	02/19/2008				Airgas Intermountain
	Oxygen	$33.02	13534	02/19/2008				Airgas Intermountain
	Cap	$28.74	13608	02/27/2008				Airgas Intermountain
	Radnor	$27.52	13608	02/27/2008				Airgas Intermountain
	Tig Rod	$27.31	13608	02/27/2008				Airgas Intermountain
	Glasses, Tig Rod, Radnor	$84.82	13608	02/27/2008				Airgas Intermountain
	Safetyglasses, Shield cup	$404.11	13608	02/27/2008				Airgas Intermountain
	Shipping on Spare Parts kit	$6.50	13608	02/27/2008				Airgas Intermountain
	Mig Tip	$22.88	13608	02/27/2008				Airgas Intermountain
	Argon, Steelmix	$196.71	13608	02/27/2008				Airgas Intermountain
	Argon	$104.19	13608	02/27/2008				Airgas Intermountain
	Oxygen, Argon, Steelmix	$250.45	13611	03/11/2008				Airgas Intermountain
	Argon, Acetylene	$232.11	13611	03/11/2008				Airgas Intermountain
	Welding Pliers, Infrared Thermometer, etc.	$82.41	13614	03/11/2008				Card Services-Business Card
	Welding Screen, Radnor, fire Extinguisher	$392.78	13611	03/11/2008				Airgas Intermountain
	8" spools .030 ER70S-6 MIG wire	$480.67	13683	04/10/2008				Airgas Intermountain
	Wet/Dry Vac	$49.97	13697	04/10/2008				Home Depot Processing Center
	Screw Drivers, Valve Ball	$69.70	13688	04/10/2008				Card Services-Business Card
	8" spools .030 ER70S-6 MIG wire	$174.90	13683	04/10/2008				Airgas Intermountain
	Flat Bar	$130.56	13686	04/10/2008				Bonner Supply
	Oxygen, Argon, Steel Mix	$308.95	13740	05/14/2008				Airgas Intermountain
	Argon, Steel mix, Acetylene	$392.33	13740	05/14/2008				Airgas Intermountain
	Shield cup	$8.35	13801	05/28/2008				Airgas Intermountain

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number	
Cash Receipt	K. Kern long distance	($0.54)	446955	09/26/2007					
	D. McKay	($5.00)	943011	03/19/2008					
Journal Entry	Copier charges 7/07	$0.32		07/31/2007				AJ	3
	Copier Charges 8/07	$346.15		09/12/2007				AJ	31
	Copier Charges 9/07	$194.60		10/02/2007				AJ	38
	Long Distance 9/07	$4.16		10/02/2007				AJ	40
	Copier Charges 10/07	$221.40		10/30/2007				AJ	56
	Long Distance 10/07	$4.55		10/31/2007				AJ	57
	Long Distance 11/07	$4.46		12/06/2007				AJ	81
	Copier Charges 11/07	$183.50		12/06/2007				AJ	82
	Long distance 12/07	$11.38		01/13/2008				AJ	111
	Copier Charges 12/07	$73.40		01/17/2008				AJ	113
	Copier Charges 1/08	$27.18		01/31/2008				AJ	124
	Copier Charges 2/08	$204.08		03/06/2008				AJ	156
	Long Distance Charges 1/08-2/08	$10.15		03/06/2008				AJ	158
	Postage 3/08	$0.41		04/02/2008				AJ	172
	Copier Charges 3/08	$138.82		04/02/2008				AJ	174
	Long distance 3/08	$4.67		04/08/2008				AJ	185
	Copier Charges 4/08	$70.36		05/07/2008				AJ	188
	Long distance 4/08	$5.95		05/09/2008				AJ	199
	Long distance 5/08	$0.96		06/02/2008				AJ	207
	Copier charges 5/08	$57.12		06/02/2008				AJ	208
	Airgas/Welding screen, radnor, etc.	($313.50)		06/23/2008				AJ	243
	Airgas/Oxygen, argon, steel mix	($308.95)		06/23/2008				AJ	243
	Airgas/Argon, steel mix	($392.33)		06/23/2008				AJ	243
	Airgas/Mig wire	($480.67)		06/23/2008				AJ	243
	Airgas/Mig wire	($174.90)		06/23/2008				AJ	243
	Long distance 6/08	$4.51		07/07/2008				AJ	256
	Copier charges 6/08	$0.10		07/08/2008				AJ	263
	Bonnor Supply/Steel Flat bar, Steel angle	($1,001.40)	13242	07/24/2008				PY	290
	Airgas/Torch	($479.31)	13328	07/24/2008				PY	290
	Airgas/HD22-62 Nozzle	($72.29)	13328	07/24/2008				PY	290
eporting Element 10	General Instruction		($1,665.74)	9,230.35	0.00	12,500.00	$3,269.65		
Fund 10	GENERAL FUND		($1,665.74)	9,230.35	0.00	12,500.00	$3,269.65		

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total:	($1,665.74)	9,230.35	0.00	12,500.00	53,269.65	

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Prior Year

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Fund 10 GENERAL FUND

Special Reporting Element 10 General Instruction

2008/2009

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat-WELDING		$1,777.75	$11,924.23	$0.00	$12,500.00	$575.77	10-499-10-1063-0600-000-0000-2
Accts.Payable	Torch	$448.93	14016	09/11/2008				Airgas Intermountain
	Adaptor kit	$32.20	14016	09/11/2008				Airgas Intermountain
	Goughing shield tip & cap	$120.80	14016	09/11/2008				Airgas Intermountain
	NIOSH guide, Code of Federal regulations	$118.02	14016	09/11/2008				Airgas Intermountain
	Pipe plug	$52.10	13944	07/30/2008				Airgas Intermountain
	Gloves, helmets, sanding sponges, etc	$128.34	14019	09/11/2008				Card Services-Business Card
	Manifold Union Adaptors	$38.29	14083	10/14/2008				Airgas Intermountain
	Relief valve	$16.75	14016	09/11/2008				Airgas Intermountain
	K. Kern renewal	$80.00	14048	09/24/2008				American Welding Society
	Scrap	($111.40)	14085	10/14/2008				Bonner Supply
	E Resource/Welding Prin. & Appl	$324.95	14052	09/24/2008				Cengage Learning
	Shield cups, cap goughing, etc.	$584.92	14159	11/12/2008				Airgas Intermountain
	Argon, actylene, oxygen	$317.62	14235	12/11/2008				Airgas Intermountain
	Fuel for portable welder	$15.50	14019	09/11/2008				Card Services-Business Card
	First aid supplies	$10.92	14040	09/11/2008				RESPOND First Aid Systems
	Oxygen, argon, steel mix, acetylene	$429.48	14016	09/11/2008				Airgas Intermountain
	Flat bar	$465.79	14085	10/14/2008				Bonner Supply
	Flat bar, square tube	$921.78	14085	10/14/2008				Bonner Supply
	Oxygen, steelmix, argon, actylene	$513.97	14083	10/14/2008				Airgas Intermountain
	K. Kern business cards	$13.92	14106	10/14/2008				Peczuh Printing Company
	Steel mix, argon, oxygen	$326.87	14159	11/12/2008				Airgas Intermountain
	Credit	($2.00)	14083	10/14/2008				Airgas Intermountain
	Face shield, head gear	$120.58	14159	11/12/2008				Airgas Intermountain
	Face shield, head gear	$174.13	14159	11/12/2008				Airgas Intermountain
	Paint pen	$5.87	14159	11/12/2008				Airgas Intermountain
	Mild steel	$32.21	14159	11/12/2008				Airgas Intermountain
	Mig wire	$188.92	14159	11/12/2008				Airgas Intermountain
	3/32" x 36" RG-60 Gas weld rod 5#	$1,536.07	14159	11/12/2008				Airgas Intermountain
	Wire wheels	$43.94	14172	11/12/2008				Grainger
	Welding E Resource	($102.10)	14215	11/25/2008				Cengage Learning
	Acetylene, argon	$713.36	14235	12/11/2008				Airgas Intermountain
	Square tube	$203.68	14368	02/12/2009				Bonner Supply
	Argon, oxygen	$272.70	14436	03/11/2009				Airgas Intermountain
	Oxygen, argon, steel mix	$337.11	14523	04/15/2009				Airgas Intermountain
	Flat bar	$284.94	14527	04/15/2009				Bonner Supply
	Argon, steelmix, argon industrial	$462.89	14523	04/15/2009				Airgas Intermountain

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M-T-D Activity	Y-T-D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number	
	Lincoln electric switch	$48.57	14532	04/15/2009				Card Services-Business Card	
	Cut off wheel, flap disc, grind wheel	$67.98	14603	05/13/2009				Airgas Intermountain	
	Cable lug, notching rad	$29.53	14603	05/13/2009				Airgas Intermountain	
	Argon, industrial argon, carbon dioxide	$403.98	14603	05/13/2009				Airgas Intermountain	
	Mig welder kit	$421.94	14694	06/15/2009				Card Services-Business Card	
	Mig Weldr kit	$433.14	14693	06/15/2009				Card Services-Business Card	
	180 EN mig welder	$414.95	14694	06/15/2009				Card Services-Business Card	
	Gloves	$27.68	14682	06/15/2009				Airgas Intermountain	
	Gloves	$16.61	14682	06/15/2009				Airgas Intermountain	
	Supplies/Mat-WELDING	$97.00	14753	06/25/2009				Airgas Intermountain	
	Welding carts	$305.21	14753	06/25/2009				Airgas Intermountain	
	Aluminum burrs	$45.78	14816	06/30/2009				Card Services-Business Card	
Cash Receipt	K. Kern	($0.28)	236120	03/30/2009					
Journal Entry	Copier charges 7/08	$0.26		07/31/2008				AJ	297
	Copier charges 8/08	$100.10		09/10/2008				AJ	320
	Copier charges 9/08	$39.00		10/06/2008				AJ	328
	Copier charges 10/08	$46.42		11/10/2008				AJ	350
	Long distance 11/08	$0.28		12/09/2008				AJ	369
	Copier charges 11/08	$28.26		12/09/2008				AJ	370
	Copier charges 12/08	$12.50		01/06/2009				AJ	379
	Copier charges 1/09	$36.53		02/04/2009				AJ	398
	Copier charges 2/09	$67.44		03/04/2009				AJ	411
	Copier charges 3/09	$58.74		04/08/2009				AJ	431
	Copier charges 4/09	$14.08		05/11/2009				AJ	444
	Copier charges 4/09	$51.92		05/11/2009				AJ	444
	Copier charges 5/09	$19.12		06/11/2009				AJ	463
	Card Services/Welding/Mig welder kit	($411.85)	14694	06/30/2009				AJ	488
	Card Services/Welding/Mig welder kit	$411.85	14694	06/30/2009				AJ	495
	Airgas/3/32" x 36" RG-60 Gas Weld rod S#	($1,536.07)	14159	06/30/2009				PY	519
	AirgasAcetylene, argon	($713.36)	14235	06/30/2009				PY	519
	Copier charges 6/09	$15.44		07/13/2009				AJ	492
eporting Element 10	General Instruction		$1,777.75	11,924.23	0.00	12,500.00	$575.77		
Fund 10	GENERAL FUND		$1,777.75	11,924.23	0.00	12,500.00	$575.77		

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Fund 10 GENERAL FUND
Special Reporting 10 Elemen General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$1,777.75	11,924.23	0.00	12,500.00	575.77	

General Fund Expenditure Report

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Grand Valley BOCES

2009/2010

Special Reporting Element: General Instruction

Account	Description	Activity		M.T.D. Activity	Y.T.D. Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat-WELDING			$0.00	$12,209.57	$0.00	$12,500.00	$290.43	10-499-10-1063-0600-000-0000-2
Accts.Payable	Steelmix, argon, acetylene	$286.36	14988		09/22/2009				Airgas Intermountain
	Mig welder	$414.95	14994		09/22/2009				Card Services-Business Card
	Hyddraulic tubing bender, angle finder, etc.	$831.96	15085		10/20/2009				Card Services-Business Card
	Oxygen, argon, acetylene, etc.	$1,096.76	15054		09/30/2009				Airgas Intermountain
	K. Kern business cards	$41.50	15123		10/20/2009				Peczuh Printing Company
	First aid supplies	$32.13	15131		10/20/2009				RESPOND First Aid Systems
	Flap discs, grind wheels, etc.	$65.84	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$74.77	15158		11/13/2009				Airgas Intermountain
	Tungsten	$11.00	15158		11/13/2009				Airgas Intermountain
	Tungsten	$12.49	15158		11/13/2009				Airgas Intermountain
	Tungsten	$3.13	15158		11/13/2009				Airgas Intermountain
	Tungsten	$4.18	15158		11/13/2009				Airgas Intermountain
	Tungsten	$3.67	15158		11/13/2009				Airgas Intermountain
	Tungsten	$22.45	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$32.32	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$36.77	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$9.25	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$12.26	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$10.75	15158		11/13/2009				Airgas Intermountain
	Flap discs, grind wheels, etc.	$66.03	15158		11/13/2009				Airgas Intermountain
	Fuel for welders	$12.88	15169		11/13/2009				Conoco Inc
	Fuel for welders	$12.85	15169		11/13/2009				Conoco Inc.
	Hose ferrules	$1.65	15158		11/13/2009				Airgas Intermountain
	K. Kern membership renewal	$80.00	15161		11/13/2009				American Welding Society
	Oxygen . argon	$396.55	15158		11/13/2009				Airgas Intermountain
	Oxygen, argon	$375.70	15230		12/17/2009				Airgas Intermountain
	Torch body, power cable, tungsten electrodes, etc.	$607.53	15234		12/17/2009				Card Services-Business Card
	Angle plug, flush out, switch, clamps, etc.	$272.71	15245		12/17/2009				Home Depot Processing Center
	Acetylene, argon	$704.68	15294		01/20/2010				Airgas Intermountain
	Capacitor, switch	$87.68	15294		01/20/2010				Airgas Intermountain
	Capacitor, switch	$43.20	15294		01/20/2010				Airgas Intermountain
	Resistor	$38.46	15361		02/21/2010				Airgas Intermountain
	Grizzly/Rotary burr, stone set, stubby drill, etc.	$318.20	15365		02/21/2010				Card Services-Business Card

General Fund Expenditure Report

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GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	MYTD Activity	Y-T-D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
	RE Lee/Rapa rounds, minmag, magnetic pattern set,	$198.06	15365	02/21/2010				Card Services-Business Card
	Resistor	$13.93	15361	02/21/2010				Airgas Intermountain
	Argon, acetylene	$484.17	15361	02/21/2010				Airgas Intermountain
	First aid supplies	$4.62	15391	02/21/2010				RESPOND First Aid Systems
	Mig wire, flux core wire	$486.38	15407	03/11/2010				Airgas Intermountain
	Anti spatter, earplugs, safety glasses, etc.	$170.11	15407	03/11/2010				Airgas Intermountain
	Argon, carbon dioxide, acetylene, oxygen	$606.55	15407	03/11/2010				Airgas Intermountain
	Dual flow meter	$289.45	15407	03/11/2010				Airgas Intermountain
	Silicon cap, diffuser, centerfire nozzle, contact	$381.21	15407	03/11/2010				Airgas Intermountain
	Welding gloves	$232.55	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$42.91	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$18.46	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$47.99	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$61.52	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$45.99	15407	03/11/2010				Airgas Intermountain
	Faceshields, earplugs, gloves, headgear, etc.	$30.08	15407	03/11/2010				Airgas Intermountain
	Lincoln metalshield	$134.42	15407	03/11/2010				Airgas Intermountain
	Credit	($47.75)	15407	03/11/2010				Airgas Intermountain
	Credit	($43.20)	15407	03/11/2010				Airgas Intermountain
	Tape measures, welding helmet, multi meters, etc.	$168.51	15365	02/21/2010				Card Services-Business Card
	Argon, steel mix	$467.29	15489	04/13/2010				Airgas Intermountain
	Oxygen, argon, steelmix, etc.	$615.87	15539	05/12/2010				Airgas Intermountain
	First aid supplies	$16.91	15616	05/27/2010				RESPOND First Aid Systems
	Power Mig/80C welder	$689.00	15684	06/30/2010				Airgas Intermountain
	Welding cart	$79.38	15684	06/30/2010				Airgas Intermountain
	Idle roll shaft	$4.71	15684	06/30/2010				Airgas Intermountain
	100SG Spool gun	$193.80	15684	06/30/2010				Airgas Intermountain
	Incoming wire guides SP175	$40.00	15684	06/30/2010				Airgas Intermountain

