



AY 2018 – 2019
Program Review

Associate of Applied Science
Construction Technology
Emphasis: Supervision



WESTERN COLORADO
COMMUNITY COLLEGE
A Division of Colorado Mesa University

AY 2018-2019

Program Review

Associate of Applied Science

Construction Technology

Emphasis: Supervision

Table of Contents

Part 1 – Introduction and Program Overview

- A. Program Overview
- B. Program History
- C. Recommendations from Previous Program Review
- D. Program Mission and Objectives
- E. Support for other majors/minors and general education requirements
- F. Location/comparative advantage
- G. Unique characteristics of the program
- H. Other information/data

Part 2 – Curriculum

- A. Program Curriculum
- B. Program Currency
- C. Program Delivery

Part 3 – Analysis of Student Demand and Successes

- A. Number of Majors
- B. Registration and student credit hours by student level
- C. Registration and student credit hours by course level
- D. Number of graduates
- E. Student successes/recognitions, especially in external student competitions
- F. Other information/data

Part 4 – Academic Program Resources

- A. Faculty
- B. Financial Information
- C. Library Assessment
- D. Physical Facilities
- E. Instructional Technology and Equipment
- F. Efficiencies in the way the Program is Operated
- G. Other information/data

Part 5 – Student Learning Outcomes and Assessments

- A. Student Learning Outcomes (SLOs)
- B. Direct and indirect measurements that assess the program's student learning outcomes
- C. Program improvements resulting from assessment of SLOs since the last program review
- D. Student learning outcomes being refined
- E. Other information/ data

Part 6 – Future Program Plans

- A. Program Vision
- B. Strengths and challenges facing program
- C. Trends in the Discipline that could affect future planning for program
- D. How the program review process is being used to improve the program's teaching and learning
- E. Recommended program's challenges and potential resources need to address them

Appendices:

- Appendix 1 Course Information
- Appendix 2 Program Information
- Appendix 3 Faculty Vitae
- Appendix 4 Course SLO's and Assessment

Part 1 – Introduction and Program Overview

A. Program Overview

The Construction Technology program is based on demand created by local industry professionals. These professionals established that a need for qualified supervisors in the Construction Technology field with the knowledge and skills required for the field were in short supply. With this in mind Western Colorado Community College did a feasibility study and based upon the results of the evaluation, the Construction Technology program was established in the Spring Semester of the Academic year 2005.

Construction Technology is the discipline supervising and organizing the control of labor, materials, and equipment required to construct and deliver a completed project to a private or public owner. The supervisor also usually controls the team of craftsmen to achieve the project objectives. Those objectives will include delivering the project on or ahead of schedule, and on or under a given budget. This is done by maintaining a safe work environment and meeting the required level of standards and quality the industry expects.

There is a wide variety of career opportunities for the student with an Associate of Applied Science Construction Technology emphasis in Supervision degree. Some examples of entry level positions are junior estimator, assistant to the superintendent, scheduler, building inspector, purchasing manager and project/construction manager.

A unique characteristic of this program is the relationship between Colorado Mesa University (CMU) and Western Colorado Community College (WCCC) which is an incredible opportunity for some students. Students that are not admitted to CMU due to the selective university status, have the ability to complete coursework required for the Bachelor of Science degree in Construction Management while proving themselves at WCCC before admission to CMU. Once the student has proven their academic ability, the student is able to transfer into the four-year program, relatively seamlessly, which is a strength of the program.

The Construction Technology Program at Western Colorado Community College is broken down into two areas of study:

1. Construction Science- The content includes study in the following: building materials and methods; mechanical systems; heating and air conditioning;

plumbing systems; electrical; building lay-out surveying; construction equipment management; soils and foundations.

2. Construction Project Superintendent- The content includes study in the following: interpretation of plans and specifications; building codes; scheduling and cost leveling; bonding; permits; safety management; project delivery and internships.

Graduates from the program are currently employed by small, medium, and large companies at the local, regional and national level. Our graduates are currently employed in many areas of construction including; residential, commercial, and heavy civil construction.

B. Program History

2005-Industry donated funds to build the construction lab building that included a designated classroom. Classes for both secondary and post-secondary were taught by Tim Hinz and Steve Peterson in this building.

2007-Richard Leonard is hired as Program Director and Patti Hoff is hired as an adjunct.

2008—The Construction Crafts Program is added to the curriculum and Glen Hoff is hired as an adjunct for that program.

2012—Richard Lahe is hired as an adjunct for the Mechanical Program.

2014—In conjunction with CMU, the program curriculum is reviewed for cohesion with University requirements and standards of national construction accrediting bodies to assure program quality.

C. Recommendations from Previous Program Review.

A program review was conducted on November 16, 2010 by Marc E Bridgens. Dean of the School of Construction and Design Technologies, Pennsylvania College of Technology. Dean Bridgens gave three recommendations for the program which included:

1. "The matriculation into the Construction Management from the Construction Technology degrees would then clear a path from high school through a four year degree."
2. "A need to provide adequate space for skill demonstration will only help the program."
3. "Develop more meaningful and obtainable goals for the program"

D. Program Mission and Objectives

1. The Construction Technology program of Western Colorado Community College follows the goals and objectives of our parent, Colorado Mesa University, and those are:

Institutional Mission Statement

"Committed to a personal approach, Colorado Mesa University is a dynamic learning environment that offers abundant opportunities for students and the larger community to grow intellectually, professionally, and personally. By celebrating exceptional teaching, academic excellence, scholarly and creative activities, and by encouraging diversity, critical thinking, and social responsibility, CMU advances the common good of Colorado and beyond."

2. Program Goals

The goal of the Construction Technology Program is to provide the necessary training for the student to advance to the supervision level in the industry. With an articulation agreement in place for the student to advance to the four-year program at Colorado Mesa University, there is also a great emphasis for our students to continue their education for a Construction Management Bachelor Degree.

3. Program Objectives

The objectives of the Construction Technology Program are the following:

To practice a commitment to student development by applying a basic knowledge through up-to-date and advanced theory.

To demonstrate hands-on skills through the use of lab settings, and providing projects for some courses that implement problem solving techniques using multiple strategies.

To demonstrate subject matter knowledge and critical thinking through contextual learning activities.

To monitor and manage students based upon best practices, which includes organized teaching practice and interaction with professional associations.

4. The role and mission of the institution was reenacted in 2010 by the Colorado General Assembly (Colorado Revised Statutes 23-53-101) and amended in 2011 when Mesa State College was renamed Colorado Mesa University:

“There is hereby established a university at Grand Junction, to be known as Colorado Mesa University, which shall be a general baccalaureate and graduate institution with selective admission standards. Colorado Mesa University shall offer liberal arts and sciences, professional and technical degree programs and a limited number of graduate programs. Colorado Mesa University shall also maintain a community college role and mission, including career and technical education programs. Colorado Mesa University shall receive resident credit for two-year course offerings in its commission-approved service area. Colorado Mesa University shall also serve as a regional education provider.”

(Source: <https://www.coloradomesa.edu/about/values.html>)

E. Support of other majors/minors and general education requirements

Currently the only major/minor requiring CONC courses is the Bachelor of Science in Construction Management Degree, which facilitates the articulation between the two degrees.

Currently there are no CONC courses that are accepted to fulfill general education requirements.

F. Location/comparative advantage

Geographically, Western Colorado Community College is located in Western Colorado and is one of two community colleges in the state of Colorado that offers an Associate of Science Degree in Construction Technology emphasis. Arapahoe Community College also offers an emphasis in Supervision/Management. There is one other community college that offers a general AAS degree in Construction

Trades (Lamar Community College). The observed differences are shown in Figure 1.G

Figure 1.G

Course Comparisons of Colorado Community Colleges

WCCC	Lamar	Arapahoe
CONC 101 Construction Safety	OSH 126	
CONC 116 Building Materials		AEC 116
CONC 161 Mechanical/Electrical	ELEC (elective)	
CONC 208 Construction Equipment Management		
CONC 218 Surveying		AEC 220
CONC 228 Estimating/Cost Control		AEC 216
CONC 245 Project Management		MAN 216
CONC 104 Architectural/Civil Print Reading	AEC 107	AEC 107
CONC 234 Commercial/Industrial Prints		
CONC 251 Construction Preparation: Codes & Permits	AEC 236	AEC 236
CONC 265 Planning & Scheduling for Construction Supervisors		AEC 226
CONC 117 Building Material Testing		AEC 218
CONC 270 Practical Applications	ARE 280	
CONC 117 Building Materials Testing		
CADT 106 Computer aided Drawing	CAD 101	AEC 110
	Construction Trade Emphasis (26 credits)	AEC 228 Contracts & Legal Environment
General Education (17 units)	Electives (26 units)	(16 units)
	PHY 105 Conceptual Physics	
CONC 270 Internship		AEC 280
		BUS 115 Intro to Business
		BUS 216 Legal Environment of Business
		MAN Principles of Supervision
	CHE 101 Intro to Chemistry	

G. Unique characteristics of the program.

Common to Construction Technology Programs, the program has had great support from the local construction industry. They have been instrumental in the development and continuation of the program. The industry provides scholarships, lab support, classroom support, and advisory board participation. The relationship with CMU having the WCCC students taking the same core classes as the CMU students and interacting with them has given the WCCC student the confidence to continue their education. And required Construction Technology courses in the Bachelor of Science in Construction Management provides students an opportunity for a seamless transition into a four-year degree. Faculty from both the Construction Technology and the Construction Management Program work well together, providing students a curriculum that is strengthened due to this collaboration.

Other information/data (program's option) – None

PART 2---CURRICULUM

A. Program Curriculum

The curriculum for the Associate of Applied Science Degree in Construction Technology emphasis Supervision is delivered in the following content areas:

1. Essential Learning - These classes provide the base knowledge needed for both construction management and a well-rounded education developing a needed life skill set.
2. Construction science - Building materials and methods; mechanical electrical and plumbing systems; construction equipment; surveying; structure analysis; soils and foundations.
3. Construction Project Supervision- Interpretation of plans and specifications; codes; project delivery; contracts; bonding; permits; scheduling; estimating; quality management; safety management; regulatory issues and internships.

See attached program sheets in Appendix 2.

B. Program Currency

<u>2006-2007</u>	Inaugural Program Sheet
<u>2008-2009</u>	CONC 218 Survey, and CONC 251 Construction Prep/Codes and Permits were added.
<u>2009-2010</u>	CONC 231 Ethics was deleted and CONC 234 Commercial Industrial Prints was added.
<u>2014-2015</u>	Craft AAS and Construction Technology Certificate deleted.

C. Program Delivery

Currently all Construction Management courses are taught in the traditional lecture and lecture/lab format at the Colorado Mesa University Main Campus, WCCC campus and the Archuleta Engineering Center in Grand Junction, Colorado.

Course Prefix & Number	Course Title	Day/ Night	Site	Mode
CONC 101	Construction Safety & Regulations	N	B	C
CONC 104	Architecture/Civil Print Reading	D	B	C
CONC 116	Building Material	N	B	C
CONC 117	Building Materials Testing	D	B	C
CONC 161	Building Mechanical and Electrical	N/D	B	C
CONC 208	Construction Equipment	N	B	C
CONC 218	Surveying	N/D	B	C
CONC 228	Estimating and Cost Control	N	B	C
CONC 234	Commercial Industrial/Plans	D	B	C
CONC 245	Project Management	N	B	C
CONC 251	Construction Preparation (Codes, Permits, etc.)	D	B	C
CONC 265	Planning and Scheduling for the Construction Supervisor	D	B	C
CONC 270	Construction Supervision Internship	DEM		

D ... Day (ends by 5 p.m.), N ... Night (begins at 5 p.m. or later)

DEM ... Course offered on demand, B ... Bishop Campus (AEC Building)

C ... Traditional classroom instruction

The curriculum is designed to prepare students for employment in both vertical and horizontal building as well as residential and commercial. Our location on the Western Slope of Colorado provides the opportunity to place students in areas of pipeline, rig pads, and road building internships. There is a demand for an emphasis on green building and sustainability. A focus on this is projected to continue.

PART 3 – ANALYSIS OF STUDENT DEMAND AND SUCCESS

A. Table 3.1

Number of Majors

Program	Degree	Code	Major	2013-14		2014-15		2015--16		2016-17		2017-18	
				1 st Major	All	1 st Major	All	1 st Major	All	1 st Major	All	1 st Major	All
Construction Technology	AAS	1371	Craft	3	3	1	1	2	2	1	1	1	1
	AAS	1372	CT	12	17	16	28	15	25	18	29	15	43
Subtotal				15	20	17	29	17	27	19	30	16	44

As indicated in table 3.1 the number of majors from the academic years 2013-14 through 2017-18 has increased almost three-fold. This growth is attributed to the increasing alignment of the relationship the WCCC Construction program has with the CMU Construction Management program.

B. Table 3.2

Registration and Student Credit hours by Student Level

Subject	Student Level	2013-14		2014-15		2015-16		2016-17		2017-18	
		Enrolled	SCH	Enrolled	SCH	Enrolled	SCH	Enrolled	SCH	Enroll ed	SCH
CONC	FR	40	114	29	82	39	111	29	79	18	53
	SO	69	201	105	308	96	277	106	314	142	414
	JR	40	120	51	152	66	195	49	143	59	173
	SR	25	73	16	46	45	132	34	100	42	124
	Non-Deg							1	3		
CONC Total		174	508	201	588	246	715	219	639	261	764

As indicated in the Table 3.2, student registration for credit hours by the student level, has increased at all levels from 2013-14 to 2017-18. There

were 174 enrolled students and 508 student credit hours at all levels in 2013-14. This has increased to 261 enrolled students and 764 student credit hours at all levels in 2017-18, an impressive gain.