General Fund Expenditure Report

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GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	Source Account Number	
Accts.Payable	Drive Rolls for SP175Ougoing wire guides SP175 plu	$40.00	15684	06/30/2010				Airgas Intermountain	
Cash Receipt	K. Kern long distance	($0.38)	508080	01/18/2010				Cash	
	K. Kern long distance	($0.21)	507879	02/19/2010				Cash	
	K, Kern long distance	($0.17)	243411	03/15/2010				Cash	
Journal Entry	Copier charges 7/09	$7.36		08/10/2009				AJ	5
	Copier charges 8/09	$113.88		09/21/2009				AJ	26
	Long distance 8/09	$0.38		09/21/2009				AJ	28
	Postage costs 9/09	$1.22		10/14/2009				AJ	38
	Copier charges 10/09	$59.20		11/11/2009				AJ	54
	Copier charges 12/09	$50.90		01/15/2010				AJ	89
	Long distance 1/10	$0.21		02/09/2010				AJ	102
	Copier charges 1/10	$4.82		02/09/2010				AJ	103
	Long distance 2/10	$0.17		03/09/2010				AJ	116
	Copier charges 2/10	$108.34		03/09/2010				AJ	120
	Long distance 3/10	$0.21		04/12/2010				AJ	139
	Copier charges 3/10	$160.90		04/12/2010				AJ	141
	Copier charges 4/10	$209.16		05/10/2010				AJ	153
eporting Element 10	General Instruction		$0.00	12,209.57	0.00	12,500.00	$290.43		
Fund 10	GENERAL FUND		$0.00	12,209.57	0.00	12,500.00	$290.43		

General Fund Expenditure Report

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GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total	$0.00	12,209.57	0.00	12,500.00	$290.43	

General Fund Expenditure Report

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Grand Valley BOCES

2000/200

GENERAL FUND (1)
Special Reporting Element: General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat - Welding			$0.00 $12,998.55	$0.00	$12,500.00	($498.55)	10-499-10-1063-0600-000-0000-2
Accts.Payable	Douglas fir, brackets for shelves	$96.90	15757	08/13/2010				Home Depot Processing Center
	Upright track	$38.08	15757	08/13/2010				Home Depot Processing Center
	Welding cart	($79.38)	15741	08/13/2010				Airgas Intermountain
	Welding cart, feed kit	$243.23	15741	08/13/2010				Airgas Intermountain
	First aid supplies	$10.96	15820	08/30/2010				RESPOND First Aid Systems
	Inkjet cartridges	$113.35	15952	10/20/2010				Quill
	Safety glasses, lens, face shields, etc.	$344.64	15915	10/20/2010				Airgas Intermountain
	Ear plugs	$18.55	15915	10/20/2010				Airgas Intermountain
	Safety glasses	$37.85	15915	10/20/2010				Airgas Intermountain
	Safety glasses, headgear	$605.75	15915	10/20/2010				Airgas Intermountain
	Mild steel	$17.86	15915	10/20/2010				Airgas Intermountain
	Mild steel	$144.32	15915	10/20/2010				Airgas Intermountain
	Ear plugs	$18.55	15915	10/20/2010				Airgas Intermountain
	Acetylene, oxygen	$806.86	15915	10/20/2010				Airgas Intermountain
	Wheel chock w/eye bolt, solderless terminal kit, e	$145.10	15920	10/20/2010				Card Services-Business Card
	Fuel for welders	$15.00	15923	10/20/2010				Conoco Inc.
	Fuel	$15.10	15923	10/20/2010				Conoco Inc.
	Tungsten	$18.92	15915	10/20/2010				Airgas Intermountain
	Torch body, mild steel, nozzles, etc.	$1,181.47	15920	10/20/2010				Card Services-Business Card
	Proppane, nozzles, hole strap, etc.	$85.97	15932	10/20/2010				Home Depot Processing Center
	J. Sinclair, K. Kern business cards	$61.74	15947	10/20/2010				Peczuh Printing Company
	Ball valves, nitrll gloves, epoxy, etc.	$157.85	15977	11/15/2010				Card Services-Business Card
	Welding jackets, coats, sweatbands	$902.50	16005	11/15/2010				High Country Gas & Supply
	Oxygen, acetylene, argon	$433.36	16005	11/15/2010				High Country Gas & Supply
	Oxygen, argon	$220.35	16005	11/15/2010				High Country Gas & Supply
	Oxygen, argon, pliers, flints, etc.	$150.23	16005	11/15/2010				High Country Gas & Supply
	Cylinder rental/oxygen	$6.09	16005	11/15/2010				High Country Gas & Supply
	Casters, xtreme tape, work gloves, etc.	$197.72	15977	11/15/2010				Card Services-Business Card
	Balance on Welding Depot order	$40.00	15977	11/15/2010				Card Services-Business Card
	Wire wheels, wheels, etc.	$120.92	16089	11/30/2010				Grainger
	48 x 96 expanded metal	$368.90	16106	12/13/2010				Bonner Supply
	Resistors	$22.77	16108	12/13/2010				Card Services-Business Card

General Fund Expenditure Report

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GENERAL FUND 10
Special Reporting Element General Instruction

Account	Description	Activity	P.O.	Activity Date	Encumb.	Current Budget	Budget Balance	State Account Number
	Oxygen, acetylene, argon	$383.29	16113	12/13/2010				High Country Gas & Supply
	Pizza	$43.71	16216	02/21/2011				Card Services-Business Card
	Center fire adaptor	$122.40	16184	01/19/2011				High Country Gas & Supply
	Diffusers, cap Q gun, nozzles, tips, etc.	$974.30	16184	01/19/2011				High Country Gas & Supply
	Oxygen	$41.50	16184	01/19/2011				High Country Gas & Supply
	Argon	$99.80	16184	01/19/2011				High Country Gas & Supply
	Welding cap	$7.25	16184	01/19/2011				High Country Gas & Supply
	Art Silhouttes, Metal Projects, etc.	$60.05	16195	01/28/2011				Goodheart-Willcox Co. Inc.
	Oxygen, acetylene	$269.65	16226	02/21/2011				High Country Gas & Supply
	Center fire tip	($14.00)	16226	02/21/2011				High Country Gas & Supply
	First aid supplies	$5.52	16245	02/21/2011				RESPOND First Aid Systems
	Die set, tubing roller	$207.98	16280	03/21/2011				Card Services-Business Card
	Argon, argon mix	$278.35	16297	03/21/2011				High Country Gas & Supply
	Cylinder rental	$2.90	16297	03/21/2011				High Country Gas & Supply
	Oxygen, argon	$237.40	16297	03/21/2011				High Country Gas & Supply
	Oxygen, argon	$155.50	16297	03/21/2011				High Country Gas & Supply
	Oxygen, argon	$134.75	16297	03/21/2011				High Country Gas & Supply
	Oxygen, argon	$218.50	16297	03/21/2011				High Country Gas & Supply
	Storage bins	$263.12	16444	04/15/2011				Card Services-Business Card
	Tungsten electrodes, work gloves, grinding disc	$302.58	16444	04/15/2011				Card Services-Business Card
	Data Studio	$374.00	16444	04/15/2011				Card Services-Business Card
	Square tube, flat	$281.66	16400	04/15/2011				Bonner Supply
	Soluble oil	$79.55	16444	04/15/2011				Card Services-Business Card
	Chain Shackels	$11.96	16444	04/15/2011				Card Services-Business Card
	Chain Shackels	$25.40	16444	04/15/2011				Card Services-Business Card
	Drill bits	$48.75	16444	04/15/2011				Card Services-Business Card
	Crimped wire wheel	$51.66	16444	04/15/2011				Card Services-Business Card
	Welding Wire	$303.60	16413	04/15/2011				High Country Gas & Supply
	Oxygen, acetylene, argon mix	$250.81	16413	04/15/2011				High Country Gas & Supply
	Argon mix	$76.15	16413	04/15/2011				High Country Gas & Supply
	Supplies/Mat-Welding	$44.72	16545	06/22/2011				Card Services-Business Card
	Restaurant charges K. Kern	$23.37	16554	06/22/2011				Grand Valley BOCES
	Argon, argon mic	$298.30	16596	06/29/2011				High Country Gas & Supply
	Oxygen	$38.07	16596	06/29/2011				High Country Gas & Supply
	Grinding wheels	$34.40	16596	06/29/2011				High Country Gas & Supply

General Fund Expenditure Report

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GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
	Oxygen, argon mix,	$269.95	16596	06/29/2011				High Country Gas & Supply
	Credit	($2.90)	16596	06/29/2011				High Country Gas & Supply
Journal Entry	Copier charges 7/10	$0.16		08/09/2010				AJ 9
	Copier charges 8/10	$0.18		09/10/2010				AJ 15
	Copier charges 9/10	$84.12		10/14/2010				AJ 25
	Copier charges 10/10	$129.26		11/04/2010				AJ 37
	Copier charges 11/10	$44.96		12/09/2010				AJ 52
	Long Distance 12/10	$4.57		01/12/2011				AJ 66
	Copier charges 12/10-2/11	$40.02		03/15/2011				AJ 86
	Long distance 2/11	$7.19		03/16/2011				AJ 90
	Copier charges 3/11	$12.78		04/13/2011				AJ 99
	Long distance 3/11	$7.54		04/13/2011				AJ 100
	Band saw blade	$48.00	per K. Kern	05/14/2011				AJ 108
	Long distance 4/11	$2.79		05/17/2011				AJ 115
	Copier charges 4/11	$10.00		05/17/2011				AJ 116
	Long distance 5/11-6/11	$16.07		07/14/2011				AJ 146
	Copier charges 5/11-6/11	$25.40		07/14/2011				AJ 148
eporting Element 10	General Instruction		$0.00	12,998.55	0.00	12,500.00	($498.55)	
Fund 10	GENERAL FUND		$0.00	12,998.55	0.00	12,500.00	($498.55)	

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General Fund Expenditure Report

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Special Reporting Element: General Instruction

Account	Description	Activity	Y-T-D Activity	Y-T-D Activity Encumbrances	Current Budget	Budget Balance	State Account Number
		Report Total	$0.00	12,998.55	0.00	12,500.00	($498.55)	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	YTD Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat - Welding	($772.61)	$16,737.21	$0.00	$14,500.00	($2,237.21)	10-499-10-1063-0600-000-0000-2
Accts.Payable	Shop vac, power plug etc.	$446.88	16752	09/27/2011			Home Depot Processing Center
	Grinding wheels, cut off wheels, flap disc	$247.10	16751	09/27/2011			High Country Gas & Supply
	Welding tips	$88.00	16751	09/27/2011			High Country Gas & Supply
	K. Kern annual membership renewal	$80.00	16728	09/27/2011			American Welding Society
	Welding rod	$35.50	16804	10/13/2011			High Country Gas & Supply
	Grinder kit, chop saw, sander, etc.	$792.96	16752	09/27/2011			Home Depot Processing Center
	Casters, air needle, swivel pad, wire stripper	$455.39	16790	10/13/2011			Card Services-Business Card
	Credit for coupons	($82.71)	16790	10/13/2011			Card Services-Business Card
	Stainless steel, mild steel, HR flat & strip	$1,320.33	16818	10/13/2011			Pacific Steel & Recycling
	Welding tips, gas rod	$110.00	16804	10/13/2011			High Country Gas & Supply
	Headgear, faceshields	$385.85	16804	10/13/2011			High Country Gas & Supply
	Oxygen, acetylene	$154.99	16804	10/13/2011			High Country Gas & Supply
	Oxygen, acetylene	$246.22	16804	10/13/2011			High Country Gas & Supply
	Oxygen, acetylene	$188.84	16804	10/13/2011			High Country Gas & Supply
	Rubber couplings, fuse, concrete seal, etc.	$61.07	16807	10/13/2011			Home Depot Processing Center
	First aid supplies	$23.58	16672	08/12/2011			RESPOND First Aid Systems
	Posters matted on foam board	$279.36	16734	09/27/2011			Card Services-Business Card
	Thermal tip, plasma tip, electrodes, etc.	$269.70	16955	11/17/2011			High Country Gas & Supply
	Tool box, dividers organizer tray, template, etc.	$210.90	16936	11/17/2011			Card Services-Business Card
	Casters	$76.18	16936	11/17/2011			Card Services-Business Card
	Welding jackets	$484.00	16955	11/17/2011			High Country Gas & Supply
	Welding gloves	$338.80	16955	11/17/2011			High Country Gas & Supply
	Oxygen	$43.50	16955	11/17/2011			High Country Gas & Supply
	Oxygen, argon	$143.30	16955	11/17/2011			High Country Gas & Supply
	Back cap, handle, tig torch stand, etc.	$120.29	16856	12/22/2011			Card Services-Business Card
	Bend Tech bending software	$659.00	16856	12/22/2011			Card Services-Business Card
	Level	$12.99	16856	12/22/2011			Card Services-Business Card
	Gray primer, navy paint	$39.70	16876	12/22/2011			Home Depot Processing Center
	Gear oil, engine degreaser, hydraulic jack oil	$38.90	16856	12/22/2011			Card Services-Business Card
	Oxygen, acetylene, argon	$444.34	16874	12/22/2011			High Country Gas & Supply
	Oxygen, argon	$145.15	16874	12/22/2011			High Country Gas & Supply
	Dust mop	$22.73	16856	12/22/2011			Card Services-Business Card
	Protection plates for helmets	$107.95	17031	01/12/2012			Card Services-Business Card
	Pipe wedges	$67.24	17031	01/12/2012			Card Services-Business Card
	Phenolic wheels	$243.31	17031	01/12/2012			Card Services-Business Card
	Arc carbons, wands	$186.75	17043	01/12/2012			High Country Gas & Supply

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	Source Account Number
	Brroms	$33.12	17016	12/22/2011				Sams Club Direct
	Gloss black paint	$28.78	17031	01/12/2012				Card Services-Business Card
	Oxygen, argon	$93.40	17043	01/12/2012				High Country Gas & Supply
	Acetylene, argon	$509.49	17043	01/12/2012				High Country Gas & Supply
	Welding rod	$833.98	17043	01/12/2012				High Country Gas & Supply
	Working gloves	$92.50	17043	01/12/2012				High Country Gas & Supply
	Pizza	$45.00	17031	01/12/2012				Card Services-Business Card
	Rolodex	$34.39	17101	01/31/2012				Quill
	Angle, pliers, welding helmets, etc.	$1,230.89	17109	02/15/2012				Card Services-Business Card
	Acetone	$16.96	17092	01/31/2012				Home Depot Processing Center
	Scotch brite pad	$21.48	17109	02/15/2012				Card Services-Business Card
	Pipe, HR steel, etc.	$584.23	17135	02/15/2012				Pacific Steel & Recycling
	Torpedo standard levels	$51.96	17109	02/15/2012				Card Services-Business Card
	Chipping hammers, flint strikers, tip cleaner, etc	$26.80	17121	02/15/2012				High Country Gas & Supply
	Welding Inspection Handbook, workbook, etc	$316.83	17109	02/15/2012				Card Services-Business Card
	HR strip, flat, sheet	$714.11	17135	02/15/2012				Pacific Steel & Recycling
	Paint	$35.92	17109	02/15/2012				Card Services-Business Card
	Oxygen, argon	$341.80	17121	02/15/2012				High Country Gas & Supply
	Oxygen, argon	$95.25	17121	02/15/2012				High Country Gas & Supply
	Oxygen, argon	$71.65	17121	02/15/2012				High Country Gas & Supply
	HR strip, HF flat	$788.42	17135	02/15/2012				Pacific Steel & Recycling
	HR strip, alum flat, sheet 4 x 10	$1,144.45	17135	02/15/2012				Pacific Steel & Recycling
	Weldign helmet	$119.00	17109	02/15/2012				Card Services-Business Card
	Fuel for welders	$14.55	17184	03/08/2012				Conoco Inc.
	Galvanized pail	$59.82	17177	03/08/2012				Card Services-Business Card
	Oxygen, argon	$239.40	17189	03/08/2012				High Country Gas & Supply
	Work gloves, gases	$64.50	17189	03/08/2012				High Country Gas & Supply
	Oxyge, argon, acetylene	$451.14	17189	03/08/2012				High Country Gas & Supply
	Padlocks	$146.74	17177	03/08/2012				Card Services-Business Card
	Welding rod	($132.50)	17478	06/20/2012				High Country Gas & Supply
	Acetylene, oxygen	$73.76	17478	06/20/2012				High Country Gas & Supply
	Shipping on locks	$20.78	17474	06/13/2012				Card Services-Business Card
Journal Entry	Copier charges 7/11	$0.60		08/10/2011				AJ 6
	Copier charges 8/11	$20.20		09/20/2011				AJ 18
	Copier charges 9/11	$48.50		10/10/2011				AJ 26
	Long distance 9/11	$23.37		10/11/2011				AJ 28
	Long distance 10/11	$0.33		11/15/2011				AJ 33
	Copier charges 10/11	$48.44		11/16/2011				AJ 38