C. Table 3.3

Registration and Student Credit Hours by Course Level

Subject	Course Level	2013-14		2014-15		2015-16		2016-17		2017-18	
		Enrolled	SCH	Enrolled	SCH	Enrolled	SCH	Enrolled	SCH	Enrolled	SCH
CONM	100	96	277	116	340	134	389	99	282	136	401
	200	78	231	85	248	112	326	120	357	125	363
CONC Total		174	508	201	588	246	715	219	639	261	764

The increase in both students and student credit hours is due in large part to the CMU Construction Management program and the Construction Technology programs adjusting their program sheets so the 100 and 200 pre-requisite level courses for the Construction Management Program are currently taught by the Construction Technology Program.

D. Table 3.4

Number of graduates

Program	Degree	Code	Major	2013-14		2014-15		2015-16		2016-17		2017-18	
				1 st Major	All	1 st Major	All	1 st Major	All	1 st Major	All	1 st Major	All
Construction	AAS	1372	CT	4	4	11	11	5	5	4	4	20	21
Tech Cert.	Cert.			1	1								
Subtotal				5	5	11	11	5	5	4	4	20	21

As of the spring semester of 2018, forty-four (44) students have earned an Associate of Applied Science degree in Construction Technology and one (1) student has earned a Technical Certificate in Construction Technology. The number of degrees awarded has increased from 2013-14 to 2017-18 and can be attributed to the growing closeness of the Construction Management program and the Construction Technology programs.

E. Student successes/recognitions, especially in external competitions.

Each February students participate in the Associated Schools of Construction (ASC) Student Competition and Conference, held in Sparks (Reno) Nevada. Students also participate in the annual BYU Challenge. This is a smaller competition hosted by Brigham Young University in Provo, Utah and similar to the ASC event. The WCCC students usually participate as “alternates” giving them the experience and prompting them to continue their education toward a Bachelor Degree in Construction Management.

Graduates have found success in the construction industry. A student is currently employed by 2H Mechanical (a Grand Junction HVAC Contractor) as a project engineer. Several WCCC students have been hired by companies listed in the ENR (engineering News of Record) such as Top 400 contractors: Kiewit (3), PCL (6), FCI (244), and Shaw (297).

F. Other Information/data (programs option)-none.

PART 4—ACADEMIC PROGRAM RESOURCES

A. Faculty

The Construction Technology program currently has one Technical Instructor of Construction Technology and one Lecturer of Construction Technology. They teach the core curriculum for the Construction Management program and the total curriculum for the Construction Technology program.

Glen Hoff, has a Bachelor of Science Degree from California Polytechnic San Luis Obispo, California, and is a licensed General Contractor in the state of California.

Richard Lahe is a licensed Journeyman Plumber and certified Welder.

Table 4.1

1. Ratio of Full Time Equivalent Students (FTES) to Full-Time Equivalent Faculty (FTEF)

S u b j e c t	2013-14			2014-15			2015-16			2016-17			2017-18		
	FTES	FTEF	FTES: FTEF	FTES	FTEF	FTES: FTEF	FTES	FTEF	FTES: FTEF	FTES	FTEF	FTES: FTEF	FTES	FTEF	FTES: FTEF
C O N M	16.9	1.6	10.7	19.6	1.7	11.5	23.8	1.7	14.3	21.3	1.7	12.5	25.5	2.0	13.0

Table 4.2

2. Course credit hours and student credit hours by faculty type (i.e. tenured/tenured track, instructor, administrators/staff/coaches, and lectures).

Courses are arranged between faculty in order to align with their area of expertise with course content as shown below.

Course Number and Description	Teaching Faculty
CONC 101 Construction Safety & Regulations	Glen Hoff
CONC 104 Arch/Civil Print Reading	Richard Lahe
CONC 116 Building Materials	Glen Hoff
CONC 117 Building Material Testing	Glen Hoff
CONC 161 Building Mechanical/Electrical	Richard Lahe
CONC 208 Construction Equipment	Glen Hoff
CONC 218 Surveying	Glen Hoff
CONC 228 Estimating and Cost Control	Glen Hoff
CONC 234 Commercial/Industrial Plans	Richard Lahe
CONC 245 Project Management	Glen Hoff
CONC 251 Construction Prep: Codes, Permits	Richard Lahe
CONC 265 Planning/Scheduling for the Construction Super	Glen Hoff
CONC 270 Practical Applications/Internship	Glen Hoff

Table 4.3

Credit Hours by Faculty Type.

S u b j e c t	2013-14			2014-15			2015-16			2016-17			2017-18		
	CCH	SCH	SCH%	CCH	SCH	SCH%	CCH	SCH	SCH %	CCH	SCH	SCH%	C C H	SCH	SCH %
F T N	28	372	73%	30	434	74%	29	533	75%	31	502	79%	34	572	75%

O N T T															
P T	10	136	27%	11	154	26%	11	182	25%	10	137	21%	13	192	25%
T o t a l	38	508		41	588		40	715		41	639		47	764	

3. Faculty success/quality/recognitions-details related to teaching, advising, scholarship, service, and other achievements.

Richard Lahe is a Lecturer of Construction Technology. Richard is a senior in the Construction Management program at CMU. He is a Navy veteran and a journeyman plumber, a certified pipe welder, a certified aerospace welder, and an aviation metalsmith. He is NCCER certified in Construction Technology Core Curriculum, and HVAC. He also is a heavy equipment operator.

Glen Hoff is a fulltime Instructor of Construction Technology. Glen has a Bachelor of Science degree from Cal Poly SLO, Ca. He is a journeyman carpenter and a licensed General Contractor in the state of California. He is OSHA qualified to teach 10- and 30-hour safety classes. He is also NCCER certified in Construction Technology Core Curriculum, carpentry and safety.

Glen is actively involved in student advising and coaches one of the teams for the BYU and the ASC competitions. This provides numerous opportunities for faculty-student interactions.

Table 4.4

B. Financial Information (Finance and Budget)

DEPT	ITEM	2013-14	2014-15	2015-16	2016-17	2017-18
CONC	FT FAC	\$52,392	\$56,628	\$60,284	\$65,066	\$62,742
CONC	PT FAC	\$7,107	\$7,880	\$7,939	\$7,269	\$9,485
CONC	BOC EXP	\$4,017	\$2,259	\$3,503	\$2,881	\$2,478
Total		\$63,516	\$66,767	\$71,726	\$75,216	\$74,705

C. Library Assessment

The Library Assessment indicated that the Library's electronic database encompasses a wide range of construction technology materials. It should be noted that the Library possess the collection of the latest (2018) International Code Council (ICC) code editions. The Library also possess the International Journal of Construction Education and Research.

Library Program Assessment John U. Tomlinson Library Colorado Mesa University

Date of Assessment: 20 August 2018

Program under review: Construction Technology

Description of Program: The certificate and AAS in Construction Technology programs prepare students for career opportunities in construction supervision through activities involving project management, cost estimating, building materials, and project scheduling. Students range from construction professionals looking for the occasional class to upgrade their job skills to students wanting to jumpstart their careers.

Program Level/s: Certificate, AAS

Liaison: Cantwell, Lauren

1. Collection Assessment

While collection development is the joint responsibility of the Construction Technology instructors and their Library liaison, as Construction Technology is under the umbrella of WCCC's programs, purchases for Construction Technology occur within the overall WCCC acquisition funds. Additionally, CMU has a Construction Management program that *has been* under the umbrella of the Business programs but, as of 2018, is under the Engineering program. Additionally, that Construction Management program has its own acquisitions fund code for the purchase of supporting materials. With this in mind, the collection has been assessed using purchases through *both* of these funds. Overall, instructors for Construction Technology can

recommend titles to their Library liaison, who will review them and send them on for purchase as funds allow.

FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
33	49	38	34	16

Between the Construction Management and Engineering acquisitions budgets, approximately 170 titles have been purchased to support this program over the past 5 years.

a. Reference Support (**dark orange** = eBook):

Harris, C. M. (2006). *Dictionary of architecture & construction* (4th ed.). New York: McGraw-Hill.

Chudley, R., & Greeno, R. (2014). *Building construction handbook* (Tenth edition.). London; New York: Routledge.

Burden, E. E. (2005). *Illustrated dictionary of building design + construction*. New York: McGraw-Hill.

Gorse, C. A., Johnston, D., & Pritchard, M. (. e. (2012). *A dictionary of construction, surveying, and civil engineering*. Oxford: Oxford University Press.

United States. Occupational Safety and Health Administration & CCH Incorporated. (2009). *OSHA standards for the construction industry (29 CFR part 1926): With amendments as of January 2009*. Chicago: CCH.

International Code Council. (2011). *International codes* (2012 ed.). [Washington, D.C.]: International Code Council.

Patterson, T. L. (2010). *Illustrated 2009 building code handbook*. New York: McGraw-Hill.

Kubba, S., & ScienceDirect (Online service). (2012). *Handbook of green building design and construction: LEED, BREEAM, and Green Globes*. Amsterdam; Boston: Elsevier/Butterworth-Heinemann.

Kubba, S., & ScienceDirect (Online service). (2017). *Handbook of green building design and construction: LEED, BREEAM, and Green Globes* (Second edition.). Oxford, United Kingdom; Cambridge, MA, United States: Butterworth-Heinemann.

Ellenberger, J. P., & ScienceDirect (Online service). (2014). *Piping and pipeline calculations manual: Construction, design fabrication, and examination* (Second edition.). Amsterdam: Butterworth-Heinemann.

Pipinato, A., & ScienceDirect (Online service). (2015). *Innovative bridge design handbook: Construction, rehabilitation and maintenance*. Kidlington, Oxford, UK: Butterworth-Heinemann is an imprint of Elsevier.

Meyers, R. A. & SpringerLink (Online service). (2012). *Encyclopedia of sustainability science and technology*. New York: Springer.

b. Monographic Sources

The courses listed on the Construction Technology associates program sheet include Construction Safety & Regulations; Architectural/Civil Print Reading; CAD; Building Materials; Construction Equipment; Surveying; Cost Control; Commercial/Industrial Plans; Project Management; Codes and Permits; and more. Search terms relevant to these courses have been used for the age analysis below.

Age Analysis

SU: Building materials	Print	E-book	KW: building AND (permits OR code)	Print	E-book
2010-	0	93	2010-	37	768
2005- 2009	2	15	2005-2009	42	161
2000- 2004	0	0	2000-2004	14	9
1990- 1999	1	0	1990-1999	14	10
1980- 1989	2	0	1980-1989	2	0
Pre 1980	5	0	Pre 1980	7	0
TOTAL	10	108	TOTAL	122	948

SU: Computer- aided design	Print	E-book
2010-	6	102
2005-2009	2	50
2000-2004	3	2
1990-1999	7	1
1980-1989	4	1
Pre 1980	0	0
TOTAL	22	156

KW: construction AND survey*	Print	E-book
2010-	15	404
2005-2009	15	78
2000-2004	4	2
1990-1999	5	1
1980-1989	2	0
Pre 1980	6	0
TOTAL	48	492

KW: OSHA OR (construction AND safety) OR (construction AND regulations)	Print	E-book
2010-	36	594
2005-2009	27	112
2000-2004	14	2
1990-1999	15	15
1980-1989	2	1
Pre 1980	5	0
TOTAL	100	724

SU: Sustainable Buildings	Print	E-book
2010-	16	59
2005-2009	9	3
2000-2004	0	0
1990-1999	0	0
1980-1989	0	0
Pre 1980	0	0
TOTAL	25	62

Monographic titles of interest may include (eBook titles in **dark orange**):

- Knutson, K., & Schexnayder, C. J. (2009). *Construction management fundamentals* (2nd ed.). Boston: McGraw-Hill Higher Education.
- Moran, M. M. (2003). *Construction safety handbook: A practical guide to OSHA compliance and injury prevention* (2nd ed.). Rockville, MD: ABS Consulting, Government Institutes.
- Teeples, J., & United States. Occupational Safety and Health Administration. (2005). *What every supervisor must know about OSHA--construction*. Chicago: CCH Inc.
- Elizabeth, L., & Adams, C. (2005). *Alternative construction: Contemporary natural building methods*. Hoboken, N.J.: John Wiley.

- Yudelso, J., & Meyer, U. (2013). *The world's greenest buildings: Promise versus performance in sustainable design*. New York: Routledge/Taylor & Francis Group.
- Planchard, D. C. (2015). *SolidWorks 2015 reference guide: A comprehensive reference guide with over 240 standalone tutorials*. Mission, Kansas: Schroff Development Corp.
- Bethune, J. D. (2012). *Engineering design and graphics with SolidWorks 2011*. Boston: Prentice Hall.
- Pieczynski, L. S. (2007). *The building official's and inspector's guide to codes, forms, and complaints*. Clifton Park, NY: Thomson-Delmar Learning.
- Clark, W. W. (2018). *Sustainable cities and communities design handbook: Green engineering, architecture, and technology* (Second edition.). Oxford, United Kingdom: Butterworth-Heinemann, an imprint of Elsevier.
- Li, R. Y. M. (2014). *Construction safety and waste management: An economic analysis*. Cham: Springer.
- Keller, K. J. (2010). *Electrical safety code manual: A plain language guide to National Electrical Code, OSHA, and NFPA 70E*. Amsterdam; Boston: Butterworth-Heinemann.
- Backman, B. F. (2008). *Composite structures: Safety management* (2nd ed.). Amsterdam; Boston: Elsevier Science.
- Singh, R. (2013). *Arctic Pipeline Planning: Design, Construction, and Equipment*. Burlington: Elsevier Science.
- Littlewood, J., Howlett, R. J., & Jain, L. C. (2017). *Smart energy control systems for sustainable buildings*. Cham: Springer.
- Jadhav, N. Y. (2016). *Green and smart buildings: Advanced technology options*. Singapore: Springer.
- Iannaccone, G., Imperadori, M., & Masera, G. (2014). *Smart-ECO buildings towards 2020/2030: Innovative technologies for resource efficient buildings*. Cham: Springer.
- Sayigh, A. A. M. (2014). *Sustainability, energy and architecture: Case studies in realizing green buildings* (First edition.). Oxford, UK: Academic Press.
- Khatib, J. M. (2009). *Sustainability of construction materials*. Cambridge, UK; Boca Raton, FL: Woodhead Publishing; CRC Press.
- Aouad, G. (2012). *Computer aided design guide for architecture, engineering, and construction*. London; New York: SPON Press.