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Elemen General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	Trans	Account Number
Journal Entry	Long distance 11/11 - 12/11	$10.97		12/21/2011				AJ	52
	Copier charges 12/11	$15.82		12/22/2011				AJ	54
	Copier charges 1/12	$26.62		01/24/2012				AJ	61
	Long distance 1/12	$20.50		02/08/2012				AJ	70
	Postage 1/12	$1.68		02/08/2012				AJ	71
	Long distance 2/12	$19.00		03/07/2012				AJ	79
	Copier charges 2/12	$36.58		03/07/2012				AJ	81
	Copier 3/12	$22.50		04/10/2012				AJ	90
	Long distance 3/12	$19.64		04/10/2012				AJ	91
	Long distance 4/12	$8.58		05/08/2012				AJ	104
	Copier charges 4/12	$11.22		05/08/2012				AJ	105
	Long distance 6/12	$28.04		06/01/2012				AJ	141
	Copier charges 6/12	$30.26		06/01/2012				AJ	142
	Long distance 5/12	$22.63		06/06/2012				AJ	119
	Welding/Card Srvs/Grinder kit, chop saw, sa	($792.95)	16752	06/27/2012				AJ	127
sporting Element 10	General Instruction		($772.61)	16,737.21	0.00	14,500.00	($2,237.21)		
Fund 10	GENERAL FUND		($772.61)	16,737.21	0.00	14,500.00	($2,237.21)		

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	MTD Activity	YTD Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	($772.61)	16,737.21	0.00	14,500.00	($2,237.21)	

General Fund Expenditure Report

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2012 / 2013

Special Reporting Element: General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510019	Supplies/Mat - Welding		$5,126.97	$6,859.66	$4,115.19	$14,500.00	$3,525.15	10-499-10-1063-0600-000-0000-2
Accts Payable	Refill first aid stations	$33.46	17635	09/05/2012				RESPOND First Aid Systems
	K. Kern AWS membership	$82.00	17645	09/13/2012				Card Services-Business Card
	AWS Publications	$189.94	17645	09/13/2012				Card Services-Business Card
	HR strip, HR flat	$986.41	17661	09/13/2012				Pacific Steel & Recycling
	Business cards	$16.94	17645	09/13/2012				Card Services-Business Card
	Thermal tips, plasma tips, start cartridge, etc.	$431.78	0					High Country Gas & Supply
	Angle grinders, lube spray, hose repair kits, etc.	$210.44	17697	09/26/2012				Home Depot Processing Center
	Crimped wire wheels	$145.28	0					Grainger
	Nozzles, back cap, collett, handle, etc.	$517.48	0					Card Services-Business Card
	Oxygen, acetylene	$115.22	17696	09/26/2012				High Country Gas & Supply
	Flat soap, flint strikers, safety glasses, etc.	$448.59	0					High Country Gas & Supply
	Diffusers, nozzles, tips, adaptors	$364.84	0					High Country Gas & Supply
	HR strip, HR flat	$478.66	0					Pacific Steel & Recycling
	Oxygen, argon	$122.21	0					High Country Gas & Supply
	Oxygen, acetylene, argon	$870.92	0					High Country Gas & Supply
	Oxygen, acetylene	$377.76	0					High Country Gas & Supply
	Oxygen, acetylene, argon	$498.70	0					High Country Gas & Supply
	S cylinders	$870.75	0					High Country Gas & Supply
Journal Entry	Copier charges 7/12	$2.80		07/01/2012				AJ 10
	Copier charges 8/12	$16.72		08/01/2012				AJ 15
	Long distance 9/12	$7.16		09/01/2012				AJ 33
	Copier charges 9/12	$71.60		09/01/2012				AJ 35
porting Element 10	General Instruction		5,126.97	6,859.66	4,115.19	14,500.00	3,525.15	
Fund 10	GENERAL FUND		5,126.97	6,859.66	4,115.19	14,500.00	3,525.15	

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General Fund Expenditure Report

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Special Reporting Element: General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total	55,126.97	6,869.66	4,115.19	14,500.00	$3,525.15	

General Fund Expenditure Report

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Grand Valley BOCES

2012/2013

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
GENERAL FUND					10			
Special Reporting Eleme	General Instruction							
10100510016	Supplies/Mat - Machining		$84.00	$365.60	$0.00	$7,000.00	$6,634.40	10-499-10-1050-0600-000-0000-2
Accts.Payable	Long distance 6/12	$1.54	17576	08/08/2012				Colorado Mesa Universtiy
	Refill first aid stations (Construction)	$25.45	17635	09/05/2012				RESPOND First Aid Systems
	Security camera signs	$84.00	0					Card Services-Business Card
Journal Entry	Postage costs 7/12	$6.65		07/01/2012				AJ 11
	Copier charges 8/12	$77.02		08/01/2012				AJ 15
	Postage costs 9/12	$23.30		09/01/2012				AJ 34
	Copier charges 9/12	$147.64		09/01/2012				AJ 35
eporting Element 10	**General Instruction**		$84.00	365.60	0.00	7,000.00	$6,634.40	
Fund 10	**GENERAL FUND**		$84.00	365.60	0.00	7,000.00	$6,634.40	

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General Fund Expenditure Report

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GENERAL FUND	10						
Special Reporting Eleme	General Instruction						
Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total	$84.00	365.60	0.00	7,000.00	$6,634.40	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting 10 Elemen General Instruction

2011 / 2012

Account	Description	Activity		M.T.D. Activity	Y.T.D. Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510016	Supplies/Mat - Machining			$493.15	$5,921.32	$0.00	$7,000.00	$1,078.68	10-499-10-1050-0600-000-0000-2
Accts.Payable	Welding cart	$217.00	16727	09/27/2011					Airgas Intermountain
	Bookstore/Teacher book	$109.00	16743	09/27/2011					Colorado Mesa Universtiy
	Bookstore/Teacher book	($109.00)	16794	10/13/2011					Colorado Mesa Universtiy
	Cabinets	$584.61	16772	09/27/2011					Sams Club Direct
	Flange nute	$12.86	16790	10/13/2011					Card Services-Business Card
	Storage cabinet	$194.67	16823	10/13/2011					Sams Club Direct
	Padlock	$5.97	16807	10/13/2011					Home Depot Processing Center
	Xmet purple	$4.97	16790	10/13/2011					Card Services-Business Card
	First aid supplies	$11.43	16672	08/12/2011					RESPOND First Aid Systems
	Hazard tape	$37.99	16734	09/27/2011					Card Services-Business Card
	Spool gun	$205.00	16955	11/17/2011					High Country Gas & Supply
	Spray paint	$33.22	16936	11/17/2011					Card Services-Business Card
	Wheel cutter, deburring wheel	$129.12	16969	11/17/2011					MSC Industrial Supply
	Print cartridges	$248.62	16976	11/17/2011					Quill
	Buffer	$295.21	16936	11/17/2011					Card Services-Business Card
	Aluminum round	$162.80	16886	12/22/2011					Pacific Steel & Recycling
	4 port USB, flash drive	$96.50	16856	12/22/2011					Card Services-Business Card
	Welding tips	$7.49	16856	12/22/2011					Card Services-Business Card
	Vinyl floor for tape	$24.53	17031	01/12/2012					Card Services-Business Card
	Krylon X metallic paint	$4.97	17059	01/12/2012					Petty Cash
	Service manuals	$173.68	17054	01/12/2012					Monktons Machine Tools Inc.
	1 3/4" aluminum round	$84.94	17058	01/12/2012					Pacific Steel & Recycling
	1 3/4" aluminum round	$84.94	17058	01/12/2012					Pacific Steel & Recycling
	Flash drives, 4-port USB	$39.98	17031	01/12/2012					Card Services-Business Card
	Poster frames	$87.69	17109	02/15/2012					Card Services-Business Card
	Pinion, bearing, worm gear, etc.	$168.75	17109	02/15/2012					Card Services-Business Card
	Toggle boot, toggle switch, cord grip, etc.	$63.10	17109	02/15/2012					Card Services-Business Card
	Silicone	$158.22	17177	03/08/2012					Card Services-Business Card
	Combo locks	$29.94	17177	03/08/2012					Card Services-Business Card
	Flat washers, screws, hex nuts, etc	$632.56	17177	03/08/2012					Card Services-Business Card
	Dowel pins, tool blanks	$447.63	17262	04/12/2012					Card Services-Business Card
	Round tube	$48.86	17265	04/12/2012					Pacific Steel & Recycling
	End mills, edge finders	$250.44	17262	04/12/2012					Card Services-Business Card
	Hex key sets, tap wrenches, etc.	$436.79	17262	04/12/2012					Card Services-Business Card
	Heavy Duty hand cleanser	$46.65	17288	04/12/2012					Sanitary Supply Co.
	End mill storage index	$116.82	17315	05/10/2012					Card Services-Business Card

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
	Aluminum retianer with glass	$137.70	17372	06/12/2012				Card Services-Business Card
	R8 collett	$67.75	17372	06/12/2012				Card Services-Business Card
	DVD recorder, DVD-R	$207.94	17372	06/12/2012				Card Services-Business Card
	Aluminum retainer w/glass face	$74.56	17372	06/12/2012				Card Services-Business Card
Journal Entry	Copier charges 7/11	$0.36		08/10/2011				AJ 6
	Copier charges 8/11	$24.44		09/20/2011				AJ 18
	Copier charges 9/11	$74.22		10/10/2011				AJ 25
	Copier charges 10/11	$18.12		11/15/2011				AJ 34
	Copier charges 11/11	$4.00		12/07/2011				AJ 42
	Long distance 11/11 - 12/11	$1.03		12/21/2011				AJ 52
	Copier charges 12/11	$12.78		12/22/2011				AJ 54
	Copier charges 1/12	$81.06		01/24/2012				AJ 61
	Copier charges 2/12	$18.24		03/07/2012				AJ 81
	Copier 3/12	$24.46		04/10/2012				AJ 90
	Copier charges 4/12	$19.76		05/08/2012				AJ 106
	Copier charges 6/12	$5.20		06/01/2012				AJ 142
	Postage costs 5/12	$1.55		06/06/2012				AJ 118
eporting Element 10	General Instruction		$493.15	5,921.32	0.00	7,000.00	$1,078.68	
Fund 10	GENERAL FUND		$493.15	5,921.32	0.00	7,000.00	$1,078.68	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Elemer General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$493.15	5,921.32	0.00	7,000.00	$1,078.68	

Prior Year

Printed: 10/10/2012 8:21 AM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2010/2011

Account	Description	Activity		M-T-D Activity	Y-T-D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510016	Supplies/Mat - Machining			$0.00	$5,921.32	$0.00	$6,000.00	$78.68	10-499-10-1050-0600-000-0000-2
Accts.Payable	A. Williford. B. McCracken business cards	$61.74	15947		10/20/2010				Peczuh Printing Company
	Nozzle, hose rel, water hose, etc.	$274.51	15920		10/20/2010				Card Services-Business Card
	Socket set	$199.00	15920		10/20/2010				Card Services-Business Card
	Padlock	56.94	16216		02/21/2011				Card Services-Business Card
	Void Long distance	50.01	16237		02/21/2011				Mesa State College
	Void Telephones 11-12/10	$66.00	16237		02/21/2011				Mesa State College
	Telephones	$66.00	16563		06/22/2011				Mesa State College
	First aid supplies	$146.33	15820		08/30/2010				RESPOND First Aid Systems
	Aluminum flat stock, rolled steel flat sock	$91.44	15833		09/20/2010				Bonner Supply
	Broom handles	$102.34	15886		10/01/2010				Card Services-Business Card
	Pizza for meeting	$38.95	15977		11/15/2010				Card Services-Business Card
	Flat steel	$81.86	16268		03/21/2011				Bonner Supply
	Void Honda engines	$300.00	9885		02/11/2011				American Honda Motor Co
	First aid supplies	$4.21	16245		02/21/2011				RESPOND First Aid Systems
	Void Honda engines	($300.00)	9885		02/11/2011				American Honda Motor Co
	Long distance and telephone charges	$39.85	16308		03/21/2011				Mesa State College
	Acid brush, ear plugs	$46.73	16444		04/15/2011				Card Services-Business Card
	Telephone charges 3/11	$33.00	16423		04/15/2011				Mesa State College
	Void Long distance	($0.01)	16237		02/21/2011				Mesa State College
	Void Telephones 11-12/10	($66.00)	16237		02/21/2011				Mesa State College
	Long distance	$0.01	16423		04/15/2011				Mesa State College
	Telephone 11-12/10	$66.00	16423		04/15/2011				Mesa State College
	Rake shims, lock pins, screws, etc.	$3,512.10	16529		05/26/2011				MSC Industrial Supply
	Slide bolt, padlock	$10.05	16556		06/22/2011				Home Depot Processing Center
	Lincoln wire feed, nozzles, liner, etc.	$1,413.90	16596		06/29/2011				High Country Gas & Supply
	Aluminum round, brass rod, hardwate, etc.	$360.27	16625		06/30/2011				Pacific Steel & Recycling
	Aluminum round, brass rod, hardwate, etc.	$319.50	16625		06/30/2011				Pacific Steel & Recycling
	Telephones 6/11	$66.00	16624		06/30/2011				Mesa State College
Journal Entry	Long distance 7/10	$1.20			08/09/2010				AJ 8
	Copier charges 7/10	$0.16			08/09/2010				AJ 9
	Long distance 8/10	$0.57			09/10/2010				AJ 13
	Copier charges 9/10	$150.90			10/14/2010				AJ 25
	Copier charge 10/10	$15.26			11/04/2010				AJ 37
	Copier charges 11/10	$65.72			12/09/2010				AJ 52
	Copier charges 12/10-2/11	$67.50			03/15/2011				AJ 86
	Copier charges 3/11	$5.88			04/13/2011				AJ 99
	Long distance 3/11	$0.51			04/13/2011				AJ 100

Prior Year

Printed: 10/10/2012 8:21 AM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb	Current Budget	Budget Balance	State Account Number	
Journal Entry	Band saw blade	($48.00)	per K. Kern	05/14/2011				AJ	108
	Long distance 4/11	$1.75		05/17/2011				AJ	115
	Copier charges 4/11	$26.06		05/17/2011				AJ	116
	Long distance 5/11-6/11	$0.26		07/14/2011				AJ	146
	Copier charges 5/11-6/11	$28.60		07/14/2011				AJ	148
eporting Element 10	General Instruction		$0.00	5,921.32	0.00	6,000.00	$78.68		
Fund 10	GENERAL FUND		$0.00	5,921.32	0.00	6,000.00	$78.68		

Prior Year

Printed: 10/10/2012 8:21 AM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$0.00	5,921.32	0.00	6,000.00	$78.68	

Prior Year

Printed: 10/10/2012 8:22 AM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2009/2010

Account	Description	Activity		M-T-D Activity	Y-T-D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510016	Supplies/Mat - Machining			$0.00	$7,257.10	$0.00	$4,200.00	($3,057.10)	10-499-10-1050-0600-000-0000-2
Accts.Payable	FeatureCam annual maintenance fee	$200.00	15092		10/20/2009				Delcam USA
	A. Williford business cards	$41.50	15123		10/20/2009				Peczuh Printing Company
	First aid supplies	$8.88	15131		10/20/2009				RESPOND First Aid Systems
	Engines	$100.00	15287		12/23/2009				Honda Power Equipment
	First aid supplies	$22.02	15391		02/21/2010				RESPOND First Aid Systems
	Cutting fluids	$449.26	15503		04/13/2010				MSC Industrial Supply
	Pick up & recycle used coolant	$145.00	15509		04/13/2010				Safety-Kleen
	3D printer supplies, Home Depot/Reimb org	$300.71	15608		05/27/2010				Mesa State College
	Threaded black pipe	$15.71	15598		05/27/2010				Bonner Supply
	Pizzas for meeting	$30.00	15628		06/16/2010				Card Services-Business Card
	Belts	$19.41	15628		06/16/2010				Card Services-Business Card
	Wrenches, fastening nuts, gages, etc.	$1,213.31	15648		06/16/2010				MSC Industrial Supply
	First aid supplies	$4.21	15615		05/27/2010				RESPOND First Aid Systems
	Skills work shirt	$102.25	15628		06/16/2010				Card Services-Business Card
	Materials for shed	$1,350.00	15635		06/16/2010				Grand Valley BOCES-SBA
Journal Entry	Copier charges 7/09	$0.08			08/10/2009				AJ 5
	Long distance 7/09	$2.03			08/11/2009				AJ 12
	Long distance 8/09	$0.61			09/21/2009				AJ 28
	Copier charges 8/09	$53.14			09/21/2009				AJ 26
	Copier charges 10/09	$29.10			11/11/2009				AJ 54
	Long distance 10/09	$11.25			11/11/2009				AJ 56
	Long distance 11/09	$3.82			12/15/2009				AJ 73
	Long distance 12/09	$1.90			01/15/2010				AJ 88
	Copier charges 12/09	$16.24			01/15/2010				AJ 89
	Long distance 1/10	$10.01			02/09/2010				AJ 102
	Copier charges 1/10	$28.42			02/09/2010				AJ 103
	Long distance 2/10	$1.10			03/09/2010				AJ 118
	Copier charges 2/10	$80.80			03/09/2010				AJ 120
	Long distance 3/10	$1.61			04/12/2010				AJ 139
	Copier charges 3/10	$112.54			04/12/2010				AJ 141
	Long distance 4/10	$32.50			05/10/2010				AJ 151
	Postage 4/10	$2.07			05/10/2010				AJ 152
	Copier charges 4/10	$122.94			05/10/2010				AJ 153
	Long distance 5/10	$4.18			06/15/2010				AJ 169
	Long distance 6/10	$25.21			07/12/2010				AJ 199
eporting Element 10	General Instruction			$0.00	7,257.10	0.00	4,200.00	($3,057.10)	
Fund 10	GENERAL FUND			$0.00	7,257.10	0.00	4,200.00	($3,057.10)	

Prior Year

Printed: 10/10/2012 8:22 AM
Fund 10 GENERAL FUND
Special Reporting 1 Elemen General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$0.00	7,257.10	0.00	4,200.00	(53,057.10)	

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2008/2009

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
10100510016	**Supplies/Mat-Machining**		$0.00	$4,575.81	$0.00	$4,200.00	($375.81)	10-499-10-1050-0600-000-0000-2
Accts.Payable	Calibration for Rockwell hardness tester	$180.00	14145	10/29/2008				Combs, David
	First aid supplies	$4.21	14040	09/11/2008				RESPOND First Aid Systems
	Shipping charge for donated Honda Equipment	$100.00	9654	09/15/2008				Honda Power Equipment
	Safety glasses	$15.87	14235	12/11/2008				Airgas Intermountain
	Wypall L30 wipes 1/4 fold 12.5 x 14.4	$225.00	14235	12/11/2008				Airgas Intermountain
	Safety glasses	$10.58	14235	12/11/2008				Airgas Intermountain
	Breaker box	$1,995.30	14247	12/11/2008				Grainger
	Tramp oil recovery	$200.00	14289	12/18/2008				Safety Kleen
	Air hose	$25.33	14300	01/12/2009				Bookcliff Auto Parts
	Air hose	($33.98)	14300	01/12/2009				Bookcliff Auto Parts
	Air hose, hose barbs	$59.31	14300	01/12/2009				Bookcliff Auto Parts
	Pipe fittings and lockout protection	$28.93	14275	12/18/2008				Home Depot Processing Center
	Pipe fittings	$3.74	14275	12/18/2008				Home Depot Processing Center
	Pipe fittings	$6.52	14275	12/18/2008				Home Depot Processing Center
	VF-2 Milling machine, SL10 lathe	$137,370.00	14274	12/18/2008				Haas Automation Inc.
	VF-2 Milling machine, SL10 lathe	($137,370.00)	14274	12/18/2008				Haas Automation Inc.
	Shipping & freight for HAAS VF-2 mill & SL10 lathe	$2,000.00	14274	12/18/2008				Haas Automation Inc.
	Plug in unit	$1,995.30	14309	01/12/2009				Grainger
	H/V\S machines/Brass pipe nipples, bronze T	$30.24	14415	02/24/2009				Home Depot Processing Center
	Print cartridges	$149.38	14462	03/11/2009				Quill
	HAAS open house	$28.61	14513	03/31/2009				Sams Club Direct
	Styrofoam balls, dowells	$17.44	14532	04/15/2009				Card Services-Business Card
	Varnish and brush	$18.81	14730	06/15/2009				Petty Cash
	Supplies/Mat-Machining	$183.00	14710	06/15/2009				Haas Automation Inc.
Cash Receipt	F. Cardoza	($1.00)	235940	08/14/2009				Cash
Journal Entry	Copier charges 7/08	$0.54		07/31/2008				AJ 297
	Copier charges 8/08	$69.72		09/10/2008				AJ 320
	Long distance 9/08	$6.61		10/01/2008				AJ 326
	Copier charges 9/08	$12.90		10/06/2008				AJ 328
	Long distance 10/08	$4.27		11/10/2008				AJ 349
	Copier charges 10/08	$8.64		11/10/2008				AJ 350
	Long distance 11/08	$10.14		12/09/2008				AJ 369
	Copier charges 11/08	$7.26		12/09/2008				AJ 370
	Copier charges 12/08	$9.68		01/06/2009				AJ 379
	Long distance 12/08	$9.70		01/09/2009				AJ 389
	Long distance 1/09	$13.35		02/04/2009				AJ 397
	Copier charges 1/09	$42.14		02/04/2009				AJ 398

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

Account	Description	Activity	M.T.D. Activity	Y.T.D. Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number	
Journal Entry	Postage costs 1/09	$4.80		02/04/2009				AJ	399
	Long distance 2/09	$6.11		03/04/2009				AJ	410
	Copier charges 2/09	$7.06		03/04/2009				AJ	411
	Long distance 3/09	$13.78		04/08/2009				AJ	429
	Copier charges 3/09	$9.66		04/08/2009				AJ	431
	Copier charges 4/09	$3.12		05/11/2009				AJ	444
	Long distance 4/09	$23.87		05/11/2009				AJ	446
	Haas/Shipping and freight for HAAS VF-2 (88	($8,000.00)	14274	06/04/2009				AJ	450
	Grainger/Plug in unit	($1,075.00)	14309	06/04/2009				AJ	450
	Long distance 5/09	$11.86		06/11/2009				AJ	462
	Copier charges 5/09	$4.88		06/11/2009				AJ	463
	Long distance 6/09	$0.58		07/13/2009				AJ	491
	Copier charges 6/09	$0.20		07/13/2009				AJ	492
	Postage 6/09	$10.35		07/20/2009				AJ	512
eporting Element 10	General Instruction		$0.00	4,575.81	0.00	4,200.00	($375.81)		
Fund 10	GENERAL FUND		$0.00	4,575.81	0.00	4,200.00	($375.81)		

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M-T-D Activity	Y-T-D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
		Report Total:	$0.00	4,575.81	0.00	4,200.00	(375.81)	

Prior Year

Printed: 10/10/2012 8:25 AM
Fund 10 GENERAL FUND
Special Reporting Element General Instruction

2007 / 2008

Account	Description	Activity		M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number
10100510016	Supplies/Mat-Machining			$0.00	$4,459.81	$0.00	$4,200.00	($259.81)	10-499-10-1060-0600-000-0000-2
Accts.Payable	First Aid Supplies - Mach	$9.26	13150		08/31/2007				RESPOND First Aid Systems
	Machining hub	$47.88	13250		10/18/2007				CDW-G Government Inc
	UPS/EMI, Fuchs	$29.80	13375		11/20/2007				Office Depot
	Calculators, Pencils	$103.80	13357		11/14/2007				Quill
	Graph Paper	$17.36	13357		11/14/2007				Quill
	Wipe alls	$148.00	13329		11/14/2007				B & F Distributing
	Hand Tap	$17.14	13333		11/14/2007				Card Services-Business Card
	Ignition System, Rimfire, Plug Wire	$204.10	13352		11/14/2007				MJN Fabrications
	Pipes Trade Handbook, Training Manual	$69.95	13468		01/19/2008				Card Services-Business Card
	Diskettes, CD-R	$29.94	13540		02/19/2008				Card Services-Business Card
	First Aid Kit Supplies	$16.87	13573		02/19/2008				RESPOND First Aid Systems
	Bus. Cards - McCracken, Wilson, Cardoza	$71.96	13705		04/10/2008				Pyramid Printing Inc.
	16000 lbs Deluxe Roller kit	$1,074.26	13770		05/14/2008				MSC Industrial Supply
	Square, Smocks, Electric Buffers, Etc.	$1,288.11	13813		05/28/2008				MSC Industrial Supply
	Portable hydraulic equipment	$119.99	13825		06/11/2008				Card Services-Business Card
	Cutting end mills, inserts, buffing compund,	$855.47	13841		06/11/2008				MSC Industrial Supply
Journal Entry	Long distance 8/07	$7.44			09/12/2007				AJ 29
	Copier Charges 8/07	$90.40			09/12/2007				AJ 31
	Copier Charges 9/07	$137.40			10/02/2007				AJ 38
	Postage Costs 9/07	$0.41			10/02/2007				AJ 39
	Long Distance 9/07	$7.03			10/02/2007				AJ 40
	Copier Charges 10/07	$35.80			10/30/2007				AJ 55
	Long Distance 10/07	$16.69			10/31/2007				AJ 57
	Copier Charges 11/07	$121.65			12/05/2007				AJ 82
	Long distance 12/07	$11.09			01/13/2008				AJ 111
	Copier Charges 12/07	$13.08			01/17/2008				AJ 113
	Copier Charges 1/08	$22.26			01/31/2008				AJ 124
	Postage Costs 1/08	$0.82			01/31/2008				AJ 125
	Copier Charges 2/08	$17.32			03/06/2008				AJ 156
	Long Distance Charges 1/08-2/08	$4.64			03/06/2008				AJ 158
	Copier Charges 3/08	$22.76			04/02/2008				AJ 174
	Long distance 3/08	$22.98			04/08/2008				AJ 185
	Copier Charges 4/08	$2.20			05/07/2008				AJ 188
	Long distance 4/08	$5.31			05/09/2008				AJ 199
	Long distance 5/08	$21.81			06/02/2008				AJ 207
	Copier charges 5/08	$9.80			06/02/2008				AJ 208
	MSC Industrial/Cutting end mills, etc.	($227.22)	13841		07/02/2008				AJ 254

Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element 10 General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb	Current Budget	Budget Balance	State Account Number	
Journal Entry	Long distance 6/08	$0.57		07/07/2008				AJ	256
	Copier charges 6/08	$0.10		07/08/2008				AJ	263
	MSC Industrial/Deluxe roller kit	($1,074.26)	13770	07/24/2008				PY	290
	MSC Industrial/Cutting End mills, inserts, et	($856.47)	13841	07/24/2008				PY	290
eporting Element 10	General Instruction		50.00	4,459.81	0.00	4,200.00	($259.81)		
Fund 10	GENERAL FUND		50.00	4,459.81	0.00	4,200.00	($259.81)		

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Prior Year

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Fund 10 GENERAL FUND
Special Reporting Element General Instruction

Account	Description	Activity	M T D Activity	Y T D Activity	Open Encumb.	Current Budget	Budget Balance	State Account Number
		Report Total:	$0.00	4,459.81	0.00	4,200.00	($259.81)	

Appendix D

Faculty Vitae

Michael Carlton

2655 I Road
Grand Junction, Colorado 81506
970.623.9581
Michaelcarlton@hotmail.com

Objective

My 21 years as a machinist has allowed me to successfully master both manual and CNC machines. I would like to utilize the extensive skill set that I have developed over the course of my career to further others in their desire to learn the machining trade.

Professional Experience

Capco, Inc.
Grand Junction, Colorado
May 2001- Present
Engineering Technician/Senior CNC Programmer

As Engineering Technician and Senior CNC Programmer, I am responsible for the design and manufacturing of fixtures for production processes and products, utilizing both CNC and manual equipment. This includes manual, pneumatic and hydraulic clamping devices or the building of custom machines.

My charge also includes the development of efficient CNC programs used in the manufacturing of product at this facility, as well as the purchasing of proper tooling for each individual process. The training of operators is then critical so that the process runs continually with little or no error. This involves teaching the use of the CNC equipment and proper inspection techniques.

While it is not necessarily my job description to train the junior programmers in their understanding of the CAM software and proper use of machining techniques, I am proud that I have become the "go-to" guy for questions and inquiries about CNC programming and machining. I enjoy seeing these employees succeed in their trade.

Hamilton Sundstrand
Grand Junction, Colorado
February 1999- April 2001
CNC Machinist

The requirements of this position included the operation of multiple Horizontal and Vertical Machining Centers to produce precision components for the aerospace industry in an expedient manner while maintaining the highest level of quality. I was also instrumental in the "debugging" of the production process programs (g-code).

Because of my specialized level of skill, I was given the task of operating the Jig Bore. My job description included using this super precise machine to repair discrepant products from the production floor. By properly completing repairs, the company was able to save money and be more efficient in meeting production deadlines.

Responsibilities also included assessing and implementing any necessary modification to fixtures used for production or inspection.

Plastic Technologies Corporation
Niwot, Colorado
August 1998 - February 1999
CNC Machinist

As primary CNC Machinist, it was my responsibilities to facilitate the operation of a Mori Seiki Horizontal machining center. This machine for the production of precision components for the plastic injection mold industry.

I was also fundamental in the scheduling of all work for all shifts related to the machining center. For optimal operation of the machine, I was accountable for placing all purchase requisitions so that to ensure proper stocking of tooling. This was required for optimal operation of the machine.

Education

Mesa Community College, Mesa AZ
AAS , Machinist Tool and Die
Date completed: 1991

State of Arizona
Certified Journeyman Moldmaker Apprenticeship
Date completed: 1996

Special Skills

Cam Software
- GibbsCam
- MasterCam
- Surf Cam

Software
- Excel
- Word
- Power Point

CNC Controls
- Fanuc
- Mazak
- Haas
- Fadal

Community Service

Advisory committee member for WCCC/ Formerly UTEC - 2008-2010

References

References available upon request.