- Stojković, Z. (2012). *Computer-aided design in power engineering: Application of software tools*. Berlin: Springer.
- Gladfelter, D. (2013). *AutoCAD 2014 and AutoCAD LT 2014: No experience required*. Indianapolis, Indiana: Autodesk Official Press: Sybex, a Wiley brand.
- Gindis, E. (2014). *Up and running with AutoCAD 2015: 2D and 3D drawing and modeling*. Amsterdam: Academic Press.
- Fane, B., & Byrnes, D. (2013). *AutoCAD 2014 for dummies*. Hoboken, NJ: John Wiley & Sons.
- Ching, F. D. K., Winkel, S. R., & International Code Council. (2016). *Building codes illustrated: A guide to understanding the 2015 international building code®* (Fifth edition, updated and expanded.). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Allen, E., & Iano, J. (2014). *Fundamentals of building construction: Materials and methods* (Sixth edition.). Hoboken, New Jersey: Wiley.
- Hall, M. R., Lindsay, R., & Krayenhoff, M. (2012). *Modern earth buildings: Materials, engineering, construction and applications*. Oxford: Woodhead Pub Ltd.
- Ching, F. D. K. (2014). *Building construction illustrated* (Fifth edition.). Hoboken, New Jersey: John Wiley & Sons, Inc.
- Grondzik, W. T., & Kwok, A. G. (2015). *Mechanical and electrical equipment for buildings* (Twelfth edition.). Hoboken, New Jersey: Wiley.

c. Electronic Resources

Indexes/Databases

- Business Source Complete
- Wiley Online Library

Journal Articles

- **Business Source Complete** [Database; searched: construction AND (safe* OR OSHA OR materials OR CAD OR "computer-aided design" OR permits OR "building code" OR survey* OR sustainab* OR regulat*)] – nearly 190,000 search results, roughly 136,000 of which were published since 2000 *and* are available full-text. Popular subject terms in these search results include: “construction industry”; “industrial safety”; “building materials

industry”; “architecture”; “building materials”; “construction contracts”; “sustainable development”; “contractors”; “sustainable building design & construction”; and “road design & construction”.

- **Wiley Online Library** [Database; searched: construction AND (safe* OR OSHA OR materials OR CAD OR "computer-aided design" OR permits OR "building code" OR survey* OR sustainab* OR regulat*)] – nearly 490,000 search results published since 2010. Nearly 55,000 results are within the Civil Engineering & Construction subject area, and another 11,000 of these fall into the Architecture & Planning subject area; and 26,000 fall into the Business & Management subject area.

d. Periodicals

A search of the CMU Tomlinson Library collection of print and electronic periodical subscriptions highlights a number of very relevant titles. A selection of useful titles to which we subscribe for this level of Construction Technology coursework include (broken down by major areas of the program; *italics* = scholarly journal publication):

Periodical title	Years available	Format available	Database?
ENR: Engineering News Record	1999-current (print); 1981-current (electronic)	Print & Electronic	Various, including Business Source Complete
Building Design	1997-current	Electronic	Business Source Complete & Lexis Nexis
<i>Builders Merchants Journal</i>	1995-current	Electronic	Business Source Complete
Architectural Record	1960-current	Print & Electronic	Various, including Business Source Complete
Concrete Products	1997-current	Electronic	Business Source Complete
Underground Construction	1997-current	Electronic	Business Source Complete
<i>Construction Management & Economics</i>	1983-current (18-month embargo)	Electronic	Business Source Complete
<i>International Construction</i>	1997-current	Electronic	Business Source Complete
<i>Accident Analysis & Prevention</i>	1969-current	Electronic	Science Direct

<i>Structural Concrete</i>	2010-current	Electronic	Wiley Online
<i>Computer-Aided Civil & Infrastructure Engineering</i>	1996-current	Electronic	Wiley Online
<i>Fire & Materials</i>	1995-current	Electronic	Wiley Online
<i>Journal of Industrial Ecology</i>	1996-current	Electronic	Wiley Online
Contractor Magazine	1999-current	Electronic	Business Source Complete
<i>International Journal of Advanced Structural Engineering</i>	2012-current	Electronic	Directory of Open Access Journals (DOAJ)
<i>Journal of Construction in Developing Countries</i>	2006-current	Electronic	DOAJ; Academic Search Complete
<i>Journal of Information Technology in Construction</i>	1996-current	Electronic	DOAJ
<i>Lean Construction Journal</i>	2004-current	Electronic	DOAJ; Business Source Complete
<i>Reeves Journal: Plumbing, Heating, Cooling</i>	1995-current	Electronic	Business Source Complete
<i>Structural Design of Tall & Special Buildings</i>	1995-current	Electronic	Wiley Online

d. Media

The Library subscribes to Films on Demand – a streaming video service from Films Media Group. This service includes educational videos, documentaries, and PBS publications. Some titles that might be appropriate for this program are:

Modern Marvels (series; 45 min. episodes)

More Than a Box with Windows Schluter Headquarters-A Case Study in Green Design and Construction – 2011 – 59 min.

Engineering Ground Zero – 2011 – 60 min.

Frederick Law Olmsted Designing America – 2014 – 55 min.

Cira Center, Philadelphia – 2007 – 28 min.

Passive Passion Buildings Doing More with Less – 2011 – 22 min.

China Sustainable Homebuilding – 2009 – 27 min.

Thinking Green, Building Smart – 2010 – 42 min.

The WPA Film Library Skyscraper Construction, 1906 – 2011 – 4 min.

Britain's Secret Engineers – 2010 – 52 min.

Beijing Stadium – 2008 – 52 min.

Grand Central – 2008 – 60 min.

The Library also purchases DVDs to support the curriculum. One example includes:

Kieran Timberlake Loblolly House (2007), Cellophane House (2008) – 2009 – 27 min.

e. Additional Resources:

Journal literature not available through Colorado Mesa University, including those titles not available because of publisher embargo, can be provided by the Interlibrary Loan Department. The average amount of time it takes to fill an article request is 12 hours.

Physical items such as books and DVDs not owned by Colorado Mesa University can be borrowed from other libraries within the state or region through programs such as Prospector and when necessary throughout the world. Items from regional libraries typically arrive in 3-5 business days.

f. Evaluation of the total collection

a. Strengths

- The indexing and full text provided by the Business Source Complete and other relevant databases allow access to much of the current scholarship and trade publication reading in the field. These strengthen the Library's support of Construction Management topics.
- There has been an increase in Construction Management program faculty engagement with the Library, their liaison, and their students' needs for resources over the past year with new faculty members added to the program. This has been an exciting development.
- The Library has worked to acquire topics of high currency for the program, above and beyond program faculty requests, in topics like green/sustainable building and their certification, eco homes and ecological design, ethics, contracts, logistics, finance, careers, and more.

While not extensive, the Library's reference and circulating collections sufficiently support coursework for undergraduate Construction Management majors.

b. Weaknesses

- There is not a huge demand from program faculty or students for monographic acquisitions.
- Faculty requests may slant more toward acquiring standards documentation, which can become complicated as they may involve recurring costs (e.g., e-formats within a database structure), record issues (e.g., for PDF files, many small items), and other concerns (e.g., different avenues of procurement preferred by other faculty).

g. Recommendations

- Continue to address topics of high currency for the construction management field through acquisitions efforts.
- Continue discussing student needs for accessing standards documentation and ways the Library may (or may not) be able to assist in that access.
- **Review pre-1990 materials for continued relevance to the program. Identify titles that should be kept – core, historical, and still current titles – and those that need to be withdrawn or replaced.**

Library Director:



Date: September 12, 2018

D. Physical Facilities

The Construction Technology Program is located in the Archuleta Engineering Center (AEC) located at 2510 Foresight Circle in Grand

Junction Colorado. The building is currently being shared with the Manufacturing Technology Program, Electrical Technology Program and the Construction Management Program. Physical space is described as follows:

1. Office Space – Two office spaces are dedicated for the Construction Technology Program. A third office space is currently being used as a storage area for the Construction Management Program and club.
2. Classroom Space – Classroom space primarily is utilized in the AEC building and is shared with the above described programs. Space has also been available in the “A” building to teach some construction technology courses.

Rooms AEC 114 (Kiosk) and 137 (Highbay) are used to teach CONC 161 – Building Mechanical/Electrical. The current course content makes this space the only location that this course can be taught.

AEC 114 (Kiosk) is currently used for all other classes with 24 installed computers with construction programs updated in all. In 2014 this became a multi-purpose classroom. The new Compact Field office in the classroom will be extensively used by CONC 218--survey.

CONC 117 – Building Materials Testing is taught both in AEC114 and AEC “B” where the new soils lab is located.

E. Instructional Technology and Equipment

Instructional technology utilized for the delivery of CONC courses is broken down as follows:

Computers, software and overhead projection

Lecture format courses typically utilize an instructor’s station to display media, concepts, and examples to students. Assignments are often required to be generated using digital word processing and delivered in

the same format or as a pdf file. Delivery may be in the form of a 'hard copy' or emailed as a digital file. For some lecture/lab format courses, the student utilizes computer hardware and software to both learn concepts and skill sets for using specialized software applications. Courses utilize D2L as a medium to help facilitate the learning and evaluation processes of the student. Also information and course content is put in the "K" drive and the student is able to access content in conjunction with the instructor.

F. Efficiencies in the way the Program is operated

Shared Space - Currently the Construction Technology Program shares space in the Archuleta Engineering Building with the Manufacturing Technology Program, Electrical Technology Program, and Construction Management Program.

Shared Technology - Computer Labs and software are currently shared with the Construction Management Program.

Shared Staff - The Archuleta Engineering Center currently has a support staff member and that staff member co-ordinates the building supplies and helps instructors as needed.

G. Other information/data (program option)—None

Part 5---STUDENT LEARNING OUTCOMES AND ASSESMENTS

A. Assessment of the program's student learning outcomes. (SLOs)

A Construction Technology graduate will be able to:

- Apply knowledge and skills in appropriate contexts and transfer that knowledge and skill to a new situation (critical thinking)
- Produce professional work products, independently and collaboratively (individual and team skills)
- Communicate clearly, appropriately, and persuasively to an audience, both orally and in writing (communication skills)

- Demonstrate professional ethics in the field by utilizing the core practices of the construction industry (ethics)
- Properly and appropriately use information systems tools and techniques (information skills)
- Identify, formulate and solve construction related problems by applying knowledge of math, science and practical business principles (information systems knowledge)

B. Direct and Indirect Measures

Employment rates for students graduating in the construction industry in construction technology is close to 100%. Close to 80% choose to go on and complete a Bachelor Degree in Construction Management. Several local employers have hired multiple Construction Technology graduates indicating that the skill sets received through our program are meeting the needs of the industry.

C. Describe program improvements resulting from assessment of SLOs since the last program review.

The last program review did not specifically cover SLOs.

D. Refined student learning outcomes

The construction technology program has been making a concerted effort to adapt and modify course content to facilitate the programs Student Learning Objectives defined in paragraph A. Industry accepted software has been integrated into course content to facilitate student learning and develop applied skill sets. Opportunities are given for students to give oral presentations, in the context of industry models, to present field reports, construction schedules, construction estimates. Course projects are assigned that allow student to develop deliverables to the instructor, comparable to the expectation of deliverables in the construction industry. Course assignments and projects are designed to help students generate questions which the instructor then assists students in understanding the process needed for the student to

determine the answer. Students have opportunities for relevant hands on experience. Students also obtain a 10 hour OSHA card

E. Other information/data related to learning outcomes assessments (programs option)—See Assessment Report in Appendix 4

Part 6 – FUTURE PROGRAM PLANS

A. Program Vision

The vision for the Construction Technology Program at Western Colorado Community College/Colorado Mesa University is to continue to grow this relatively new program to meet the growing demand for professionals in this area. It is the belief that the potential student enrollment (supply) and the current industry need (demand) are currently not at equilibrium. The vision is to provide a construction technology education that is well rounded and allows the students to gain the skills to be marketable in the industry sector of pursuit. The vision of the program is to be the school of preference for students to receive an education in construction technology and for employers to recruit employees, drawing a diversity of students, first from the counties in western Colorado, then from the state of Colorado, and then from other states.

B. Strengths and challenges facing program

The strengths that face the program are the following:

1. The Construction Technology Program has great support from the Administration of WCCC, the University, area general contractors, subcontractors, construction related suppliers, and local trade organizations (Western Colorado Contractors Association and the NW Colorado Home Builders Association).
2. Through the relationship with the CM program the Construction Technology Program has forged contacts with

regional and national contractors (Quest Civil Contractors, Baker Concrete, and Kewitt).

3. The faculty in the Construction Technology and Construction Management Programs have a diverse knowledge of the construction industry and technology that is used in the management and supervision of construction projects.
4. As the only Construction Technology program on the Western Slope, this program is poised and designed to meet the needs of the student and the employers of this area.