Name:

Kevin D Kern

Start Year: 2002

Program:
High School - Welding Technology

Department:
WCCC - Manufacturing & Industrial Services

WESTERN COLORADO
COMMUNITY COLLEGE
A Division of Colorado Mesa University

Full-time Faculty Vita

Faculty Rank

○ Technical Professor ○ Assistant Technical Professor
○ Associate Technical Professor ◉ Technical Instructor

Highest Degree

Certificate	AMERICAN WELDING SOCIETY	Welding Inspection / Certified Welding Inspector	2012

Education: (List all degrees beginning with most recent-include post docs and external certificates)

CERTIFIED WELDING EDUCATOR - AMERICAN WELDING SOCIETY - CERTIFICATE
CWI/CWE SEMINAR AND EXAM - AMERICAN WELDING SOCIETY - - CERTIFICATE
CWI/CWE TRAINING COURSE - LINCOLN ELECTRIC COMPANY - - CERTIFICATE
MICRO-CURRENT, HIGH and BI-POLAR FREQUENCY TECHNOLOGIES - CERTIFICATE
AFT LASER, IPL LASER, DIODE LASER & YAG LASER TECHNOLOGIES - CERTIFICATE
ARC WELDING TECHNOLOGY COURSE - ESAB UNIVERSITY - - CERTIFICATE
WELDING EDUCATOR'S WORKSHOP - LINCOLN ELECTRIC COMPANY - CERTIFICATE
TEACHING LICENSE - COLORADO DEPARTMENT of EDUCATION - - LICENSE
VOCATIONAL EDUCATION COURSES - COLORADO STATE UNIVERSITY
CAREER and TECHNICAL EDUCATION CREDENDTIAL - CCCS: 42,000 HOURS - CERTIFICATE
CERTIFIED WELDER, GRAND JUNCTION STEEL, AWS: FCAW, PAC, SAW & SMAW - CERTIFICATE'S
BLUEPRINT, WELDING SYMBOL READING COURSE - GRAND JUNCTION STEEL
SUBMERGED ARC WELDING COURSE - LINCOLN ELECTRIC at GRAND JUNCTION STEEL
FLUX CORED ARC WELDING COURSE - GRAND JUNCTION STEEL
CERTIFIED AGENT FOR BANKER'S LIFE AND CASUALTY - - CERTIFICATE
CERTIFIED AGENT FOR COMBINED INSURANCE COMPANY -- CERTIFICATE
STATE OF COLORADO INSURANCE LICENSE 1986-1990 - - LICENSE
WELDING TECHNOLOGY TRAINING SEMINAR - LINCOLN ELECTRIC COMPANY
PLASMA ARC CUTTING TRAINING SEMINAR - UNION CARBIDE / L-TEC / ESAB
CERTIFIED DISTRIBUTOR, SALES TRAINING SEMINAR - LINCOLN ELECTRIC COMPANY
OAKLAND UNIVERSITY - MICHIGAN - GENERAL EDUCATION COURSES

Teaching 2003-Present:
Courses Taught

WELD 110 Shielded Metal Arc Welding
WELD 115 Welding & Structural Theory
WELD 117 Oxy/Fuel & Plasma Cutting
WELD 133 Metal Fabrication Methods
WELD 144 Welding Business Operations
WELD 151 Introduction to Welding
WELD 211 Gas Metal Arc Welding / Flux Cored Arc Welding
WELD 230 Gas Tungsten Arc Welding
WELD 235 Advanced Gas Tungsten Arc Welding
WELD 240 Pipe Welding

WELD 270 Practical Applications
WELD 296 Topics
WELD 299 Internship

CEC MIG Welding
CEC Multi- Process Welding

Secondary Welding Program
(WELD 110, WELD 117, WELD 151 & WELD 211)

Evidence of Continuous Improvement

Annual Department Evaluation as well as Student Semester Evaluation.
Streamed lined and cleaned up the post-secondary welding program.
(All WELD classes are three credit hours and full semester in length. All 100 series classes start in the fall and 200 series classes are taught in the spring.)

Innovative Materials/Activities

The Welding Technology Program has full enrollments in both the secondary and post secondary classes because of my vision and efforts.
Community Education Classes: Created a six week GMAW welding class that started in fall of 2003.
Created a six week Multi-Process welding class (OFC, OFW, GMAW, GTAW and SMAW in 2004.
Currently in the process of creating and adding two optional courses for WCCC college students WELD 175 Motorsports Chassis Fabrication and WELD 275 Motorsports Chassis Welding.
In the secondary welding program we are currently working on an integrated learning project that involves welding, transportation, electronics, machining, CAD and graphic art students in the fabrication of a sand rail dune buggy.

Supervision of Student Research/Project(s)

1. **Completed 75 steel stakes for the SOAR program.**
2. **Completed 16 welding tables for the welding lab.**
3. **Completed 16 safety support collars for welding tables.**
4. **Completed a fire place door for a high school instructor.**
5. **Completed 8 support brackets for welding machines and wire feeders.**
6. **Completed 3 baseball pitching mounds for Little League.**
7. **Repaired barbecue for WCCC's 10th anniversary.**
8. **Completed RTI ramp for Transportation Department.**
9. **Completed Security Gate for WCCC campus.**
10. **Completed "jungle gym system" for Grand Junction High School play. (West Side Story)**
11. **Repaired aluminum antennae drum for PBS.**
12. **Completed the installation of 4 brackets and wire feeders in the lab. (5 hours)**
13. **Completed security panels for Orchard Mesa Little League.**
14. **Completed a "table top" for the Transportation Department**
15. **Completed a "roll bar cage" for Machining Instructor.**
16. **Completed arc welding and oxy/fuel booths for the welding lab**
17. **Completed safety items and issues in the welding lab**
18. **Completed fabrication on six tool carts for the electric line worker program**
19. **Completed aluminum horse shoe tool box and fire wood box**
20. **Completed fabrication of letters for Youngblood Building**

Scholarship and Creative Work, 2003-Present:
Journal Articles

Conference Presentations

Technical Reports

Exhibits
CREATED PROJECTS FOR SKILLS USA AND MANAGED SKILLS USA LOCAL & DISTRICT COMPETITION TO SHOWCASE THE TALENTS OF OUR WELDING STUDENTS.

Grants (proposed or funded)
PERKINS GRANTS FUNDED 2006, 2007, 2009 & 2011 FOR CTE WELDING EQUIPMENT. EQUIPMENT USED TO BUILD COMPREHENSIVE WELDING AND METAL FABRICATION PROGRAM.

Professional Memberships
AMERICAN WELDING SOCIETY MEMBER 1989 - PRESENT
UNITED STEEL WORKER'S UNION MEMBER 1988 - 2003

Honors and Awards
FACULTY PROFESSIONAL DEVELOPMENT AWARDS - CMU- 2003 AND 2012
FACULTY PROFESSIONAL DEVELOPMENT AWARD - WCCC- 2012

Service 2003-Present:
Institutional
Served on the WCCC council.
Served on the WCCC curriculum committee.
Served on Various WCCC Hiring Committees.

Community
On Saturdays I have been helping Grand Junction High School students with their graduation requirement of thirty community service hours.

Advising 2003-Present:
Institutional level
Advising post secondary students when instructor is not available. Organization of the sophomore tours of the high school welding program. Interviews and selection of the future welding students. Advising all students of career opportunities and college choices.

Department level
Management of the updated college welding program to insure effective implementation of the new course additions.

Prior Professional Experience Relevant to Current Position: (Include year(s) of employment, employer, position title and responsibilities)

Year(s) of Employment	Employer	Position Title	Position Responsibilities

1988 - 2002 GRAND JUNCTION STEEL

Journeyman steelworker, certified arc-welder (CAC-A, FCAW, GMAW, OFC, PAC, SMAW & SAW), fabricator, fitter and mechanic. Work independently with blue prints, codes, procedures, and specifications (AASHTO, AISC, ANSI, AWS) in all departments. Specialized in dimensional layout and heavy plate splicing. Weld joint geometry multiple bevels. Have knowledge and experience in all phases of bridge and structural steel construction.
AWS D1.1 Structural Welding Code
AWS D1.5 Bridge Welding Code

1986 FOUR CORNERS MARINE

Contract welder, designer, and fabricator. GTAW (TIG) welder and GMAW (MIG) welder.

1986 SAN JUAN TURBO, INC.

Contract welder, designer, and stainless steel fabricator. GTAW (TIG) welder and GMAW (MIG) welder.

1983 -1986 ASA WELDERS SUPPLY, INC.

Branch manager, outside sales representative, buyer, technical and service representative, and equipment and safety instructor. Instrumental in increasing branch sales by 300%.

1980-1983 B & F EQUIPMENT AND WELDING SUPPLY

General manager, outside sales representative, buyer, shipping and receiving, safety presentations and equipment demonstrations. Instrumental in increasing sales by 200 % .

1981 -1986 SAN JUAN BASIN AREA VOCATIONAL TECHNICAL SCHOOL

Instructor for adult education welding classes. Independently developed an extensive ten-week welding program that was taught twice a year.

1979-1980 HERMOSA BUILDERS / GENERAL CONTRACTORS

Construction fabricator and SMAW welder. Oxy-acetylene cutting.

Please record the number "items/events" you have listed above in the following categories.
If you specify items/events under "other," please provide an explanation/definition.

	Books		**Book Reviews**		**Creative Publications**
	Journal Articles	0	**Performances**		**Patents**
	Conference Presentations		**Exhibitions**	4	**Grants-funded and non-funded**
	Sabbaticals		**Fulbrights**		**Book Chapters**
8	**Other (related to discipline)**	CREATED PROJECTS FOR SKILLS USA AND MANAGED SKILLS USA LOCAL & D			

Name:

William J McCracken Jr.

Start Year: 2002

Program:
Manufacturing Technology

Department:
WCCC - Manufacturing & Industrial Services

WESTERN COLORADO
COMMUNITY COLLEGE
A Division of Colorado Mesa University

Full-time Faculty Vita

Faculty Rank

○ Technical Professor ◉ Assistant Technical Professor
○ Associate Technical Professor ○ Technical Instructor

Highest Degree

AAS	Colorado Mesa University	Manufacturing Technology	2003

Education: (List all degrees beginning with most recent-include post docs and external certificates)

State of Colorado Teaching Authorization Career & Technical Education License 2012 - 2017
Colorado State University Professional Teacher License License 2007-2012
Colorado State University Provisional Teacher License License 2004-2007
Colorado State University Alternative Teacher License License 2003-2004
Colorado State University Vocational Teacher Credential Credential 2002-2013
Colorado Mesa University Associate of Applied Science Degree Awarded 2003
Colorado Christian University Bachelor of Business Administration No Degree 1998-1999
Teaching Certificate - 2D & 3D CAD/CAM, FeatureCAM, Salt Lake City, UT (June 25, 2004 - June 2012)
Training Certificate - 3D CAD/CAM, FeatureCAM, Salt Lake City, UT (September 23, 2003)
Training Certificate - FeatureCAM, Salt Lake City, UT (May 23, 2003)
Certificate of Completion - Self Directed Work Teams, Grand Junction, CO (June 16, 1999)
Certificate of Completion - Supply Chain Management, Just In Time Simulation, Grand Junction, CO (October 6, 1999)
Certificate of Completion - Fundamentals of Gauging, Grand Junction, CO (January 15, 1997)
Certificate of Completion - Quality Assurance Instruction, Grand Junction, CO (January 15, 1997)
Certificate of Completion - Shop Qualification Improvement Program, San Diego, CA (October 31, 1980)
Certificate of Proficiency - The Dalic Electroplating Process, Los Angeles, CA (November 21, 1980)
U.S. Navy Machining "A" School, Certificate of Completion, San Diego Training Center, San Diego, CA (1978)
Certificate of Proficiency - Machine Trades, Medina B.O.C.E.S. Vocational School, Medina, NY (1975-1977)

Teaching 2003-Present:

Courses Taught

MAMT 101 Introduction to Manufacturing
MAMT 102 Machining Fundamentals
MAMT 115 Introduction to Machine Shop
MAMT 120 Machine Technology I
MAMT 125 Machine Technology II
MAMT 130 Machine Technology III
MAMT 135 Job Shop Machining I
MAMT 140 Job Shop Machining II
MAMT 148 CNC Applications
MAMT 150 Introduction to Numerical Control
MAMT 151 Numerical Control Machining I
MAMT 155 Numerical Control Machining II
MAMT 160 Properties of Materials
MAMT 170 Practical Applications
MAMT 196 Topics
MAMT 207 Introduction to Statistical Process Control
MAMT 250 Process Systems Technology

MAMT 250L Process Systems Technology Laboratory
MAMT 295 Independent Study
MAMT 296 Topics

Evidence of Continuous Improvement

Machining projects have been updated to reflect best practices in work force manufacturing facilities. We have continued the Haas Technical Education Center Program and FeatureCAM Training Center status at WCCC and updated the CNC machining program to incorporate solid modeling from Computer-aided Drafting and Engineering classes.

I have developed and staffed weekend machining seminars for the Mechanical Engineering students to train them to safely operate the equipment in the machining technology lab for their program's first-year and final projects.

Students majoring in manufacturing are able to move through classes in a timely manner by learning required skill sets in each course as approved by the Manufacturing Advisory Committee.

Innovative Materials/Activities

I continue to work with Technical Professor John Sluder with the cross-curricular capstone product design class called Integrated Learning Systems that we team teach and have students enrolled from Process Technology, TECI, CAD, Welding, Transportation and Machining programs.

Supervision of Student Research/Project(s)

I serve as the faculty advisor for students projects submitted to the Colorado Mesa University Annual Student Showcase.

Scholarship and Creative Work, 2003-Present:

Journal Articles

National Science Foundation "ATE Projects Impact- Partners with Industry for a New American Workforce"- "Integrated Learning Systems: A Model Approach" 2008

The Source Magazine "Manufacturing at Western Colorado Community College" 2011

Conference Presentations

I presented our Integrated Learning Systems concept at The National American Career and Technical Conference in Nashville, Tennessee on November 20, 2009.

Technical Reports

None

Exhibits

Exhibited the Integrated Learning Systems Model in Washington D.C. at the National Science Foundation, American Association of Community Colleges Conference in 2007, 2008 and 2009.

Grants (proposed or funded)

I submitted and received a $10,000 grant from the Encana Corporation in October 2011 for the Integrated Learning Systems class to fund research on compressed natural gas dual vehicle conversions.

I served as Principle Investigator on a $466,000 National Science Foundation grant awarded to MSC/WCCC.

I am also a Co-principle Investigator for a $680,000 pending National Science Foundation grant earmarked to train students in a cross-curricular alternative fuels and small engine training program.

Grand Junction Chamber of Commerce - "Classroom Improvement Mini-Grant" Awarded to Western Colorado Community College Manufacturing/Machining Department - $100.00 May, 2007.

Hamilton Sundstrand - "The Future of Manufacturing Technology" with Lynn Woellhof. Awarded to Mesa State College/UTEC Manufacturing/Machining Department - $5000.00, July 18, 2003.

Professional Memberships

Member of Colorado Governor John Hickenlooper's Manufacturing Tactical Team, December 2011-present

Member of The Mesa County Manufacturing Council, August 2009-present

Honors and Awards
The Staff Service Award, Mesa State College, Grand Junction, CO (May 10, 2007)

Service 2003-Present:

Institutional

I serve as a campus tour guide every year for sophomore tours. I substitute teach the high school machining, CAD and welding classes as needed on a volunteer basis.
I served as a member of the ad-hoc curriculum oversight committee in December 2010.
I served as a member of the Distinguished Faculty review committee Spring 2011.
I have served as Crisis Team member of WCCC since 2005 to present.
I serve on the WCCC Grants Committee 2010 to present.

b. Professional-

I serve as the Department Head for the Manufacturing and Industrial Services Department at Western Colorado Community College. The departments that are under my direct supervision are- The Secondary and Post-secondary Transportation Programs, the Secondary and Post-secondary Welding Programs, the Secondary and Post-secondary Machining Programs, the Post-secondary Construction-Supervision Program and the Post-secondary Construction- Craft Program and the Post-secondary Electric Lineman Program.

I have served as Crisis Team member of WCCC since 2005. I have served as an advisor for SkillsUSA since 2002 – Managing the district manufacturing competition at WCCC and transporting our students to Denver, Golden, Colorado Springs and Pueblo to participate in the state competition. I also serve as the WCCC faculty advisor to the Skills USA national competition in Kansas City, MO.