Challenges that face the program are the following:

1. Articulation with construction courses taught through Western Colorado Community College (WCCC). CONC 101 — Construction Safety and Regulations, CONC 116 Building Materials, CONC 161 Building Mechanical/Electrical, CONC 208 Construction Equipment and CONC 218 Surveying are courses taught by WCCC in fulfillment of the Construction Science requirements of the BS in Construction Management. The autonomy between the Construction Technology program by WCCC and the Construction Management Program presents challenges in the above listed courses. The current relationship with that program is good and faculty are currently working to achieving adequate articulation.

The goal is to align both the Construction Technology AAS degree and the Construction Management BS degree, so when a student chooses to continue beyond the AAS degree into the Construction Management BS degree, the student will be able to do so with as many credits as possible being applied to the BS degree.

2. The ability to provide expertise in all of the core content areas of construction technology. The current enrollment of students and required teaching load for faculty does not justify additional faculty resources. The challenge with having only one full time faculty and one adjunct is the ability to be an expert in the diversity of all required core construction courses.
3. Teaching space in the Archuleta Engineering Center (AEC) is becoming an issue. The AEC currently is home to Manufacturing Technology, Construction Technology, Construction Management and the Machining Technology program for high school students. Each respective program has experienced growth in the past few years, and has required several new sections of courses to be offered in the AEC building. In the past two years the Construction Management Program has grown. Over the course of the past year AEC 114, known as the Kiosk, has been used as classroom space for both the Construction Technology and Construction Management Programs. Ideally this space should be reserved as a resource for students to work on homework assignments, however as program enrollment grows the demand for this room is increasing.
4. Computers with specialized construction software are not adequately available for students outside of class, due to the high demand for teaching space in the AEC building.
5. Technology is quickly changing the methodology in how construction managers perform management tasks. The challenge will be for the construction faculty to stay current and able to properly prepare students with the correct knowledge and skill sets to be assets to prospective employers.

C. Trends in the discipline that could affect future planning for program

The earliest construction management programs, offered as a discipline at universities, trace roots to the mid 1940's post WWII. The trend for hiring middle management positions in the construction industry has changed in recent years and continues to change. Construction companies are and continue to replace middle management positions from construction management educational programs at universities. This trend will continue to drive up the demand for construction supervisors and construction technology students. The projection is that this will continue to benefit the growth of the program.

Another trend in the construction industry is the use of technology in the procurement and delivery of construction projects to owners. Digital Information and Building Information Modeling (BIM) are examples of emerging technologies that are changing the paradigm of how projects are managed. This trend requires the construction technology student to become educated in specialized computer software. Students that demonstrate to potential employers skill sets in using specialized construction software are at an advantage and marketable upon graduation. This creates the need to ensure that adequate computer lab/classroom software and space is made available to the construction technology students.

Colorado Mesa University's Construction Management Program is a member of the Associated Schools of Construction (ASC), and Western Colorado Community College attends by proxy. A strong relationship between the ASC and the construction industry has been developed. It is becoming common for many construction companies to hire from their internship programs. These companies identify potential interns through university construction management program participation in the ASC sponsored student competition and conference. As the construction technology program grows so will the financial needs to facilitate student participation.

D. How program review process is being used to improve the program's teaching and learning.

Review of the program, over the course of the past month, has highlighted several items that need to be changed to deliver a better program to the construction technology student attending Western Colorado Community College/Colorado Mesa University. These proposed changes are to modify

CONC 104 and CONC 251 from two (2) units to three units (3) and give the student more class time to use for prep with the computer program.

E. Recommended program's challenges and potential resources need to address them

1. Faculty Resources -- Professional development will be required for faculty to stay current with the issues and trends in the construction industry. As the program continues to grow, additional course sections will need to be added. Added course sections will ultimately require additional faculty resources in the Construction Technology Program.
2. Technology Resources -- Specialized construction software is available, however access to computer hardware will need to be increased as the program increases. It is recommended that computer lab space that can be accessed by students to complete homework assignment and projects be made available.

The potential for growth in the program and the graduate placement is high. Construction Technology at Western Colorado Community College/ CMU has much potential to yet realize.

Appendix 1

Course Information

Construction Technology (CONC)

CONC 101 Construction Safety and Regulations 3 Credits

Construction safety and its effect on productivity and employee morale. Application of basic principles of accident prevention. Complying with the various federal, state, and local laws governing safety (OSHA), hazardous chemicals, and drugs in the work place.

CONC 104 Architectural/Civil Print Reading 2 Credits

Reading and hand-drafting prints as used in industry, application of that information to various architectural and civil industries.

CONC 116 Building Materials 3 Credits

Introduction to building materials and methods commonly used today. Includes interior and exterior materials from foundations to roof systems.

CONC 117 Building Materials Testing 3 Credits

Introduction to the properties and testing of materials used in today's construction projects. This includes wood products, metal, soil, aggregates, concrete, and asphalt.

Prerequisites: [CONC 116](#) or permission of instructor.

CONC 161 Building Mechanical/Electrical 3 Credits

Introduction to basic electrical, plumbing, heating, ventilation, and air conditioning systems found in residential and commercial building. Basic theory and design concepts included.

Prerequisites: Permission of instructor.

CONC 196 Topics 1-3 Credits

Course may be taken multiple times up to maximum of 15 credit hours.

CONC 208 Construction Equipment 3 Credits

Basic understanding of general equipment and methods employed in different sectors of the construction industry. Areas covered are factors affecting the selection of equipment, rental versus ownership of equipment, estimating earthwork quantities, figuring equipment production, equipment management, and quality control of projects.

CONC 218 Surveying 3 Credits

The fundamentals of modern plane surveying techniques and basic surveying instruments. Emphasis on construction-related aspects of surveying and the development of skills in using surveying field information.

Prerequisites: [MATH 107](#) or [MATH 113](#).

CONC 228 Estimating and Cost Control 3 Credits

The estimation process, the role of the estimator, types of estimation, CSI Divisions, bid/contract documents, change order pricing, value engineering, design build projects, and estimate compilation and cost controls.

Prerequisites: [CADT 105](#), [CONC 116](#), [CONC 161](#), [CONC 208](#) or permission of instructor.

CONC 234 Commercial/Industrial Plans 2 Credits

Introduction to the commercial/industrial construction industry. Processes, practices, and materials typically used in commercial/industrial construction will be studied.

CONC 245 Project Management 3 Credits

Principles of project planning, scheduling, estimation and management. Emphasis on the basic skills required to supervise personnel including oral communication, problem identification, problem solving and decision-making. The course will also cover how to control productivity on the project.

Prerequisites: [CONC 228](#) or permission of instructor.

CONC 251 Construction Prep: Codes, Permits 3 Credits

Legal aspects including liens, contracts, bids, specifications, building permits and licensing, inspections and the Uniform Building Code. Introduces intra-trade coordination, remodeling and additions, construction practices, construction management and supervision.

CONC 265 Planning and Scheduling for the Construction Supervisor 3 Credits

Planning the sequence, duration and relationship of activities for a construction process. Communicate the plan to contractual parties and to use the plan as reference point for examining project changes. Includes planning for safety, organization, manpower, problem solving, and site layout.

Prerequisites: Permission of instructor.

CONC 270 Practical Applications 4 Credits

Supplemental coursework with practical work experience related to educational program. Students will work under the immediate supervision of experienced personnel at the business location. Students will work on construction sites or projects related to their career field of interest with advice of faculty.

Prerequisites: Permission of Instructor.

CONC 296 Topics 1-3 Credits

Course may be taken multiple times up to maximum of 15 credit hours.

Appendix 2

Program Information



2018-2019 PROGRAM REQUIREMENTS
Degree: Associate of Applied Science
Major: Construction Technology
Emphasis: Supervision

About This Major . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and Essential Learning courses that develop management skills. Career options include obtaining a position as a purchasing estimator, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

All CMU associate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate the fundamental skill in the oral and written language as required to effectively communicate within the construction industry. (Communication Fluency)
2. Demonstrate blueprint reading skills, and the surveying skills necessary to function in the profession. (Specialized Knowledge)
3. Interpret, locate, organize and evaluate problems and tasks that arise in the building industry, solve these through the use of information resource skills necessary to the construction industry. (Critical Thinking)
4. Describe the scope and application of principle features of the field of study, including core practices in the construction industry. (Specialized Knowledge)
5. Demonstrate the mastery of OSHA safety standards in the construction industry. Generate a substantially error free product or process for the workforce. (Applied Learning)

Advising Process and DegreeWorks

This document is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at <http://www.coloradomesa.edu/registrar/graduation.html>.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

INSTITUTIONAL DEGREE REQUIREMENTS

The following institutional degree requirements apply to all CMU/WCCC Associate of Applied Science (AAS) degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 60 semester hours minimum.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/WCCC.
- 2.00 cumulative GPA or higher in all CMU/WCCC coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 20 semester credit hours for an AAS degree.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

PROGRAM-SPECIFIC DEGREE REQUIREMENTS

- 63 semester hours total for the AAS, Construction Technology, Supervision.
- A "C" or better must be achieved in achieved in coursework toward major content area.

ESSENTIAL LEARNING REQUIREMENTS (15 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Communication (6 semester hours)

- ☐ ENGL 111 - English Composition (3)
- ☐ Select one of the following courses:
 - ENGL 112 - English Composition (3)
 - SPCH 101 - Interpersonal Communication (3)
 - SPCH 102 - Speechmaking (3)

Mathematics (3 semester hours)

- ☐ MATH 107 - Career Math (3) or higher

Other Essential Learning Core Courses (6 semester hours)

- ☐ ECON 201 - Principles of Macroeconomics (3)
- ☐ Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course (3)

OTHER LOWER-DIVISION REQUIREMENTS

Wellness Requirement (2 semester hours)

- ☐ KINE 100 - Health and Wellness (1)
- ☐ Select one Activity course (1)

AAS: CONSTRUCTION TECHNOLOGY – SUPERVISION REQUIREMENTS (46 semester hours, must earn a "C" or better in each course)

Core Classes (37 Semester Hours)

- ☐ CONC 101 - Construction Safety and Regulations (3)
- ☐ CONC 104 - Architectural/Civil Print Reading (2)
- ☐ CADT 106 - Computer Aided Design (3)
- ☐ CONC 116 - Building Materials (3)
- ☐ CONC 117 - Building Materials Testing (3)
- ☐ CONC 161 - Building Mechanical and Electrical (3)
- ☐ CONC 208 - Construction Equipment (3)
- ☐ CONC 218 - Surveying (3)
- ☐ CONC 228 - Estimating and Cost Control (3)
- ☐ CONC 234 - Commercial/Industrial Plans (2)
- ☐ CONC 245 - Project Management (3)
- ☐ CONC 251 - Construction Preparation: Codes, Permits (3)
- ☐ CONC 265 - Planning & Scheduling for the Construction Supervisor (3)

Concentration Restricted Electives (9 semester hours)

Complete 9 semester hours from the list below.

CADT (Instructor Advice)

CONC (Instructor Advice)

ACCT 201 - Principles of Financial Accounting (3)

MANG 201 - Principles of Management (3)

HRMA 371 - Human Resource Management (3)

BUGB 351 - Business Law I (3)

BUGB 352 - Business Law II (3)

CHEM 121 - Principles of Chemistry (4) and CHEM 121L - Principles of Chemistry Lab (1)

PHYS 111 - General Physics (4) and PHYS 111L - General Physics Lab (1)

STAT 200 - Probability and Statistics (3)

MARK 231 - Principles of Marketing (3)

FLAS Spanish

☐

☐

☐

☐

☐

☐

☐

SUGGESTED COURSE SEQUENCING

Freshman Year, Fall Semester: 16 credits

- ENGL 111 - English Composition (3)
- MATH 107 - Career Math or higher (3)
- CONC 101 - Construction Safety and Regulations (3)
- CONC 104 - Architectural/Civil Print Reading (2)
- CONC 116 - Building Materials (3)
- KINE 100 - Health and Wellness (1)
- KINA 1XX - Activity (1)

Freshman Year, Spring Semester: 17 credits

- ENGL 112 - English Composition (3) or SPCH 101 - Interpersonal Communication (3) or SPCH 102 - Speechmaking (3)
- CONC 218 - Surveying (3)
- CONC 117 - Building Materials Testing (3)
- CONC 161 - Building Mechanical and Electrical (3)
- CONC 208 - Construction Equipment (3)
- CONC 234 - Commercial/Industrial Plans (2)

Sophomore Year, Fall Semester: 15 credits

- Social Sciences, Natural Science, Fine Arts or Humanities (3)
- ECON 201 - Principles of Macroeconomics (3)
- CONC 228 - Estimating and Cost Control (3)
- CONC 251 - Construction Preparation: Codes, Permits (3)
- CONC 265 - Planning & Scheduling for the Construction Supervisor (3)

Sophomore Year, Spring Semester: 15 credits

- CONC 245 - Project Management (3)
 - Restricted Elective (3)
 - Restricted Elective (3)
 - Restricted Elective (3)
 - CADT 106 - Computer Aided Design (3)
-



2017-2018 PROGRAM REQUIREMENTS

Degree: Associate of Applied Science

Major: Construction Technology

Emphasis: Supervision

About This Major . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and Essential Learning courses that develop management skills. Career options include obtaining a position as a purchasing estimator, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

All CMU associate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate the fundamental skill in the oral and written language as required to effectively communicate within the construction industry. (Communication Fluency)
2. Demonstrate blueprint reading skills, and the surveying skills necessary to function in the profession. (Specialized Knowledge)
3. Interpret, locate, organize and evaluate problems and tasks that arise in the building industry, solve these through the use of information resource skills necessary to the construction industry. (Critical Thinking)
4. Describe the scope and application of principle features of the field of study, including core practices in the construction industry. (Specialized Knowledge)
5. Demonstrate the mastery of OSHA safety standards in the construction industry. Generate a substantially error free product or process for the workforce. (Applied Learning)

Advising Process and DegreeWorks

This document is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

Graduation Process

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at <http://www.coloradomesa.edu/registrar/graduation.html>.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

INSTITUTIONAL DEGREE REQUIREMENTS

The following institutional degree requirements apply to all CMU/WCCC AAS degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 60 semester hours minimum.
- Students must complete a minimum of 15 of the final 30 semester hours of credit at CMU/WCCC.
- 2.00 cumulative GPA or higher in all CMU/WCCC coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 20 semester credit hours for an AAS degree.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

PROGRAM-SPECIFIC DEGREE REQUIREMENTS

- 63 semester hours total for the AAS, Construction Technology, Supervision.
- A "C" or better must be achieved in achieved in coursework toward major content area.

ESSENTIAL LEARNING REQUIREMENTS (15 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

Communication (6 semester hours)

- ☐ ENGL 111 - English Composition (3)
- ☐ Select one of the following courses:
 - ENGL 112 - English Composition (3)
 - SPCH 101 - Interpersonal Communication (3)
 - SPCH 102 - Speechmaking (3)

Mathematics (3 semester hours)

- ☐ MATH 107 - Career Math (3) or higher

Other Essential Learning Core Courses (6 semester hours)

- ☐ ECON 201 - Principles of Macroeconomics (3)
- ☐ Select one Social and Behavioral Sciences, History, Natural Sciences, Fine Arts or Humanities course (3)

OTHER LOWER-DIVISION REQUIREMENTS

Wellness Requirement (2 semester hours)

- ☐ KINE 100 - Health and Wellness (1)
- ☐ Select one Activity course (1)

AAS: CONSTRUCTION TECHNOLOGY – SUPERVISION REQUIREMENTS (46 semester hours, must earn a “C” or better in each course)

Core Classes (37 Semester Hours)

- ☐ CONC 101 - Construction Safety and Regulations (3)
- ☐ CONC 104 - Architectural/Civil Print Reading (2)
- ☐ CADT 106 - Computer Aided Design (3)
- ☐ CONC 116 - Building Materials (3)
- ☐ CONC 117 - Building Materials Testing (3)
- ☐ CONC 161 - Building Mechanical and Electrical (3)
- ☐ CONC 208 - Construction Equipment (3)
- ☐ CONC 218 - Surveying (3)
- ☐ CONC 228 - Estimating and Cost Control (3)
- ☐ CONC 234 - Commercial/Industrial Plans (3)
- ☐ CONC 245 - Project Management (3)
- ☐ CONC 251 - Construction Preparation: Codes, Permits (3)
- ☐ CONC 265 - Planning & Scheduling for the Construction Supervisor (3)

Concentration Restricted Electives (9 semester hours)

Complete 9 semester hours from the list below.

CADT (Instructor Advice)

CONC (Instructor Advice)

ACCT 201 - Principles of Financial Accounting (3)

MANG 201 - Principles of Management (3)

MANG 371 - Human Resource Management (3)

BUGB 351 - Business Law I (3)

BUGB 352 - Business Law II (3)

CHEM 121 - Principles of Chemistry (4) and CHEM 121L - Principles of Chemistry Lab (1)

PHYS 111 - General Physics (4) and PHYS 111L - General Physics Lab (1)

STAT 200 - Probability and Statistics (3)

MARK 231 - Principles of Marketing (3)

FLAS Spanish

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

SUGGESTED COURSE SEQUENCING

Freshman Year, Fall Semester: 16 credits

- ENGL 111 - English Composition (3)
- MATH 107 - Career Math or higher (3)
- CONC 101 - Construction Safety and Regulations (3)
- CONC 104 - Architectural/Civil Print Reading (2)
- CONC 116 - Building Materials (3)
- KINE 100 - Health and Wellness (1)
- KINA 1XX - Activity (1)

Freshman Year, Spring Semester: 17 credits

- ENGL 112 - English Composition (3) or SPCH 101 - Interpersonal Communication (3) or SPCH 102 - Speechmaking (3)
 - CONC 218 - Surveying (3)
 - CONC 117 - Building Materials Testing (3)
 - CONC 161 - Building Mechanical and Electrical (3)
 - CONC 208 - Construction Equipment (3)
 - CONC 234 - Commercial/Industrial Plans (2)
-

Sophomore Year, Fall Semester: 15 credits

- Social Sciences, Natural Science, Fine Arts or Humanities (3)
- ECON 201 - Principles of Macroeconomics (3)
- CONC 228 - Estimating and Cost Control (3)
- CONC 251 - Construction Preparation: Codes, Permits (3)
- CONC 265 - Planning & Scheduling for the Construction Supervisor (3)

Sophomore Year, Spring Semester: 15 credits

- CONC 245 - Project Management (3)
 - Restricted Elective (3)
 - Restricted Elective (3)
 - Restricted Elective (3)
 - CADT 106 - Computer Aided Design (3)
-



2016-2017 PETITION/PROGRAM SHEET

Degree: Associate of Applied Science

Major: Construction Technology

Emphasis: Supervision

About This Emphasis . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and Essential Learning courses that develop management skills. Career options include obtaining a position as a purchasing manager, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

All CMU associate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate the fundamental skill in the oral and written language as required to effectively communicate within the construction industry. (Communication Fluency)
2. Demonstrate blueprint reading skills, and the surveying skills necessary to function in profession. (Specialized Knowledge)
3. Interpret, locate, organize and evaluate problems and tasks that arise in the building industry, solve these through the use of information resource skills necessary to the construction industry. (Critical Thinking)
4. Describe the scope and application of principle features of the field of study, including core practices in the construction industry. (Specialized Knowledge)
5. Demonstrate the mastery of OSHA safety standards in the construction industry. Generate a substantially error free product or process for the workforce. (Applied Learning)

NAME: _____ STUDENT ID #: _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I have read and understand the policies listed on the last page of this program sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor

Date

20

Signature of Department Head

Date

20

Signature of Registrar

Date

20

DEGREE REQUIREMENTS:

- 63 semester hours total (A minimum of 16 taken at CMU in no fewer than two semesters).
- 2.00 cumulative GPA or higher in all CMU coursework and "C" or better must be achieved in achieved in coursework toward major content area.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- A student must follow the CMU graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for additional graduation information.

ESSENTIAL LEARNING REQUIREMENTS (15 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the Essential Learning list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the Essential Learning requirement. The Essential Learning capstone course and co-requisite Essential Speech course (required for bachelor's degrees) cannot be used as options for the below requirements.

Course No Title	Sem.hrs	Grade	Term/Tms
Communication (6 semester hours)			
ENGL 111 English Composition	3		
ENGL 112 English Composition	3		
-OR-			
ENGL 111 English Composition <u>and</u>	3		
SPCH 101 Interpersonal Communication <u>or</u>	3		
SPCH 102 Speechmaking	3		

Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)

3

*Please see your advisor for requirements specific to this program.

ELECTIVES:

CADT (instructor advice)
 CONC (instructor advice)
 ACCT 201 Principles of Financial Accounting (3)
 MANG 201 Principles of Management (3)
 MANG 371 Human Resource Management (3)
 BUGB 351 Business Law I (3)

Course No Title Sem.hrs Grade Term/Tms

Social Sciences, Natural Science, Fine Arts or Humanities (Minimum 6 semester hours)

ECON 201	Principles of Macroeconomics	3		
		3		

WELLNESS REQUIREMENT (2 semester hours)

KINE 100	Health and Wellness	1		
KINA 1		1		

ASSOCIATE OF APPLIED SCIENCE: CONSTRUCTION TECHNOLOGY – SUPERVISION COURSE REQUIREMENTS
 (46 semester hours)

Core Classes

CONC 101	Construction Safety and Regulations	3		
CONC 104	Architectural/Civil Print Reading	2		
CADT 106	Computer Aided Design	3		
CONC 116	Building Materials	3		
CONC 117	Building Materials Testing	3		
CONC 161	Building Mechanical and Electrical	3		
CONC 208	Construction Equipment	3		
CONC 218	Surveying	3		
CONC 228	Estimating and Cost Control	3		
CONC 234	Commercial/Industrial Plans	2		
CONC 245	Project Management	3		
CONC 251	Construction Preparation (Codes, Permits, etc.)	3		
CONC 265	Planning & Scheduling for the Construction Supervisor	3		

Electives (9 credit hours) from the list below.

BUGB 352 Business Law II (3)
 CHEM 121/L Principles of Chemistry – GTSC1 (4) / (1)
 PHYS 111/L General Physics – GTSC1 (4) / (1)
 STAT 200 Probability and Statistics (3)
 MARK 231 Principles of Marketing (3)
 FLAS Spanish

SUGGESTED COURSE SEQUENCING FOR THE ASSOCIATE OF APPLIED SCIENCE WITH A MAJOR IN CONSTRUCTION TECHNOLOGY, EMPHASIS IN SUPERVISION

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FRESHMAN YEAR

First Semester		Hours	Second Semester		Hours
ENGL 111	English Composition	3	ENGL 112	English Composition OR SPCH 101/102	3
MATH 107	Career Math OR higher	3	CONC 218	Surveying	3
CONC 101	Construction Safety & Regs.	3	CONC 117	Building Materials Testing	3
CONC 104	Architectural/Civil Print Reading	2	CONC 161	Building Mechanical & Elec.	3
CONC 116	Building Materials	3	CONC 208	Construction Equipment	3
KINE 100	Health & Wellness	1	CONC 234	Commercial/ Industrial Plans	2
KINA	Activity	1			17
		16			

SOPHOMORE YEAR

Third Semester		Hours	Fourth Semester		Hours
Social Sciences, Natural Science, Fine Arts or Humanities		3	CONC 245	Project Management	3
ECON 201	Prin. of Macroeconomics	3	Elective		3
CONC 228	Estimating and Cost Control	3	Elective		3
CONC 251	Construction Preparation	3	Elective		3
CONC 265	Plan. & Sched. for Cons. Super	3	CADT 106	Computer Aided Design	3
		15			15

POLICIES:

1. Please see the catalog for a complete list of graduation requirements.
2. This program sheet must be submitted with your graduation planning sheet to your advisor during the **semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.** You must turn in your "Intent to Graduate" form to the Registrar's Office **by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.**
3. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature. Finally, the Department Head will submit the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
4. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
5. NOTE: The semester before graduation, you may be required to take a Major Field Achievement Test (exit exam).



2015-2016 PETITION/PROGRAM SHEET

Degree: Associate of Applied Science

Major: Construction Technology

Emphasis: Supervision

About This Emphasis . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and Essential Learning courses that develop management skills. Career options include obtaining a position as a purchasing manager, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

All CMU associate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate the fundamental skill in the oral and written language as required to effectively communicate within the construction industry. (Communication Fluency)
2. Demonstrate blueprint reading skills, and the surveying skills necessary to function in profession. (Specialized Knowledge)
3. Interpret, locate, organize and evaluate problems and tasks that arise in the building industry, solve these through the use of information resource skills necessary to the construction industry. (Critical Thinking)
4. Describe the scope and application of principle features of the field of study, including core practices in the construction industry. (Specialized Knowledge)
5. Demonstrate the mastery of OSHA safety standards in the construction industry. Generate a substantially error free product or process for the workforce. (Applied Learning)

NAME: _____ STUDENT ID #: _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I have read and understand the policies listed on the last page of this program sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor _____ Date _____ 20

Signature of Department Head _____ Date _____ 20

Signature of Registrar _____ Date _____ 20

DEGREE REQUIREMENTS:

- 63 semester hours total (A minimum of 16 taken at CMU in no fewer than two semesters).
- 2.00 cumulative GPA or higher in all CMU coursework and "C" or better must be achieved in achieved in coursework toward major content area.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- A student must follow the CMU graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information.

ESSENTIAL LEARNING REQUIREMENTS (15 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the Essential Learning list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the Essential Learning requirement. The Essential Learning capstone course and co-requisite Essential Speech course (required for bachelor's degrees) cannot be used as options for the below requirements.

Course No Title	Sem.hrs	Grade	Term/Trns
Communication (6 semester hours)			
ENGL 111 English Composition	3	_____	_____
ENGL 112 English Composition	3	_____	_____
-OR-			
ENGL 111 English Composition <u>and</u>	3	_____	_____
SPCH 101 Interpersonal Communication <u>or</u>	3	_____	_____
SPCH 102 Speechmaking	3	_____	_____

Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)

3 _____

*Please see your advisor for requirements specific to this program.

ELECTIVES:

CADT (instructor advice)
 CONC (instructor advice)
 ACCT 201 Principles of Financial Accounting (3)
 MANG 201 Principles of Management (3)
 MANG 371 Human Resource Management (3)
 BUGB 351 Business Law I (3)

Course No Title Sem.hrs Grade Term/Trns

Social Sciences, Natural Science, Fine Arts or Humanities (Minimum 6 semester hours)

ECON 201	Principles of Macroeconomics	3	_____	_____
_____	_____	3	_____	_____

WELLNESS REQUIREMENT (2 semester hours)

KINE 100	Health and Wellness	1	_____	_____
KINA 1	_____	1	_____	_____

ASSOCIATE OF APPLIED SCIENCE: CONSTRUCTION TECHNOLOGY – SUPERVISION COURSE REQUIREMENTS (46 semester hours)

Core Classes

CONC 101	Construction Safety and Regulations	3	_____	_____
CONC 104	Architectural/Civil Print Reading	2	_____	_____
CADT 106	Computer Aided Design	3	_____	_____
CONC 116	Building Materials	3	_____	_____
CONC 117	Building Materials Testing	3	_____	_____
CONC 161	Building Mechanical and Electrical	3	_____	_____
CONC 208	Construction Equipment	3	_____	_____
CONC 218	Surveying	3	_____	_____
CONC 228	Estimating and Cost Control	3	_____	_____
CONC 234	Commercial/Industrial Plans	2	_____	_____
CONC 245	Project Management	3	_____	_____
CONC 251	Construction Preparation (Codes, Permits, etc.)	3	_____	_____
CONC 265	Planning & Scheduling for the Construction Supervisor	3	_____	_____

Electives (9 credit hours) from the list below.