Community

I make myself available as a guest speaker to local industries. I have been a volunteer and serve on the P.T.O at Chipeta Elementary since 2005. I participate in the classroom assisting teachers with projects for elementary students.
I serve on the Mesa County School District 51 Accountability Committee for Chipeta Elementary School and Redlands Middle School.I serve as one of the WCCC representatives at the Electronics Expo held at Two Rivers in Grand Junction showcasing the innovative, green, energy conscience projects that students in our programs have developed.
I have served as the coordinator for ProtoCamp since June 2009 and will offer another weeklong summer science camp for local middle school students in June 2011. I put together the team of faculty and student assistants. Protocamp faculty consists of instructors from WCCC and Mesa County School District 51. The student assistants are chosen from the technical programs at WCCC and the engineering department at CMU. I schedule the team meetings and we collectively decide on curriculum, schedule and camp duties. Last year we had 36 middle school students participate in the weeklong camp. This year we expect the same numbers and I have identified a national competitive robotics program that will be integrated into the camp if funding becomes available.

I maintain relationships with local manufacturers and local organizations such as the Lions Club, local businesses such as Brown's Cycles, Lewis Engineering, TDM Machine, Bulldog Machine, C5 Medical Werks, Capco Inc. and local inventor's by working on projects supplied to my students from them.

I also maintain internships and employment opportunities for our students with local industries and have placed students at Lewis Engineering, TDM Machine, Bulldog Machine, C5 Medical Werks, Western Slope Industries and Capco Inc.

Advising 2003-Present:

Institutional level

Served as the chair for the college welding instructor search committee and successfully hired Jason Sinclair in August 2010.
Served on the search committee to hire an Electric Lineman instructor and we were successful in hiring Paul Behl in September 2010.
Served on the successful search committee to hire a a joint laboratory assistant.
I have moved my office to the AEC Building but still manage to do weekly informal walkthroughs of the programs at WCCC.
Encourage the faculty in the Manufacturing and Industrial Services Department to serve on campus wide committees and to participate in college wide activities.
Served as a mentor to the 2 new hires in the MIS Department and continue to advise in teaching responsibilities, classroom management, course development and curriculum.
Review all MIS department evaluations and discuss improvement plans and praise accomplishments.
Locate qualified adjunct faculty for all my departments and write the contracts for adjuncts.

Department level

Review all departmental AAS and certificate petitions for accuracy and final submission to the MSC Registrar. I have counseled many students last year on the high school and college level. One of the advantages and privileges of working at WCCC is the high school contingency. We have a captive audience as far as being able to connect with the high school students and talk about their future plans and

encourage them to continue their education at CMU/WCCC.

Prior Professional Experience Relevant to Current Position: (Include year(s) of employment, employer, position title and responsibilities)

Year(s) of Employment Employer Position Title Position Responsibilities

Hamilton Sundstrand Aerospace, Grand Junction, CO
Tooling and Fixture Design Engineer, Computer Numerical Control Machinist
(1995-2002)
• Duties included scheduling, designing and machining tooling and fixturing needs for the manufacturing cells. Operating, programming, and setting up CNC machines for operation of high tolerance aerospace components.
• Team Leader for Tooling Department 2000-2001. Member of Hamilton Sundstrand Ethics Committee 1999-2000. Chair of Ethics Committee 2000-2002. Safety Representative from 1998-2000.

Spendrup Fan Incorporated, Grand Junction, CO
Machinist (1993-1995)
• Operated and maintained lathes, milling machines, grinders and drill presses.
• Operated dynamic/static computerized balance machine.
• Wired starter boxes with 980/440 volt components.
• Tested and adjusted mining ventilation systems.
• Designed ventilation systems utilizing AutoCAD 11.

A. A. Sign Company, Buffalo, NY
Manager (1990-1992)
• Managed and scheduled all incoming signage orders.
• Programmed Computer Numerical Control routers.
• Designed specialty signage.
• Maintained all supplies and inventory.

Propulsion Controls Engineering, San Diego, CA
Machinist (1981-1982) (1986-1990)
• Operated and maintained engine lathes, milling machines, surface and cylindrical grinders, gauging and welding machines.
• Repaired and maintained propulsion systems on submarines and naval ships to keep underway preparedness. Repaired boiler and valve systems for 600 and 1200 lb. steam plants. Worked on gas-turbine and nuclear propelled naval ships also.
• Operated electroplating process machines.

United States Navy, San Diego, CA
Machinery Repairman 2nd Class Petty Officer E-5 (1977-1981)
• Supervised ship board machine shop with 30 machinists. Scheduled work loads and machine designations. Scheduled machine downtime for preventive maintenance.
• Operated and maintained engine lathes, vertical turret lathes, horizontal and vertical milling machines, shapers, surface and cylindrical grinders, tooling and gauging.

Please record the number "items/events" you have listed above in the following categories.
If you specify items/events under "other," please provide an explanation/definition.

	Books		Book Reviews		Creative Publications
	Journal Articles		Performances		Patents
1	Conference Presentations	1	Exhibitions	5	Grants-funded and non-funded
	Sabbaticals		Fulbrights		Book Chapters
	Other (related to discipline)				

Name:

Jason Oliver Sinclair

Start Year: 2010

Program:

Manufacturing & Industrial Services

Department:

Welding Technology

WESTERN COLORADO
COMMUNITY COLLEGE
A Division of Colorado Mesa University

Lecturer Vita

Highest Degree

BA	University of Montana	Sociology	2005

Education: (List all degrees beginning with most recent-include post docs and external certificates)

University of Montana - BA in Sociology w/ Art Minor

Johnson County Community College - Welding Certificate in Thermite Welding, Basic Welding, Elements of Welding, Rail & SP Repair Welding and Frog Welding.

Lincoln Electric Company - Welding Certificate in Basic Motorsports Welding

Teaching 2003-Present:

Courses Taught :

Weld 110-Sheilded Metal Arc Welding, Weld 117-Oxy/Fuel and Plasma Arc Cutting, Weld 133-Metal Fabrication Methods, Weld 144-Welding Business Operations, Weld 151-Introduction To Welding, Weld 211-GMAW/FCAW, Weld 230-Tungsten Arc Welding, Weld 240-Pipe Welding, Weld 270-Practical Applications, Weld 295-Independent Study, Weld 299-Internship, MAMT 160-Properties of Materials, MAMT 106-Geometric Tolerancing.

Evidence of Continuous Improvement :

1. One way is by continually making and maintaining relationships with local industry businesses, finding out if WCCC curriculum skill set is in-line with employment demand. I have done this by touring various welding businesses in the Grand junction area. This year have have had great success in creating internships on those visits. While touring it gives me a chance to meet one on one with the owner or foreman to find out there skill needs and to see what type of equipment is being used in the industry. As technology changes, so does welding equipment. I feel its vital to have the students know how to proficiently use that new equipment as shops make those upgrades. This will make them more marketable to future employers.
2. Keeping in contact with other welding instructors around the state to share information about current trends, curriculum and student employment opportunities.
3. In January of 2011, I attended a motorsports welding class in at Lincoln Electric company in Cleveland Ohio. This was possible from a grant that I was awarded. In that week I obtained a welding certificate to weld on 4130 crome moly tubing. The knowledge that was gained there, I was able to share with my current and future students.
4. In July of 2012, I will be taking steps to get my CWI/CWE credentials from the American Welding Society.

Innovative Materials/Activities :

1. A current trend, employers are looking for welders that can weld stainless steel and aluminum. I have introduced more of those metals in student lab time and the different welding processes as well.
2. Teaming my upper division welding students with Pacific Steel in a venture project to build large recycle bins. The scale and minimum tolerances required for this projects allows students to get a lot welding time and a chance hone in there fabrication and layout skills. Students must develop a plan of execution from bigging to end before they can start the project. Pacific Steel has graciously donated all materials used in building the bins. The bins will go out to community businesses to collect all recycled metals when completed.
3. In April of 2011, took two college and high school welding students to the state Skills USA competition in Denver.

Supervision of Student Research/Project(s)

1. Supervise daily the safety of all students in the welding lab. Making sure all safety polices are followed and students are able to use use all equipment with out damaging equipment or harming others.
2. Practical demonstration of the daily required welding specimen to all students. Most time in lab is spent working one on one with students to develop there welding skills. Each student get tailored help.
3. Oversee and assist upper division students in the building of there semester projects.

Prior Professional Experience Relevant to Current Position: (Include year(s) of employment, employer, position title and responsibilities)

8 Years	Burlington Northern Santa Fa Railway	Welding Foreman	Oversaw crew and made repairs to all track components in a safe and productive manor. All repairs had to be made within federal regulation standards.
5 Years	Hettinger Welding	Pipe Welder	Made pipe welds to high pressure gas lines. All welds had to pass x-ray and a practical welding test had to be passed every six months to keep welding certificate in good standing.
4 Years	Sinclair Welding LLC	Owner/Operator	Operate small welding and fabrication business in the summers and weekends. Responsible for all financial and operational duties.

Please record the number "items/events" you have listed above in the following categories.
If you specify items/events under "other," please provide an explanation/definition.

	Books		**Book Reviews**		**Creative Publications**
	Journal Articles	0	**Performances**		**Patents**
	Conference Presentations		**Exhibitions**	1	**Grants-funded and non-funded**
	Sabbaticals		**Fulbrights**		**Book Chapters**
2	**Other (related to discipline)**	Build industry relationships in the community and develop and implement student internship			

Name:

Denis J Thibodeau

Start Year: 1996

Program:
Manufacturing Technology

Department:
WCCC - Manufacturing & Industrial Services

WESTERN COLORADO
COMMUNITY COLLEGE
A Division of Colorado Mesa University

Full-time Faculty Vita

Faculty Rank

○ Technical Professor ○ Assistant Technical Professor
○ Associate Technical Professor ◉ Technical Instructor

Highest Degree

AAS	Rogue Community College	Manufacturing / CAD	1992

Education: (List all degrees beginning with most recent-include post docs and external certificates)
AAS CAD

Teaching 2003-Present:

Courses Taught CADT-106 Intro to Computer Aided Drafting AutoCAD, CADT-107 Computer Aided Drafting AutoCAD, CADT-108 CAD Mechanical, CADT-109 CAD Advanced, CADT-110 CAD Applications, CADT-130 CAD Civil I, CADT-135 CAD Civil II, CADT-140 CAD Architectural Theory, CADT-141 Structural Materials, CADT-142 CAD Residential Architecture. CADT-143 CAD Commercial Architecture, CADT-196 Topics, CADT-296 Topics, CADT-210 Project

Evidence of Continuous Improvement Continue to improve skills every summer taking classes and training for the latest CAD programs. 2012 Civil 3D 2013 workshop, Revit 2013 workshop, 2010 Numerical Control Machining I & II, 2009 Solidworks workshop, 2008 Revit Workshop, 2007 Civil 3D workshop, 2006 Architectural Desktop workshop, 2005 GIS workshop, 2004 Solidworks Workshop and 2003 AutoCAD workshop

Innovative Materials/Activities

Students worked together on a project to reverse engineer an existing Environmental Erosion Trailer for the Colorado River and Riparian Study Center. The students made a set of plans from an existing trailer so that other trailers could be made.

Students did preliminary Architectural and Site design for Habitat for Humanity on their new building located at 2936 North Avenue Grand Junction, CO.

Supervision of Student Research/Project(s)

N/A

Scholarship and Creative Work, 2003-Present:

Journal Articles

Conference Presentations

Technical Reports

Exhibits

Grants (proposed or funded)

Professional Memberships

Honors and Awards

Service 2003-Present:

Institutional

2003- present, I am on the WCCC Scholarship Committee, 2003-2010 Skills USA Advisor, 2010-2012 CMU Assessment Committee.

I have written 2 books for the CADT-130 and CADT-135 class for the last 14 years. Currently Delta Montrose Technical College is using the books in their CAD classes. I have written several AutoCAD tutorials and taught for CED, from 2003 - 2010.

Community

2003-2007 Ice Skating Inc, 2003-2008 Coach of little league baseball, basketball, & football, 2003-2006 Buddy Werner volunteer, 2003-2006 Advising board for Lincoln Orchard Mesa Elementary, 2003-2008 Publish Orchard Mesa Little League Program Book,

Advising 2003-Present:

Institutional level

2003- Present Advisor for the Manufacturing CAD Department WCCC

Department level

Prior Professional Experience Relevant to Current Position: (Include year(s) of employment, employer, position title and responsibilities)

Year(s) of Employment Employer Position Title Position Responsibilities

95-95 El Paso County Department of Transportation Draftsman, Design and drafting of roadway and bridge projects, topographic maps, boundary surveys, other duties as assigned.,

93-95 RMG Engineers, Survey Department Coordinator, Schedule surveys, Field Calculations, Customer and Public relations, Estimating, Billing, Research, CAD, Field work, Engineering Design and Drafting.

92-93 Richard B Davis CO,. Inc... Topographic Editor, Edit and quality control of Topographic and Planimetric digital information, Data backup, Customer relations and follow up reports.

92-2012 Self Employed, Designer, Design, Consult and Draft roadway and bridge projects, topographic maps, boundary surveys, Architectural projects, Technical drafting.

76-93 Construction, Carpenter / Supervisor / Inspector, Duties included inspection of earthen dam, construction of residential and commercial projects, building a railroad and earthen dams.

Please record the number "items/events" you have listed above in the following categories.
If you specify items/events under "other," please provide an explanation/definition.

	Books	**Book Reviews**	**Creative Publications**
	Journal Articles	**Performances**	**Patents**
	Conference Presentations	**Exhibitions**	**Grants-funded and non-funded**
	Sabbaticals	**Fulbrights**	**Book Chapters**
14	**Other (related to discipline)**	I have written a series of books for AutoCAD CED classes.	

Appendix E

Analysis

Analysis of Student Demand and Success

Section 3-i

Students in machining compete in SkillsUSA every year. The post-secondary machining automated manufacturing team took first place in the SkillsUSA state competition and ninth place at the national competition in 2010.

Machining student graduates have been successfully placed with local manufacturers such as Capco, Inc., Lewis Engineering, GPD Global Inc., Western Slope Industries, TDM Machine Shop Inc., Leitner-Poma, Bulldog Machine, Spendrup Fan Co., and Wren Industries. The machining program maintains a robust internship program with Lewis Engineering. The demand for machinists has been very high and the program has not been able to supply enough graduates to meet local demand. Assistant Technical Professor Bill McCracken has started to place students enrolled in the engineering programs into these positions to meet demand.

Colorado Mesa University Ratio of full-time equivalent students (FTES) to Full-time equivalent faculty (FTEF)

Dept: **WCCC**

Ratio of full-time equivalent students (FTES) to Full-time equivalent faculty (FTEF)

	2007-08			2008-09			2009-10			2010-11			2011-12		
Subject	**FTES**	**FTEF**	**FTES:FTEF**	**FTES**	**FTEF**	**FTES:FTEF**	**FTES**	**FTEF**	**FTES:FTEF**	**FTES**	**FTEF**	**FTES:FTEF**	**FTES**	**FTEF**	**FTES:FTEF**
CADT	28.5	3.5	8.2	24.1	3.0	8.2	17.8	2.8	6.4	12.0	2.4	5.0	14.5	2.0	7.2
MAMT	16.5	2.5	6.7	18.3	2.9	6.4	16.5	2.5	6.5	17.6	2.7	6.5	17.9	2.2	8.1
WELD	9.2	2.5	3.8	12.0	1.2	10.3	15.7	2.0	8.0	17.5	2.1	8.4	17.4	1.7	10.5

Academic Program Review

Visitor's Report for:

Manufacturing Technology, Associates/Certificate Programs

Colorado Mesa University

Grand Junction, CO

Date of Visit: March 8, 2013

Dr. Eric K. Albert

Table 1: Executive Summary Template for External Reviewer's Observations

Program Review Element	Check the appropriate selection				Provide explanation if not agree with element and/or why unable to evaluate
	Agree	Not Agree	Unable to Evaluate	Not Applicable	
The program's self-study is a realistic and accurate appraisal of the program.	X				
The program's mission and its contributions are consistent with the institution's role and mission and its strategic goals.	X				
The program's goals are being met.	X				See comments on program assessment methods and reporting evidence of outcomes for program improvement
The curriculum is appropriate to the breadth, depth, and level of the discipline.	X				
The curriculum is current, follows best practices, and/or adheres to the professional standards of the discipline.	X				See suggestions for curricular improvement in "Curriculum"
Student demand/enrollment is at an expected level in the context of the institution and program's role and mission.	X	X			See suggestions for long-term enrollment management in "Curriculum"
The program's teaching-learning environment fosters success of the program's students.	X				
Program faculty members are appropriately credentialed.	X				
Program faculty members actively contribute to scholarship, service and advising.	X				
Campus facilities meet the program's needs.	X				
Equipment meets the program's needs.	X	X			See laboratory and equipment comments in "Facilities Tour" and "Curriculum"

Instructional technology meets the program's needs.	X				
Current library resources meet the program's needs.	X				
Student learning outcomes are appropriate to the discipline, clearly stated, measurable, and assessed.	X	X			See comments on program assessment methods and reporting evidence of outcomes for program improvement
Program faculty members are involved in on-going assessment efforts.			X		See comments on program assessment methods and reporting evidence of outcomes for program improvement
Program faculty members analyze student learning outcome data and program effectiveness to foster continuous improvement.			X		See comments on program assessment methods and reporting evidence of outcomes for program improvement
The program's articulation of its strengths and challenges is accurate/ appropriate and integral to its future planning.	X				

(from CMU Program Review Manual_ 2012) September 7, 2012

Comments are addressed by section in the Reviewer's Narrative.