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

BUGB 352 Business Law II (3)
 CHEM 121/L Principles of Chemistry – GTSC1 (4) / (1)
 PHYS 111/L General Physics – GTSC1 (4) / (1)
 STAT 200 Probability and Statistics (3)
 MARK 231 Principles of Marketing (3)
 FLAS Spanish

**SUGGESTED COURSE SEQUENCING FOR THE
ASSOCIATE OF APPLIED SCIENCE WITH A MAJOR IN
CONSTRUCTION TECHNOLOGY, EMPHASIS IN SUPERVISION**

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FRESHMAN YEAR

First Semester		Hours	Second Semester		Hours
ENGL 111	English Composition	3	ENGL 112	English Composition or SPCH 101/102	3
MATH 107	Career Math or higher	3	CONC 218	Surveying	3
CONC 101	Construction Safety & Regs.	3	CONC 117	Building Materials Testing	3
CONC 104	Architectural/Civil Print Reading	2	CONC 161	Building Mechanical & Elec.	3
CONC 116	Building Materials	3	CONC 208	Construction Equipment	3
KINE 100	Health & Wellness	1	CONC 234	Commercial/ Industrial Plans	2
KINA	Activity	1			17
		16			

SOPHOMORE YEAR

Third Semester		Hours	Fourth Semester		Hours
Social Sciences, Natural Science, Fine Arts or Humanities		3	CONC 245	Project Management	3
ECON 201	Prin. of Macroeconomics	3	Elective		3
CONC 228	Estimating and Cost Control	3	Elective		3
CONC 251	Construction Preparation	3	Elective		3
CONC 265	Plan. & Sched. for Cons. Super	3	CADT 106	Computer Aided Design	3
		15			15

POLICIES:

1. Please see the catalog for a complete list of graduation requirements.
2. This program sheet must be submitted with your graduation planning sheet to your advisor during the semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates. You must turn in your "Intent to Graduate" form to the Registrar's Office by September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.
3. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature. Finally, the Department Head will submit the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
4. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
5. NOTE: The semester before graduation, you may be required to take a Major Field Achievement Test (exit exam).



2014-2015 PETITION/PROGRAM SHEET

Degree: Associate of Applied Science

Major: Construction Technology

Emphasis: Supervision

About This Emphasis . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and general education courses that develop management skills. Career options include obtaining a position as a purchasing manager, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

All CMU associate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate the fundamental skill in the oral and written language as required to effectively communicate within the construction industry. (Communication Fluency)
2. Demonstrate blueprint reading skills, and the surveying skills necessary to function in profession. (Specialized Knowledge)
3. Interpret, locate, organize and evaluate problems and tasks that arise in the building industry, solve these through the use of information resource skills necessary to the construction industry. (Critical Thinking)
4. Describe the scope and application of principle features of the field of study, including core practices in the construction industry. (Specialized Knowledge)
5. Demonstrate the mastery of OSHA safety standards in the construction industry. Generate a substantially error free product or process for the workforce. (Applied Learning)

NAME: _____ STUDENT ID # _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I have read and understand the policies listed on the last page of this program sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor _____ Date _____ 20____

Signature of Department Head _____ Date _____ 20____

Signature of Registrar _____ Date _____ 20____

Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration.

Degree Requirements:

- 63 semester hours total (A minimum of 16 taken at CMU in no fewer than two semesters).
- 2.00 cumulative GPA or higher in all CMU coursework and "C" or better must be achieved in coursework toward major content area.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- A student must follow the CMU graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information.

GENERAL EDUCATION REQUIREMENTS (18 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the general education list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the general education requirement.

Course No Title	Sem.hrs	Grade	Term/Tms
Communication (6 semester hours)			
ENGL 111 English Composition	3		
ENGL 112 English Composition	3		
-OR-			
ENGL 111 English Composition <u>and</u>	3		
SPCH 101 Interpersonal Communication <u>or</u>	3		
SPCH 102 Speechmaking	3		

Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)

4

*Please see your advisor for requirements specific to this program.

ELECTIVES:

CADT (instructor advice)
 CONC (instructor advice)
 ACCT 201 Principles of Financial Accounting (3)
 MANG 201 Principles of Management (3)
 MANG 371 Human Resource Management (3)
 BUGB 351 Business Law I (3)

Course No	Title	Sem.hrs	Grade	Term/Tms
-----------	-------	---------	-------	----------

Social Sciences, Natural Science, Fine Arts or Humanities or Selected Applied Studies Courses * (Minimum 6 semester hours)

ECON 201	Principles of Macroeconomics	3		
		3		

OTHER LOWER DIVISION REQUIREMENTS

Kinesiology (2 semester hours)

KINE 100	Health and Wellness	1		
KINA 1		1		

ASSOCIATE OF APPLIED SCIENCE: CONSTRUCTION TECHNOLOGY – SUPERVISION COURSE REQUIREMENTS (46 semester hours)

Core Classes

CONC 101	Construction Safety and Regulations	3		
CONC 104	Architectural/Civil Print Reading	2		
CADT 106	Computer Aided Design	3		
CONC 116	Building Materials	3		
CONC 117	Building Materials Testing	3		
CONC 161	Building Mechanical and Electrical	3		
CONC 208	Construction Equipment	3		
CONC 218	Surveying	3		
CONC 228	Estimating and Cost Control	3		
CONC 234	Commercial/Industrial Plans	2		
CONC 245	Project Management	3		
CONC 251	Construction Preparation (Codes, Permits, etc.)	3		
CONC 265	Planning & Scheduling for the Construction Supervisor	3		

Electives (9 credit hours) from the list below.

BUGB 352 Business Law II (3)
 CHEM 121/L Principles of Chemistry – GTSC1 (4) / (1)
 PHYS 111/L General Physics – GTSC1 (4) / (1)
 STAT 200 Probability and Statistics (3)
 MARK 231 Principles of Marketing (3)
 FLAS Spanish

SUGGESTED COURSE SEQUENCING FOR THE ASSOCIATE OF APPLIED SCIENCE WITH A MAJOR IN CONSTRUCTION TECHNOLOGY, EMPHASIS IN SUPERVISION

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FRESHMAN YEAR

First Semester		Hours	Second Semester		Hours
ENGL 111	English Composition	3	ENGL 112	English Composition or SPCH 101/102	3
MATH 107	Career Math or higher	3	CONC 218	Surveying	3
CONC 101	Construction Safety & Regs.	3	CONC 117	Building Materials Testing	3
CONC 104	Architectural/Civil Print Reading	2	CONC 161	Building Mechanical & Elec.	3
CONC 116	Building Materials	3	CONC 208	Construction Equipment	3
KINE 100	Health & Wellness	1	CONC 234	Commercial/ Industrial Plans	2
KINA	Activity	1			17
		16			

SOPHOMORE YEAR

Third Semester		Hours	Fourth Semester		Hours
Soc/Behavioral Science/Humanities/Appl Studies		3	CONC 245	Project Management	3
ECON 201	Prin. of Macroeconomics	3	Elective		3
CONC 228	Estimating and Cost Control	3	Elective		3
CONC 251	Construction Preparation	3	Elective		3
CONC 265	Plan. & Sched. for Cons. Super	3	CADT 106	Computer Aided Design	2
		15			15

POLICIES:

1. It is your responsibility to determine whether you have met the requirements for your degree. Please see the catalog for a complete list of graduation requirements.
2. You must turn in your "Intent to Graduate" form to the Registrar's Office by **September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.**
3. This program sheet must be submitted with your graduation planning sheet to your advisor during the **semester prior to the semester of graduation, no later than October 1 for spring graduates, no later than March 1 for fall graduates.**
4. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature.
5. Finally, the Department Head or the department administrative assistant will take the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
6. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
7. NOTE: The semester before graduation, you may be required to take a Major Field Achievement Test (exit exam).



2013-2014 PETITION/PROGRAM SHEET

Degree: Associate of Applied Science

Major: Construction Technology

Emphasis: Supervision

About This Emphasis . . .

The A.A.S. degree in Construction Technology with an emphasis on Supervision is designed to prepare students for a wide range of opportunities in the Construction field that require management skills. The curriculum incorporates courses in building materials and testing, estimating, planning and scheduling, project management, and other supervisory and general education courses that develop management skills. Career options include obtaining a position as a purchasing manager, salesperson, crew supervisor, or project manager in the field of construction.

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/wccc/programs.html>

POLICIES:

1. It is your responsibility to determine whether you have met the requirements for your degree. Please see the catalog for a complete list of graduation requirements.
2. You must turn in your "Intent to Graduate" form to the Registrar's Office by **September 15 if you plan to graduate the following May, and by February 15 if you plan to graduate the following December.**
3. This program sheet must be submitted with your graduation planning sheet to your advisor during the semester prior to the semester of graduation, **no later than October 1 for spring graduates, no later than March 1 for fall graduates.**
4. Your advisor will sign and forward the Program Sheet and Graduation Planning Sheet to the Department Head for signature.
5. Finally, the Department Head or the department administrative assistant will take the signed forms to the Registrar's Office. (Students cannot handle the forms once the advisor signs.)
6. If your petition for graduation is denied, it will be your responsibility to reapply for graduation in a subsequent semester. Your "Intent to Graduate" does not automatically move to a later graduation date.
7. NOTE: The semester before graduation, you may be required to take a Major Field Achievement Test (exit exam).

NAME: _____ STUDENT ID # _____

LOCAL ADDRESS AND PHONE NUMBER: _____

_____ () _____

I, (Signature) _____, hereby certify that I have completed (or will complete) all the courses listed on the Program Sheet. I further certify that the grade listed for those courses is the final course grade received except for the courses in which I am currently enrolled and the courses which I complete next semester. I have indicated the semester in which I will complete these courses.

Signature of Advisor

Date

20

Signature of Department Head

Date

20

Signature of Registrar

Date

20

Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration.

Degree Requirements:

- 63 semester hours total (A minimum of 16 taken at CMU in no fewer than two semesters).
- 2.00 cumulative GPA or higher in all CMU coursework and "C" or better must be achieved in coursework toward major content area.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- A student must follow the CMU graduation requirements either from 1) the program sheet for the major in effect at the time the student officially declares a major; or 2) a program sheet for the major approved for a year subsequent to the year during which the student officially declares the major and is approved for the student by the department head. Because a program may have requirements specific to the degree, the student should check with the faculty advisor for additional criteria. It is the student's responsibility to be aware of, and follow, all requirements for the degree being pursued. Any exceptions or substitutions must be approved by the student's faculty advisor and Department Head.
- When filling out the program sheet a course can be used only once.
- See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information.

GENERAL EDUCATION REQUIREMENTS (18 semester hours)

See the current catalog for a list of courses that fulfill the requirements below. If a course is on the general education list of options and a requirement for your major, you must use it to fulfill the major requirement and make a different selection within the general education requirement.

Course No Title	Sem.hrs	Grade	Term/Tms
Communication (6 semester hours)			
ENGL 111 English Composition	3		
ENGL 112 English Composition	3		
-OR-			
ENGL 111 English Composition <u>and</u>	3		
SPCH 101 Interpersonal Communication <u>or</u>	3		
SPCH 102 Speechmaking	3		

Mathematics: Minimum Math 107 Career Mathematics (Minimum 3 semester hours)

4

*Please see your advisor for requirements specific to this program.

ELECTIVES:

CADT (instructor advice)
 CONC (instructor advice)
 ACCT 201 Principles of Financial Accounting (3)
 MANG 201 Principles of Management (3)
 MANG 371 Human Resource Management (3)
 BUGB 351 Business Law I (3)

Course No Title Sem.hrs Grade Term/Tms

Social Sciences, Natural Science, Fine Arts or Humanities or Selected Applied Studies Courses * (Minimum 6 semester hours)

ECON 201	Principles of Macroeconomics	3		
		3		

OTHER LOWER DIVISION REQUIREMENTS

Kinesiology (2 semester hours)

KINE 100	Health and Wellness	1		
KINA 1		1		

ASSOCIATE OF APPLIED SCIENCE: CONSTRUCTION TECHNOLOGY – SUPERVISION COURSE REQUIREMENTS (46 semester hours)

Core Classes

CONC 101	Construction Safety and Regulations	3		
CONC 104	Architectural/Civil Print Reading	2		
CADT 106	Computer Aided Design	3		
CONC 116	Building Materials	3		
CONC 117	Building Materials Testing	3		
CONC 161	Building Mechanical and Electrical	3		
CONC 208	Construction Equipment	3		
CONC 218	Surveying	3		
CONC 228	Estimating and Cost Control	3		
CONC 234	Commercial/Industrial Plans	2		
CONC 245	Project Management	3		
CONC 251	Construction Preparation (Codes, Permits, etc.)	3		
CONC 265	Planning & Scheduling for the Construction Supervisor	3		

Electives (9 credit hours) from the list below.

BUGB 352 Business Law II (3)
 CHEM 121/L Principles of Chemistry – GTSC1 (4) / (1)
 PHYS 111/L General Physics – GTSC1 (4) / (1)
 STAT 200 Probability and Statistics (3)
 MARK 231 Principles of Marketing (3)
 FLAS Spanish

**SUGGESTED COURSE SEQUENCING FOR THE
ASSOCIATE OF APPLIED SCIENCE WITH A MAJOR IN
CONSTRUCTION TECHNOLOGY, EMPHASIS IN SUPERVISION**

This is a recommended sequence of course work. Certain courses may have prerequisites or are only offered during the Fall or Spring semesters. It is the student's responsibility to meet with the assigned advisor and check the 2 year course matrix on the Colorado Mesa website for course availability.

FRESHMAN YEAR

First Semester		Hours	Second Semester		Hours
ENGL 111	English Composition	3	ENGL 112	English Composition or SPCH 101/102	3
MATH 107	Career Math or higher	3	CONC 218	Surveying	3
CONC 101	Construction Safety & Regs.	3	CONC 117	Building Materials Testing	3
CONC 104	Architectural/Civil Print Reading	2	CONC 161	Building Mechanical & Elec.	3
CONC 116	Building Materials	3	CONC 208	Construction Equipment	3
KINE 100	Health & Wellness	1	CONC 234	Commercial/ Industrial Plans	2
KINA	Activity	1			17
		16			

SOPHOMORE YEAR

Third Semester		Hours	Fourth Semester		Hours
Soc/Behavioral Science/Humanities/Appl Studies		3	CONC 245	Project Management	3
ECON 201	Prin. of Macroeconomics	3	Elective		3
CONC 228	Estimating and Cost Control	3	Elective		3
CONC 251	Construction Preparation	3	Elective		3
CONC 265	Plan. & Sched. for Cons. Super	3	CADT 106	Computer Aided Design	3
		15			15

Appendix 3

Faculty Vitae

Glen E. Hoff
PO Box 742
Delta, Co. 81416
909/239-0083 (Cell)
e-mail: gehoff@bresnan.net

PROFESSIONAL SKILLS & EXPERIENCE

Western Colorado Community College

2508 Blichmann Ave.
Grand Junction, CO 81505
970/255-2600

2013 - Present

Instructor (Construction
Technology)

I currently teach 18 units per semester. In addition to my Construction Technology classes, I teach English 090 and Manufacturing (safety & industrial relations). The Technology curriculum is advanced level industry material and includes higher level math, computer literacy and utilization of the latest online tools and resources as well as hands-on practicums. I developed much of the material, or took existing class material to a higher level. I am a member of the WCCC Curriculum committee and sit on the GJ Career Center advisory council. In addition to my classroom duties, I prepare rubrics; keep class grades and attendance records and other administrative tasks.

Western Colorado Community College

2508 Blichmann Ave.
Grand Junction, CO 81505
970/255-2600

2009 – 2013 (Adjunct)

Instructor (Construction
Crafts)

Developed curriculum and instructed 17 classes (entire construction crafts program) focusing on entry level trade skills and doing hands-on crafts projects. Calculated and assigned grades; procured materials and oversaw class. Responsible for rubrics and articulation agreements with GJ Career Center. I participated on boards and committees and composed and submitted class reports as required.

KLWA

2196 F ½ Rd.
Grand Junction, CO 81504
Contact – Bonnie Hartman
970/243-4698

2009 - 2013

Operations Manager

Responsible for the maintenance, operation and repair of the Karen Lee Water Association irrigation system serving a neighborhood of approximately 50 SF units. Duties include overseeing pump operations, repair and replacement of

irrigation system components and related construction projects. Other duties include the development and implementation of a preventative maintenance program and miscellaneous administrative duties.

Cornerstone Acceptance Corp.

550 Carson Plaza Drive
Carson, Ca. 90746
Contact – Chris Barry
864/594-5901

9/05-10/07

General Manager

This company provides auto financing for its national dealer group (Sonic Corp.) My position was responsible for overseeing and managing the West Coast operation which serviced the State of California and Nevada. Executive duties included managing the main office (staff of seven), qualifying applicants, loan origination, collections, supervising AP/AR, loan file maintenance, purchasing and forecasting. I was solely responsible for all aspects of HR for my division including recruiting, hiring, training and supervising staff. Additionally, I was responsible for periodic evaluations, providing mandatory training such as harassment, safety and other components such as sales training. I left this company in order to move to Colorado to be with my wife who is caring for her father.

Sonic Automotive, Massey Cadillac

10700 Studebaker Rd.
Downey, CA 90241
Contact – Ken Warner
562/465-7770 or 562/868-9931

1/05 – Promoted to GM

for Cornerstone Corp.
Sales Manager

This position was responsible for managing an average monthly inventory of used vehicles exceeding \$12M for two dealerships. Responsibilities included all acquisition and disposition of stock, tracking sales, inventory control, managing inventory files/documentation, department AP/AR, and marketing and special sale promotions. Other duties were generating financial and sales reports, setting policies and procedures in my department, and hiring and supervising staff. Was offered and accepted the job with Cornerstone, a subsidiary of Sonic Corp.

Center Chevrolet & Mazda

1355 South 'E' St.
San Bernardino, CA 92408

1/03 – 1/05

Sales Mgr/Used Car Mgr

Originally began my tenure with this company as the finance director, but was promoted to sales manager. Duties include setting policies and procedures, marketing and special sales, buying and selling used cars and managing inventory. Other responsibilities consist of generating reports, placing paper with

lenders, hire/supervise/train staff. I also served as the back up for the finance department when required, in addition to working the desk and closing deals.

MK Smith Chevrolet
12485 Central Ave.
Chino, CA 91710
909/628-8961
Contact – Mark Smith

9/97 – 1/03
Finance Manager
Used Car Manager

Hired in as finance manager and was then offered the used car manager position. I was responsible for the acquisition, disposition and sale of used car inventory. Other duties: facilitated special sale events; managed the documentation of used car transactions; worked with wholesalers; assisted on the desk and as a backup for finance.

Downey Ford
9500 Lakewood Blvd.
Downey, CA 90240
800/207-5892
Contact – Bernie Woods

5/97 – 9/97
Finance Director

This Dealer Development store had \$3M in outstanding contracts in transit when I came on board. My responsibility was to bring this portfolio current within sixty days and to develop and implement policies and procedures, hire and train staff, and to manage all aspects of the finance department in order to rebuild a failing operation. Once the operation was brought current and I had assembled a staff able to maintain a healthy operation, I was able to accept a position previously offered to me with MK Smith Chevrolet.

Flair Custom Construction
929 E. Foothill Blvd. #215
Upland, CA 91786

10/87 – *5/97 (2005)
Owner/General Manager

Co-owned and operated a general contracting firm that did residential and commercial construction projects. I served as the construction manager responsible for project mobilizations, safety, operations, payroll, hiring, and contract administration. Conducted estimating, did journey level fieldwork, and managed complex projects. Flair also provided project management and DRB training for other development companies.

* In May of 1997, I accepted a temporary contract with Downey Ford to assist with setting up a finance department. Even though I got pulled back into the auto industry at that time, I continued to oversee the operations of Flair Custom Construction until 2005 when I accepted an executive position with Cornerstone.

Notes:

1. My career in construction began when I worked for my uncle who was a general building contractor. I later entered an apprenticeship program in 1962 and worked in the industry doing framing, installing drywall and finish work until 1965. It was there I became a journeyman carpenter and then I went back to school.
2. From 2002 – 2004 I served as the primary instructor for the construction trades program at Chaffey College in Rancho Cucamonga, CA and also at the Fontana campus.

Professional Development & Certifications:

- NCCER Instructor Certification – 2014
- Colorado Teaching Certificate Post secondary (EDUT 250 & EDUT 260) 2012-2017-2022
- **ADESCO Finance School**
- Pat Ryan F&I School
- GM Certified Sales Manager
- Dealer Link Certification
- E-inventory Certification
- GM Certified Used Car Manager
- ProfitScan (New & Used lease training)

Education:

University of Wisconsin
Cal Poly San Luis Obispo – BA English - 1972

Personal References:

Rick Leonard, Retired WCCC Instructor
970/260-9873

Gary Looft, Department Head WCCC
970-640-1908

Troy Miller, Department Head CMU Construction Management
970-433-6511



Richard L. Lahe

Lecturer of Construction Technology

(970) 433-6364 | rlahe@coloradomesa.edu | 3051 E ¼ Road Grand Junction Colorado 81504

Skills & Abilities

Colorado licensed journeyman plumber (License number; 285468)

Certified pipe welder (6G Natural Gas)

Certified aerospace welder (aluminum, stainless steel)

Aviation metalsmith (U.S. Navy)

NCCER (National Center for Construction Education and Research) Certifications:

Construction Technology

Core Curriculum

HVAC (Heating, Venting, and Air Conditioning)

Experience

Adjunct Instructor, Western Colorado Community College, Grand Junction Colorado.
2012 to Present.

Instructor of Construction Technology

Classes I instruct;

Conc. 104 beginning blueprints.

Conc. 161 Plumbing, Mechanical and electrical.

Conc. 234 Commercial and Industrial plan reading.

Conc. 251 Residential Building Codes.

Lunsford Mech., Grand Junction Colorado

1998 to 2008

Plumbing Foreman:

Supervised multiple employees during the underground, plumbing rough-in, top out, and trim/finish work on multi-million dollar projects in resort areas.

Responsibilities:

Interpret and implement blueprints, layout work for other employees, order material, maintain all work related documents including man hours, safety, changes, R.F.I's (Request for Information), submittals and scheduling.

Supervised plumbing installers during the installation and testing of the following systems;

Drain Waste and Vent systems.

Domestic Water systems: (Cold, Hot and Hot water recirculation)

Trim and Finish

Specialties;

Medical gas systems: (Oxygen and Vacuum systems)

Hydronic systems: (Heat, Cooling and Snow-melt)

Boiler Installations

System controls

Natural Gas Systems (Threaded)

Natural Gas Systems (welded)

Midnight Plumbing, Grand Junction Colorado

1997 to 1998

Plumbing installer; (Residential/Commercial)

Drain Waste and Vent (D.W.V.) systems, domestic water systems, hydronic heat systems, boiler installations, evaporative coolers, trim and finish.

Natural Gas: Pipe threading and welding.

Mountain States Plumbing, Grand Junction Colorado.

1996 to 1997

Plumbing installer; (Residential/Commercial)

Drain Waste and Vent (D.W.V.) systems, domestic water systems, hydronic heat systems, boiler installations, evaporative coolers, trim and finish.

Natural Gas: Pipe threading and welding.

Falcon Plumbing, Grand Junction Colorado

1994 to 1996

Plumbing apprentice; (Residential/Commercial)

Drain Waste and Vent (D.W.V.) systems, domestic water systems, hydronic heat systems, boiler installations, evaporative coolers, trim and finish.

Natural Gas: Pipe threading and welding.

K.F.F. Farms, Two Butts Colorado

1992 to 1994

Installed 22 miles of water line, two wells, three windmills and eleven water storage tanks.

General Farm Labor.

G.L. Webb, Geneva Nebraska

1991 to 1992

Performed survey layouts for box culvert extensions and box bridges.

Built, repaired and installed concrete forms for box culverts and bridges.

Performed rebar placement for box culverts and bridges.

Placed and finished concrete.

Performed excavation and backfill.

Equipment operator.

Haselden Construction, Oberlin Kansas

1990 to 1991

Crew leader (general labor) for the general contractor during a hospital remodel.

Layout of interior spaces.

Kansas Coach, Oberlin Kansas

1986 to 1990

Plant Supervisor;

Over seen fabrication, building and electrical systems along with paint and body work for school and shuttle buses up to 36 passengers.

Poe Well Service, Oberlin Kansas

1986 to 1986

Oil well servicing;

Truck Driver, Floor and derrick hand.

Roustabout.

Banner Construction, Phoenix Arizona

1983 to 1986

Underground utilities installation supervisor.

Equipment operator; (all sizes)

Backhoe, Excavator, Loaders, Dozers, Trenchers, Compactors, Scrapers, Road Graders, Haul Trucks and Water Wagons.

Surveying;

Grade and station layout for pipe installations (Sewer, Water, Storm drains and gas) up to and including 120" Concrete Reinforced Pipe.

U.S. Navy, Europe and Asia

1979 to 1983

Airframes Supervisor: VP-47, N.A.S. Moffat Field California

Duties: Prioritize and perform required maintenance on nine P-3 Orion aircraft in order to maintain flight schedules.

Supervised eight (8) to twelve (12) mechanics.

I was responsible for all required paper work.

Responsible for inspecting and certifying all maintenance performed on my shift.

Airframes supervisor: N.A.F. Diego Garcia detachment (August to October, 1982) and N.A.F. Adak Alaska detachment (April to May, 1983).

Aviation structural mechanic: (Aviation Intermediate Maintenance) N.A.F. Sigonella Sicily

Sheet metal fabrication, machining, Non-Destructive Inspections (N.D.I.), hydraulic repairs, tire and wheel build up, flight controls, aviation welding and salvage.

EDUCATION

Rifle Union High School, Rifle Colorado

Graduated 1978.

Naval Air Technical Training Center (NATTC), Millington Tennessee

1979 to 1979

Basic Electricity and Electronics with transistor theory.

Aviation 'A' School;

Sheet metal layout and fabrication.

Flight control systems.

Corrosion control and painting.

Aviation 'C' School;

Metallic Inert Gas welding (M.I.G.).

Tungsten Inert Gas welding (T.I.G.).

Certifications:

Aluminum, Stainless Steel.

Fleet Replacement Air Personnel (F.R.A.M.P), Moffat Field California

1982 to 1982

P-3 Orion Airframe;

Sheet metal repair, Flight controls, landing gear system, hydraulic systems, corrosion control, interior repair, tire changes and troubleshooting of systems.