Executive Summary

Major Recommendations

1. A well-defined, systematic outcomes assessment program for each major is needed.

2. Consideration of additional CNC machine tools and replacement of older manual equipment is needed. Systematic replacement of older welding equipment would be also be helpful. The high demand for use of these labs and the lack of a support technician for machine repair can challenge present facilities to maintain sufficient workstations.

3. Consideration of the use of NIMS standards for metalworking courses should be investigated.

The most pressing need in this review cycle is to address Recommendation #1.

The Manufacturing programs at CMU are a valuable resource to industry and also provide unique opportunities to students whose goals are to enter the technical career opportunities these degrees provide. The curriculum provides students with appropriate skills to enter their respective fields. The faculty are passionate about technical education and are proud of their graduates' successes. Well-paying jobs with a high demand for graduates will continue to provide competitive placement for machining and welding graduates. While the demand for CAD students appears to be soft in the region, this too may recover over time, especially if shale gas energy development rebounds.

Reviewer's Narrative

My visit to Colorado Mesa University was well planned and the hospitality extended and transportation to the sites was greatly appreciated. My itinerary was full and the pace was fast but I feel I was able to gain a good insight into the facilities, faculty, and programs. In advance of the visit I was provided with a number of internal reports and materials such as program outlines, self-assessments, 5-year plans / long-term vision documents and the general visitor's guide for program review. In addition to these documents, I also relied on current web resources for the university and program areas.

To frame my narrative, I will utilize my itinerary as the outline and comment on each visit. In addition, I will address the recommendations listed in the Executive Summary.

Facilities Tour

The first part of my visit consisted of a tour of the facilities and the WCCC campus. My first impression of the facilities was that they were clean and orderly and without obvious safety issues that might arise in welding and machining programs. If anything, I had a general impression of the machining and welding labs being somewhat crowded. I did not observe any students working in either laboratory as they were not present on Friday. The computer lab was good, and the range of ancillary equipment for materials evaluation (tensile testing, microscopy) was helpful. I also noted the additive manufacturing equipment that had been obtained from an NSF-ATE grant, and this represents exemplary involvement in STEM national technical education through the ATE program. The partnership with Hass is a plus for the program.

A student projects workspace was spacious and the projects I observed there exhibited integrative learning and were relevant to the majors to develop skills being taught.

I have visited a number of different facilities for 2-year manufacturing/machining programs and the facilities at WCCC are equal or better in most areas. Even so, I noted that some of the manual lathes were of a lesser quality – indeed we have eliminated the same ones in our program due to poor mechanical performance. Additional workstations in CNC equipment, such as Haas toolroom lathes and mills, might be a less expensive way to help here.

Brigitte Sunderman, Vice President of Community College Affairs

My meeting with Ms. Sunderman was positive and I felt she was supportive of and understood the challenges of associate degrees and certificates in technical education majors.

Curriculum Review

The department and I met to review the entire curriculum. The reports provided to me in advance were thorough and showed considerable thought in how the different majors were structured. The use of shared courses was good and the support of the CMU engineering majors

was a strength, albeit perhaps a challenge due to numbers. A notable course was the Welding Business Operations offering which is meant to give students the foundations of self-employment in the trade.

I found overall the program design to be current, focused on industry needs, and of sufficient breadth and depth for an Associate Degree offering. My main suggestion was to consider NIMS (National Institute of Metalworking Standards) either as a program certification or at least as an external reference to check on continued currency. Note that NIMS is not a program accreditation per se but qualifies faculty and the facility to offer NIMS credentialing tests as a well-recognized competency on a national level.

Additional areas for improvement would be to further expand CNC equipment (even EDM?) and add something in the area of robotics and automation technology. In Welding all the major processes are covered, but again, some future addition of robotic welding equipment and non-destructive testing might be helpful. I do not have any particular suggestions for the CAD area as to curricular changes. However, given the declining enrollment (largely based on regional economic change) my suggestion is to reconsider if there is not some need for retooling this part. I did not talk to industry representatives at any time, but clearly the faculty are well connected and have input from industry in the region.

Long-term enrollment management may be an issue if the welding program, which is fully subscribed, cannot accept all that wish to be enrolled. In my own area where tuition is $459 a credit, for Fall 2013 the welding programs have over 200 enrolled students (150 AAS, 50 BS) with a current waiting list of over 50. However, this can be good news for the machining and CAD programs because of the overlap of courses in each degree. The problem is that expanding the present welding program is a challenge (we have considered a night shift with separate faculty, but only daytime general education is offered so far).

Lunch Meeting at Chez Luna

Lunch at Chez Luna was pleasant and the culinary arts students did a great job in preparing and serving our food. The two students from the programs were articulate and clearly had advanced their careers through the manufacturing department. I was happy to see one student choosing to continue their education beyond the Associate Degree level, despite being a parent and working full-time.

An adult education/continuing education brochure rack was strategically placed outside of the dining area and was well stocked with short course announcements.

Library Meeting with Sarah Cron

My meeting at the library was positive. My view is that the library and staff are supportive of all programs and make an effort to consider the needs of the technical programs at WCCC. One concern I had was if those students at WCCC were in fact visitors to the main campus library. This did not seem to be an issue. We discussed some ideas related to student engagement in general that have been offered at my home institution. I suggested that a librarian be aligned in

part to technical programs, something like a program specialist, so that a partnership could be more fully established. We mused about the demise of the VHS video cassette.

Meeting with Steve Werman, BPAA

Dr. Werman kindly set up meetings with the marketing staff and the Instructional Technology person responsible for managing Desire2Learn. This was not originally part of my itinerary, but with some extra time available I was able to briefly meet in each area. I shared some of my host institution's marketing practices for technology programs. In the Instructional Technology area I was most concerned with the campus's experience in their transition to Desire2Learn, as our own campus is doing so for the next academic year. My impression is that the use of Desire2Learn was not widely applied in the Manufacturing programs; no evidence was seen that it had been employed. If so, then expanding the use of learning management software might be a means to help with outcomes assessment.

Meeting with Tim Foster, College President

My meeting with Mr. Foster was positive and we briefly discussed the programs. However, my most valuable insight came before I met with him in the waiting room. A student who claimed to be the President's nephew offered to me that he was there to request forgiveness for a parking ticket. He perhaps assumed I was as well, but when I explained I was an external reviewer for the manufacturing programs, he immediately related that he was a CMU engineering major. He had high praise for the courses he took in Manufacturing as part of his degree.

Meeting with Bette Schans, Director of Assessment and Suzanne Lay, Chair of Assessment Commmittee

I knew from the first moment that Ms. Schans and Ms. Lay were going to present some concerns about program assessment. I already had questions about this especially because I had not been presented with any materials that showed required student outcomes by course, course assessment data, or summary tables from such activities. I did see the tables presented in the self-study (pages 20-22) but at first glance they were admittedly "suspicious" because almost all boxes were checked for all courses, and this simply did not make sense to me, nor was any evidence to support this presented at any time.

In weighing the comments of Ms. Schans and Ms. Lay in light of the rest of the input from reports and meeting with the faculty, my recommendation is that a more systematic process of assessment needs to be put in place. Given that the long-term vision of the faculty is well articulated in their planning documents, a valuable piece of the justification to proceed will be good program assessment data. This is especially true when equipment is expensive – how can one compellingly justify replacement and upgrades without showing needs from outcomes?

I do not think this process has to be onerous and models exist that can be readily employed to reduce the effort of starting from scratch. For example, I did not see syllabi with a list of

required student outcomes for any courses. I did see the various categories of Student Learning Objectives in the tables mentioned. Thus I cannot correlate how the various courses actually support these outcomes. Not all courses need to be assessed every semester, but at least a rotational schedule should be maintained to provide a full picture over time.

Certainly a goal of program assessment is to learn how well the instructional methods and experiences deliver the outcomes through direct measurement. That a particular outcome is weakly achieved when assessment is carried out should not be viewed in fear, but rather as an opportunity to do better for the sake of the students' learning and long-term success. Since programs such as these utilize project-based learning, creation of a meaningful assessment process simply requires listing the measurable outcomes, collection of those measurements, and then reporting results to inform the program of where adjustments are required.

Perhaps some professional development and/or additional support can be provided to get the program assessment process up and running, since this certainly requires a fair amount of effort. Obviously, the college's standards and methods for assessment must be followed. As one point of reference, I have attached our assessment matrix and four abstracts from our AAS machining program as one approach to creating an assessment model.

Meeting with Jeremy Brown, Executive Director of Information Technology

I relayed to Mr. Brown that the faculty felt their computer labs and technology support was good. Software was up to date, but the number of pooled licenses for some applications could be increased. We discussed the overall problem of internet bandwidth management, and he explained that some traffic shaping work is being done to shift resources to more important uses.

Mr. Brown kindly returned me to the Grand Junction airport to conclude my visit.

Appendix

Machine Tool Technology Associate Degree:

Program Assessment Matrix (technical core) and Sample Abstracts

Machine Tool Technology (MY)

A graduate of this major should be able to:

1. demonstrate safe work habits and be conscious of safety when working with machinery;
2. read blueprints, interpret drawings, understand specifications, and work within stated tolerances;
3. apply mathematics in the machine tool trade (speeds, feeds, thread measurement, sine bar, etc.);
4. apply the principles of metallurgy to the science of heat treatment operations including hardening of steel, carburizing, case hardening, tempering, and annealing;
5. operate machine tools and demonstrate knowledge of their construction in relation to the metal working industry;
6. demonstrate knowledge of the construction and operation of production machinery of various manual and computer controlled machine tools;
7. demonstrate skills on Computer Numerical Controlled (CNC) milling and turning centers, sinker and wire Electrical Discharge Machines (EDM);
8. operate abrasive cutting machines such as surface, cylindrical, internal, and form grinding equipment; and
9. demonstrate skills in quality control, inspection, gauging methods, and production control as they relate to manufacturing, design, and production.

Program Curriculum Map – MACHINE TOOL TECHNOLOGY (MY)

Program Goal	Course Prefix and Number (Numbers in boxes represent RSO)											
	MTT118	MTT119	MTT127	MTT212	MTT216	MTT222	CIM101	CIM123	CIM205	CIM220	MSC106	SAF110
1.	1	1	1	1	1		1		1	1	18	1-10
2.	2	2,3,5	2	2	2-8		5,6,7		4	2,3		
3.	5		2	2,5			1,5,6,7			2,3		
4.			3,9				5,6,7			6,7	1-27	
5.			3,9				2,3,6,7		6	5,7, 9		
6.			3,9	2			3,6,7		2	3,7		
7.		4	3,9	2,6					3,5,7	7		
8.			3,9	3						7		
9.	3			4						9	6,7,12,13,17,19,21	

Course Abstract

Course Title: Metrology/Quality Control

Course Number: MTT 127

School Responsible: Industrial & Engineering Technologies

Type: (contact Registrar if revised course)
new course
revised course
new # (formerly MTT 126)
retain #

Implementation Date: Spring 2012

Course Description (*published in Catalog*):

Concepts and practices of precision measurement needed in the modern machine shop. Topics include direct and indirect measurements, contact and non-contact gaging, angular measurement, and hardness testing. The fundamentals of geometric dimensioning and tolerancing and blueprint reading as related to inspection will also be emphasized. (Formerly MTT126) 4 credits (1 Lecture – 9 Lab) *Prerequisite(s): MTT118 and MTT 119.*

Rationale:

Skills requiring the techniques used in the inspection and quality control of manufactured parts are essential to machinists, toolmakers, operators, as well as manufacturing engineering technologists in the precision metal working trades. This course includes an in-depth study of the skills needed in quality control and the interpretation and understanding of geometric dimensioning and tolerancing.

Information Literacy:

Students are directed to multiple resources for referencing current quality control/metrology processes and techniques used in the manufacturing field. Journals and Web based resources are accessed to connect students with these topics through organizations such as, The Society of Manufacturing Engineers, The Society of Automotive Engineers, and The National Institute for Metalworking Skills. Supplemental to written resources, the SME student chapter conducts tours to different manufacturing facilities and trade shows throughout the country to show the students the diversity and vastness of the manufacturing field.

Required Student Outcomes:

Upon successful completion of this course, the student will be able to:

1. Safely utilize measuring and testing equipment to inspect the quality of machined parts
2. Interpret engineering drawings.
3. Interpret drawings which employ geometric dimensioning and tolerancing.
4. Properly use and care for direct and indirect comparison measurement instruments.
5. Properly use and care for contact and non-contact measuring instruments.
6. Properly use and care for angular measurement instruments.

Course Abstract

Course Title: Machine Tool Applications

Type: X revised course
new # (formerly MTT 210)
retain #

Course Number: MTT 212

School Responsible: Industrial & Engineering Technologies

Implementation Date: Spring 2012

Course Description:

Continued study of the theory and practical applications introduced in prerequisite courses. Course work includes the production of projects with multiple mating parts, using fundamental machine shop equipment such as vertical and horizontal milling machines, engine lathes, drill presses, and band saws. Emphasis on industrial shop safety, material selection, job planning, bench-work, quality control, and inspection. Processes and techniques are applied in the laboratory environment. (Formerly MTT210) 4 Credits (1 Lecture -9 Lab) *Prerequisite(s): MTT 118 and MTT119.*

Rationale:

The course will center on shop activities utilizing basic machine tools incorporating advanced methods of machining to close tolerance. Processes and techniques will be applied in the laboratory environment.

Information Literacy:

Students are directed to multiple resources for referencing current machining processes and technologies in the manufacturing field. Journals and Web based resources are accessed to connect students with manufacturing topics through organizations such as, The Society of Manufacturing Engineers, The Society of Automotive Engineers, and the National Institute for Metalworking Skills. Supplemental to written resources, the SME student chapter conducts tours to different manufacturing facilities and trade shows throughout the country to show the students the diversity and vastness of the manufacturing field.

Required Student Outcomes:

Upon successful completion of this course, the student will be able to:

1. Demonstrate proficient shop floor safety.
2. Properly use basic machine tools common to a machine shop environment.
3. Perform advanced machining operations utilizing fundamental machine tools.
4. Do the planning and preparation required to carry out required project.
5. Construct machined projects utilizing multiple mating machined parts.
6. Present for evaluation a completed working machined product.

Course Abstract

Course Title: Basic Metalworking I

Course Number: MTT 118

School Responsible: Industrial & Engineering Technologies

Implementation Date: Fall, 2011

Type: (contact Registrar if revised course)
new course
revised course
new # (formerly)
retain #

Course Description:

Introduction to the theory and practical applications of basic metalworking will be presented. This course will emphasize industrial shop safety, material selection, job planning, bench-work, quality control, and inspection. Hand tools, drill presses, pedestal grinders, band saws, milling machines, and precision-measuring equipment will be used to complete required projects. 4 Credits (1 Lecture - 9 Lab) *Corequisite(s):none*

Rationale:

In the machining industry, skills in project layout, blueprint reading and interpretation and basic metalworking techniques are required. This course is devoted to developing the manipulative skills required to perform basic metalworking techniques. The student will have the opportunity for intensive hands-on working knowledge of the applications and procedures using tools and machinery to complete prescribed projects. This course will provide the foundation skills needed to advance into more advanced machining processes.

Information Literacy:

Using the print and electronic resources available, students will use the appropriate specifications for machining and standards for quality to safely complete their assignments.

Required Student Outcomes

Upon successful completions of the course the student should be able to:

1. Demonstrate safe industry practices when using machining equipment.
2. Interpret blueprints and complete projects to blueprint specifications.
3. Demonstrate proper use of precision measuring tools such as micrometers, calipers, and various gauges to measure project layout, filling, etc.
4. Demonstrate the proper setup and operation of drill presses, pedestal grinders, band saws, and milling machines.
5. Calculate proper speeds and feed rates based on the machining operation and the material specified from the blueprint.

Special Course designations:

None

Course Crosswalk:

MTT113 + MTT114 >-< MTT118

Course Abstract

Course Title: Lathe Applications I

Course Number: MTT119

School Responsible: Industrial & Engineering Technologies

Implementation Date: Fall, 2011

Type: (contact Registrar if revised course)
new course
revised course
new # (formerly)
retain #

Course Description:

Introduction to the theory and practical applications used to safely setup and operate the metal turning engine lathe. Operations such as turning, facing, boring, grooving, drilling, turning tapers, single point threading, and cut-off procedures will be implemented. Three and four-jaw chucking techniques and turning between centers will be used to complete required projects. 4 Credits (1 Lecture - 9 Lab) Corequisite(s): none.

Rationale:

Sound lathe operation is a required skill of metalworking technicians. Operations in turning, facing, boring, grooving, drilling, turning tapers, single point threading, and parting are essential in modern metal working. Students will develop practical hands-on skills using various set-ups and techniques to complete projects to print specifications.

Information Literacy:

Using the print and electronic resources available, students will use the appropriate specifications for machining and standards for quality to safely complete their assignments.

Required Student Outcomes:

Upon completion of the course the student should be able to

1. Demonstrate safe industry practices when using machining equipment.
2. Select proper tooling to setup metal turning engine lathe projects.
3. Demonstrate use of 3 and 4 jaw chucks and collets for work holding.
4. Demonstrate the proper setup and machining of projects between centers.
5. Calculate proper speeds and feed rates for various materials and machining operations.
6. Demonstrate the proper setup and chasing of threads with single point tooling

Special Course Designations:

None

Course Crosswalk:

MTT116 + MTT117 >-< MTT119

After review of the report, I was asked to expand on the following items:

a) faculty credentials
b) faculty effort in areas outside of the classroom
c) is the program faculty following best practices?
d) a summary section on the programs' strengths and weaknesses

a) Faculty credentials and b) faculty effort in areas outside of the classroom

Traditionally all academic faculty responds to three major expectations: teaching, scholarship, and service. A successful faculty member must incorporate all of these into their efforts. However, depending on the nature of the department and school, these take on different meaning and emphasis.

At an institution driven by basic research, the scholarship component is usually the one by which faculty are rated. The keys to success are a PhD in the discipline, obtaining external grants and the publication of novel results adding to the body of their discipline. Attracting and supervising graduate students is vital to the undergraduate program as they often serve in place of full-time faculty in teaching roles or laboratories. Yes, they still are expected to be good teachers, but often this is not a major factor in promotion and tenure. In this context, service is frequently meant to be membership on committees, participation in national boards and professional societies, and even government panels in policymaking situations. Also, a professor should have a degree "one above" the program level they teach (e.g. a BS for AAS degree level, MS for BS, PhD for MS/PhD), and finish from a school where they have not been employed.

However, in programs which are focused on career and technical fields (Welding, Manufacturing/Machining, Computer-Aided Drafting), the traditional model and expectations must be adjusted. The academic emphasis is on teaching, with hands-on, direct interaction of students with the faculty. Faculty in career and technical programs develop these skills in the students and create appropriate laboratories where this is accomplished. Students must graduate fully competent with industry requirements for skill sets needed to directly enter the workforce.

Advanced degrees for faculty are thus not as central to the mission. While it might be "nice" to showcase a department with advanced degrees, often a PhD or even a Master's level degree is not useful, much less attainable, in the particular field being taught. Learning is project oriented and skill-based, such that generation of new information through research is not the main concern. Sufficient industrial experience both directly and indirectly related to the area of teaching is to be preferred, along with any industry certifications and continuing education to keep skills current.

To the research component, career and technical faculty have opportunities such as National Science Foundation's Advanced Technological Education program. Here best practices are shared and learned in relevant technologies to today's workforce needs. There are others which are sponsored by professional societies or industry itself – Haas Technical Education Network and AutoDesk University to name two. Thus continuing education, both formal and informal, is necessary to maintain the skill sets for the discipline.

With this context in mind, I make the following observations about faculty credentials, based on the faculty vita supplied to me before the visit for Bill McCracken, Michael Carlton, Kevin Kern, Jason Sinclair and Denis Thibodeau.

1. **Bill McCracken:**

Credentials:

a. Highest Degree Obtained: AAS, Manufacturing Technology, WCCC, 2003
b. Other related education: numerous licenses in Vocational Teaching and training certificates; Navy machining school, B.O.C.E.S. Machine Trades Vocational School (secondary education).
c. Related professional experience in Manufacturing Technology: 20 years in directly relevant industry and Navy service

Conclusion: Mr. McCracken's qualifications are more than adequate for his role in the program, and are nationally competitive for any AAS manufacturing program. He could also qualify for BS degree programs where his teaching would be concentrated in the first two years.

Efforts in areas outside of the classroom:

Exemplary level of effort outside the classroom, as evidenced by the following:

a. A number of external grants, including National Science Foundation participation
b. Campus tour guide, curriculum committee, Crisis Team, Department Head
c. Summer camps for High School students, connections to High School programs
d. Continued connections with business and industry
e. Several publications in the field
f. Involvement in "Project Lead the Way" for STEM education
g. Member of statewide Manufacturing Tactical Team and Mesa County Manufacturing Council

2. **Michael Carlton:**

Credentials:

a. Highest Degree Obtained: AAS, Machine Tool and Die, WCCC, 1991
b. Other related education: Certified Journeyman Moldmaker, 1996
c. Related professional experience in Manufacturing Technology: 21 years in directly relevant industry

Conclusion: Mr. Carlton's qualifications are more than adequate for his role in the program, and are nationally competitive for any AAS manufacturing program due to his Journeyman Moldmaker credential.

Efforts in areas outside of the classroom:

Basic level of effort outside the classroom, as evidenced by the following:

a. Program Advisory committee member

3. **Kevin Kern:**

Credentials:

a. Highest Degree Obtained: Vita does not list an academic credential, but does list a Certificate from the American Welding Society as a Certified Welding Inspector (2012), a Career and Technical Education Credential, and a Teaching License from Colorado Department of Education
b. Other related education: Numerous welding related training courses in key welding technology areas and credit courses from Oakland University (MI) and Colorado State University
c. Related professional experience in Welding Technology: 23 years in directly relevant welding industry

Conclusion: Mr. Kern's qualifications are more than adequate for his role in the program, and are nationally competitive for any AAS Welding program due to his Certified Welding Inspector credential.

Efforts in areas outside of the classroom:

Excellent level of effort outside the classroom, as evidenced by the following:

a. Member, American Welding Society
b. Served on WCCC council and WCCC curriculum committee
c. Served on various WCCC hiring committees
d. Awards for professional development from CMU and WCCC
e. Helping Grand Junction HS students with community service projects
f. Skills USA participation
g. Helped in a number of campus fabrication projects to improve the facilities, as well as internal projects to assist with needs in the machining program

4. **Jason Sinclair:**

Credentials:

a. Highest Degree Obtained: BA, Sociology with Art Minor, University of Montana, 2005
b. Other related education: Welding Certificate, Johnson County Community College, (date not listed)
c. Related professional experience in Welding Technology: 17 years in directly relevant industry, 4 of which as self-employed

Conclusion: Mr. Carlton's qualifications are adequate for his role in the program, and are competitive for many AAS manufacturing program due to his experience and

Welding certificate. The communication skills from a BA are valuable to the preparation of curriculum and his art minor has relevance to welding sculpture and outdoor aesthetics.

Efforts in areas outside of the classroom:

Good level of effort outside the classroom, as evidenced by the following:

b. Ongoing business and industry relationships through visitations and the placement of welding students in internships.
c. Networking with welding instructors statewide
d. Working on Certified Welding Inspector credential as of July 2012
e. Connecting upper division welding students with local industry
f. Skills USA participation

5. **Denis Thibodeau:**

Credentials:

a. Highest Degree Obtained: AAS Computer Aided Design, Rogue Community College, 1992
b. Other related education: has ongoing continuing education in relevant technology for CAD (Civil 3D, Revit, Solidworks, Architectural Desktop, AutoCAD), GIS, and Numerical Control Machining
c. Related professional experience: 4 years direct experience, 20 years private consulting work

Conclusion: Mr. Thibodeau's qualifications are adequate for his role in the program, and are competitive for many AAS CAD programs due to his ongoing professional development, experience and AAS degree.

Efforts in areas outside of the classroom:

Good level of effort outside the classroom, as evidenced by the following:

a. Coaching of youth baseball, basketball and football teams.
b. Advising board for Lincoln Orchard Elementary School
c. Student projects in conjunction with Habitat for Humanity
d. Skills USA advisor
e. WCCC Scholarship Committee
f. Written two books for AutoCAD CED classes

Conclusions

Although at first look the *traditional academic credentials* are limited, they are all heavily invested in credentialing and continuing education. Their related industrial experience is a

mitigating strength here as they are focused on transferring skills to students whose primary direction is a technical career like the professors have done before. In a small program it is difficult to criticize the presence of two WCCC graduates as professors; obviously one is from a precursor program that is no longer offered. There is basic participation in the wider scope of campus governance (curriculum committee, Crisis Team, etc.), but perhaps some additional areas of committee participation might be in order for some. More than adequate connections to high schools and business and industry is noted. Also, both Welding and Manufacturing programs have developed 5-year plans which show thought and reflection about the long-term needs.

c) is the program faculty following best practices?

My vantage point is that best practices in technical programs are those given by the professional societies that govern the trade in question, although regional industry needs may slant a program more in one direction due to the skills needed for workers.

Machining/Manufacturing:

My assessment of the curriculum outline and laboratory facilities shows a strong connection to current industrial needs and practices. However, as mentioned in the general report, it would be good to investigate the NIMS best practices and standards as a valuable comparative tool. Access to the NIMS standards are merely $40 and have been developed to address the following skill areas at up to three distinct levels of competency. It must be noted that the NIMS standards are performance standards for various technical metalworking tasks commonly found in industry, and do not address "soft" skills such as those of communications, problem solving and team participation. They do represent a stakeholder base of over 6,000 metalworking companies.

NIMS Metalworking Standards List

MACHINING

- Machining Levels I, II and III
- Screw Machining Levels II and III

MACHINE BUILDING AND MAINTENANCE

- Machine Building Levels II and III
- Machine Maintenance, Repair, and Service Level II and III

METALFORMING

- CNC/NC Punch Press Level II
- Laser Cutting Level II

- Metalforming Level I
- Press Brake Levels II and III
- Roll Forming Level II
- Slide Forming Levels II and III
- Spinning Level II
- Stamping Levels II and III

TOOL, DIE, AND MOLDMAKING

- Moldmaking Levels II and III
- Tool and Die Making Levels II and III

Not all of these skill standards need to be represented in all machining programs. For example, several topics in the metalforming list are not part of the current curriculum. Do they need to be? That depends on the demands of employers.

I did not observe any students working in the shop as there were no classes running the day of my visit. However, I did observe good practices in shop cleanliness, machine care, and general facility layout.

Welding:

The welding program is rightly connected to the American Welding Society (AWS), which is the primary professional welding society in America. The AWS has a standard (AWS QC 5-91) for Certified Welding Educators from which I quote:

"This standard establishes the requirements for the AWS certification of Welding Educators, describes how personnel are qualified, and outlines the principles of conduct and practice by which certification may be maintained."

In this standard, the minimum education and experience requirements are listed as follows:

"The applicant shall be a High School graduate or equivalent, with a minimum of 5 years of experience in an occupational function that has a direct relationship to weldments fabricated to a code or standard and directly involved in one or more of these: production, construction, inspection, repair."

There is also a professional code of ethics that is a requirement for maintaining certification. I did not find any significant exceptions to the standards expressed in this document during my visit or in the curriculum documents provided to me.

Although neither welding instructor a currently holds a CWE credential, I note that Mr. Sinclair was pursuing one as of July 2011 and Mr. Kern does hold a CWI credential. The inspector

(CWI) credential is of more value as that individual can provide credentials to students much like the NIMS program for machining.

Again, no students were working in the welding lab during my visit, so workflow, noise level and ventilation could not be evaluated. Even so, the facility was designed to place the welding booths in a semi-circle so that an instructor would have easy access to all practice areas. There appeared to be adequate safety and lighting. Overall I found the program to be in line with the expectations of AWS QC 5-91.

Computer Aided Design

The Computer Aided Design program courses are concentrated on CAD Architectural and CAD Mechanical topics. As these areas are heavily defined by the software that is used, I find that the program is aligned with the appropriate applications for the field.

In addition, a review of similarly titled AAS programs at other institutions where an Architectural emphasis is made usually include State building codes as a separate class. This may be integrated into the coursework already, but if not, it may be a consideration for adoption.

d) a summary section on the programs' strengths and weaknesses

Machining/Manufacturing

Strengths: FT student to FT faculty ratio is small (8.1 in 2011), machining lab emphasizes manual machines but has CNC equipment as well, faculty have many years of industrial experience and are enthusiastic about the career field, faculty are involved in community and college service and have received outside support from grants, additive manufacturing equipment is provided which is rare for an AAS program, projects are at an appropriate level for curriculum, students gain useful employment in the region from completing the program, and teaching support classes for CMU engineering majors enhances those degrees, computer labs up to date and well supported, participation in Haas Technical Education Partnership.

Weaknesses: Some laboratory equipment is aging and needs replaced, no evidence of a systematic outcomes assessment program was given, support for equipment maintenance via a more dedicated technician would be helpful, long-term enrollment growth is a concern due to regional economics, program faculty have basic academic credentials but abundant practical experience, no evidence of using online learning management software (Desire2Learn) to support instruction.

Welding

Strengths: FT student to FT faculty ratio is small (10.5 in 2011), the welding lab has all major processes, faculty have many years of industrial experience, have or are pursuing AWS credentials and are enthusiastic about the career field, faculty are involved in

community and college service, projects are at an appropriate level for curriculum, students gain useful employment in the region from completing the program, Skills USA competitions are supported, computer labs are up to date and well maintained.

Weaknesses: Some laboratory equipment is aging and needs replaced, no evidence of a systematic outcomes assessment program was given, support for equipment maintenance via a more dedicated technician would be helpful, long-term enrollment growth is a concern due to regional economics (in Welding's case, challenging the available seats), program faculty have basic academic credentials but abundant practical experience, no evidence of using online learning management software (Desire2Learn) to support instruction.

Computer-Aided Design Technology

Strengths: FT student to FT faculty ratio is very small (7.2 in 2011), sufficient seats for CAD software are available, projects are at an appropriate level for curriculum, computer labs are up to date and well maintained. Instructor is well prepared and enthusiastic about the program.

Weaknesses: Declining enrollment trend over the past several years calls into question if the program can be sustained in its current form. The concentration focuses on CAD Architectural and CAD Mechanical – may not be as relevant to the region as in the past or competitive with other AAS programs in the state. The Colorado Department of Labor and Employment predicted in 2009 "that over the next nine years there will be 72 openings per year for architectural and civil drafters; 16 openings per year for electrical and electronics drafters; 21 openings per year for mechanical drafters." No evidence of a systematic outcomes assessment program was given. No evidence of using online learning management software (Desire2Learn) to support instruction.

All Concentrations:

Provide an internship option which would substitute for an appropriate course in the concentration.