Ground Support Equipment (G.S.E.)

Oxygen carts, nitrogen carts, various power carts, hydraulic purifiers and aircraft jacking.

Associated Builders and Contractors, Grand Junction Colorado

Completed a four year plumbing apprenticeship and became licensed in the state of Colorado

Western Colorado Community College, Grand Junction Colorado

2010 to Present

A.A.S. degree in Construction Technology and Supervision (Pending)

Colorado Mesa University, Grand Junction Colorado.

2010 to Present

Bachelors of Science Construction Management

I am required to have 19 more credits for a degree. I currently have 101 of 120 credits.

Appendix 4

Course SLO's and Assessment Report

Construction Technology Program SLOs.

A Construction Technology graduate will be able to:

- Apply knowledge and skills in appropriate contexts and transfer that knowledge and skill to a new situation (critical thinking)
- Produce professional work products, independently and collaboratively (individual and team skills)
- Communicate clearly, appropriately, and persuasively to an audience, both orally and in writing (communication skills)
- Demonstrate professional ethics in the field by utilizing the core practices of the construction industry (ethics)
- Properly and appropriately use information systems tools and techniques (information skills)
- Identify, formulate and solve construction related problems by applying knowledge of math, science and practical business principles (information systems knowledge)

COLORADO MESA UNIVERSITY
Program Outcome and Assessment Plan

Program Name: Construction Technology

Date: 12/16/14

Program Outcomes	Courses/Educational Strategies Indicate if outcome is Beginning(B), Developing(D), or Advanced(A)	Assessment Method(s)	Time of Data Collection/ Person Responsible	Desired Level of Accomplishment/ Benchmark	Results of Assessment	Actions Taken
Outcome #1 Written Communication	Conc 228 (D)	<p>What: An excel spreadsheet written estimate for an assigned construction plan.</p> <p>How: The student will create a data base in excel using the formulas given in class. With this data they will take off the materials needed for the estimate and present them in a manner that can be understood and delivered to the client. The assessment is scored using an excel data sheet template with the format and data needed to assess the students paper.</p>	<p>Who: Course Instructor</p> <p>When: Upon completion of course</p>	100% of the students will score 85% or better on the accuracy and format of the estimate, using an excel form and data base.	<p>Results: 100% of the students showed the competency needed to do an estimate for an assigned construction project.</p> <p>Key Findings: The students mastered the technique of being able to judge the quantity of materials needed to do the job at hand. They recognized the need for a data base as they completed their estimate and mastered the portions of excel spreadsheet to be able to present their bid to a client in a professional manner.</p> <p>Conclusions: The students were able to produce an accurate, properly formatted and organized customer estimate.</p>	<p>Action: None needed</p> <p>Re-evaluation Date: N/A</p>

COLORADO MESA UNIVERSITY
Program Outcome and Assessment Plan

Program Name: Construction Technology

Date: 12/5/16

Program Outcomes	Courses/Educational Strategies Indicate if outcome is Beginning(B), Developing(D) or Advanced(A)	Assessment Method(s)	Time of Data Collection/ Person Responsible	Desired Level of Accomplishment/ Benchmark	Results of Assessment	Actions Taken
Outcome #1 Written Communication	Conc 228 (D)	<p>What: An excel spreadsheet written estimate for an assigned construction plan.</p> <p>How: The student will create a data base in excel using the formulas given in class. With this data they will take off the materials needed for the estimate and present them in a manner that can be understood and delivered to the client. The assessment is scored using an excel data sheet template with the format and data needed to assess the students paper.</p>	<p>Who: Course Instructor</p> <p>When: Upon completion of course</p>	100% of the students will score 85% or better on the accuracy and format of the estimate, using an excel form and data base.	<p>Results: 100% of the students showed the competency needed to do an estimate for an assigned construction project.</p> <p>Key Findings: The students mastered the technique of being able to judge the quantity of materials needed to do the job at hand. They recognized the need for a data base as they completed their estimate and mastered the portions of excel spreadsheet to be able to present their bid to a client in a professional manner.</p> <p>Conclusions: The students were able to produce an accurate, properly formatted and organized customer estimate.</p>	<p>Action: This coming year there will be enough data collected for a more accurate evaluation. The reason for this the course has become a prerequisite for the Construction Management program</p> <p>Re-evaluation Date: 12/17</p>

External Program Review

Western Colorado Community College Construction Technology Associate of Applied Science Program

Conducted by

L. Scott Hansen, Ph.D.

Professor of Engineering Technology

Department of Engineering and Technology

Southern Utah University

Cedar City, Utah 84720

hansens@suu.edu

www.suu.edu/faculty/hansens

Executive Summary - Narrative

On February 25th 2019, a campus visit was made to Western Colorado Community College (WCCC) to conduct an external review of the Construction Technology Associate of Applied Science (A.A.S.) program which included face-to-face interviews with administration, faculty and staff. This visit included the University President, Vice-President of Academic Affairs, AVPAA of Assessment, Library Director, Acting Vice President of Community College Affairs, Vice President for Information Technology, WCCC Director of Instruction, Construction Technology students, Construction Technology and Construction Management Program Directors.

The current status of the Construction Technology A.A.S. program is excellent. The Program enjoys enormous support from WCCC and CMU. Enrollment in the program is strong at approximately 28 students. The existence of a 2+2 articulation agreement with the Construction Management Bachelor of Science program at CMU, results in a very healthy A.A.S program.

The Construction Technology A.A.S. program fits the goals and mission of WCCC by “providing relevant, essential, dynamic programs that enhance learning”. Graduates of the Program are in high demand which is typical for programs of this nature. The reviewer is pleased to discover the creation of a seamless 2+2 articulation between WCCC and CMU.

The reviewer’s findings indicate that the future of the Construction Technology A.A.S. Program at Western Colorado Community College is very bright.

Historical Perspective on Associate of Applied Science degrees

In the past, most 2 year Associate of Applied Science degrees (A.A.S.) in a technical field were considered “terminal” in nature. The original intent of the A.A.S. degree was 2 years of extensive training in preparation for some type of technical career. Historically 2-year graduates were able to land gainful employment with only 2 years of school. Because of this, individuals with A.A.S. degrees were not interested in pursuing a 4 year degree at a University. Because of this lack of interest in attending a 4 year institution, universities had little reason to articulate 2 and 4 year degrees. This approach to A.A.S. degrees worked for quite some time. What was not taken in to account at the time was individuals eventually wanting to further their education after several years in the work force. It also did not take into account employers encouraging employees to obtain more education as a means of increasing opportunities to move into some type of management position.

Individuals with an A.A.S. degree quickly learned that the phrase “terminal” meant just that. For years, an individual with an A.A.S. degree had few options for pursuing a B.S. degree unless they were willing to start from scratch on an unrelated B.S. degree. As industry needs evolved, the demand for individuals with some type of technical background to possess a 4 year B.S degree began to increase. It has only been recently that universities have begun to create 2+2 articulation agreements between A.A.S. and B.S. degrees. Colorado Mesa University has created a first class 2+2 articulation in the Construction Management and Construction Technology area (A.A.S to B.S.). Students can enroll in the A.A.S. degree program at WCCC and then transition into the 4 year B.S. degree program CMU. Not only is this an ideal scenario for 2 year Construction Technology A.A.S. students, it is also ideal for Western Colorado Community College (WCCC) and Colorado Mesa University (CMU) as a whole.

A.A.S. degrees are excellent recruiting tools for both 2 year and 4 year universities. Many students have been lured into attending college with the intent of only earning a 2 year degree. Upon completion of the 2 year degree, students typically realize that they can do university level work and decide to continue for 2 additional years to earn a 4 year degree. Faculty at CMU indicated that they have had similar experiences with 2 year students eventually deciding to complete a 4 year degree.

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				
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				
Student demand/enrollment is at an expected level in the context of the institution and program's role and mission.	X				
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				
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				
Program faculty members are involved in on-going assessment efforts.	X				
Program faculty members analyze student learning outcome data and program effectiveness to foster continuous improvement.	X				
The program's articulation of its strengths and challenges is accurate/appropriate and integral to its future planning.	X				

Reviewers Notes/Findings from Campus Visit

Reviewer visit with the President and Vice-President of Academic Affairs

The President and Vice-President of Academic Affairs indicated that the Construction Technology program at Western Colorado Community College (WCCC) is one of the best transfer pipelines into Colorado Mesa University (CMU). The President and Vice-President of Academic Affairs also indicated that there were numerous transfer pipelines with WCCC. Currently there are 28 students enrolled in the Construction Technology program at WCCC. Close to 80% (according to the self-study) of those Construction Technology students at WCCC will transfer into the 4 year Construction Management program at CMU.

Reviewer visit with the AVPAA of Assessment

The AVPAA of Assessment and the reviewer discussed pursuing some type of accreditation for the Construction Management and Construction Technology degrees. The AVPAA of Assessment and the reviewer also discussed how to gain buy-in from the Construction Management and Construction Technology Directors on pursuing some type of accreditation. The AVPAA of Assessment and the reviewer also discussed how to stack either ABET (Accrediting Board of Engineering and Technology) accreditation or ACCE (American Council of Construction Education) accreditation on to CMU assessment. Stacking of assessment was also discussed as a possible benefit for the Construction Management and Construction Technology Directors as they pursue accreditation.

Reviewer visit with the Library Directors

The Library Director indicated that every program at CMU/WCCC is assigned a library liaison. This liaison assists both CMU and WCCC Construction Management/Construction Technology students in proper research methods, citation formatting, along with finding and evaluating sources. Librarian liaisons also Chat and Skype with students if needed including weekends. Librarians also attend Construction Management and Construction Technology classes in an effort to make students aware of what services are available at the library.

Reviewer visit with the Acting Vice President of Community College Affairs

The Acting Vice President of Community College Affairs had a good understanding of the importance of 2 and 4 year degrees and how they are different, yet how they can still articulate. The Acting Vice President of Community College Affairs also understood the recruiting potential of 2 year degrees.

Reviewer visit with the Vice President for Information Technology

The Vice President for Information Technology indicated that the Information Technology department provides computer hardware and software support used by both the Construction Management program at CMU and the Construction Technology Program at WCCC. This support comes in the form of installation and maintenance of computer hardware and software such as AutoCAD, Bluebeam, MS Word, Excel, etc. Information Technology makes 2 requests per year for software. This is commendable on Information Technology's part since other institutions only make 1 request per year. Information Technology cycles computers every 6 years. Department Heads are involved in the allocating of computers.

Reviewer visit with the WCCC Director of Instruction

The WCCC Director of Instruction has past experience as a CTE director which provides him with valuable insight into the inner workings of the Construction Technology program that other Directors on Instruction might not have. The WCCC Director of Instruction had a copy of the Construction Technology self-study on hand, and had obviously read through it thoroughly. The WCCC Director of Instruction realizes the importance of creating and maintaining a seamless 2+2 articulation between WCCC and CMU.

Reviewer visit with Construction Technology Students

The reviewer had lunch with 2 students. One student was in the Construction Management program while the other was in the Construction Technology program. Both students indicated that they are very happy with the Construction Management and Construction Technology programs. One student indicated that his experience in the Construction Management program has been so enjoyable that he is purposely delaying graduation in an effort to extend his time at CMU. The other student indicated similar feelings. Both students expressed appreciation for the 2+2 articulation and were pleased with the “seamless” transition moving from the 2 year program into the 4 year program. Both students expressed appreciation for the teaching style of the CMU and WCCC faculty. Students enjoy the faculty using real world experiences along with hands-on activities. The students also indicated that employers come to campus to recruit students for internships and full-time employment. The students had no concerns about CMU or WCCC, or any suggestions on what could be improved. The students appear to be having a first-rate experience at CMU and WCCC.

Reviewer visit/observation of a Construction Technology Class

The reviewer sat in on an afternoon Construction Technology class. The students were learning to use Bluebeam software to compute construction costs and scheduling. The reviewer saw first-hand what the students were talking about as far as knowledgeable instructors who use real world experiences and hands on activities in their classes. The instructor indicated that he uses Bluebeam software for all of his Construction Technology courses, which include Beginning Blueprint Reading, Advanced Blueprint Reading, Mechanical Systems and Construction Codes. Use of Bluebeam software in these classes demonstrates a cutting edge approach to teaching. The use of Bluebeam software in a construction codes class is commendable. Typically in a construction codes course, instruction includes looking up construction code in the text book and taking quizzes and exams on all different types of construction codes. This approach typically is met with resistance from students and results in low course evaluations scores for the instructor. Incorporating the use of Bluebeam in a construction codes class helps the students understand the application of construction code rather than just reading the information from a text book.

It was brought to the attention of the reviewer that the Construction Management and Construction Technology Directors have designed and built what is known as a Compact Field Office. This “office” consists of a purpose built heavy duty on-site tool box that has been converted to a job site field office. This is yet another cutting edge approach to teaching Construction Management and Construction Technology. Every Construction Management and Construction Technology program should have some type of compact field office. The design and construction of some type of compact field office would also make a great capstone project for Construction Management and Construction Technology students to build. The compact field

office contains a laptop with several computer pads and a large flat screen monitor. The laptop contains software typically used on construction projects (Bluebeam, Revit, AutoCAD, etc.).

Reviewer visit with the Construction Technology and Construction Management Program Directors and the AVPAA of Assessment

The reviewer met with the Construction Technology and Construction Management Program Directors along with the AVPAA of Assessment. The discussion centered on pursuing some type of program accreditation for both Construction Management and Construction Technology. Both directors indicate a strong interest in pursuing some type of accreditation. Both directors are in the process of deciding what the most appropriate accrediting body would be and how best to proceed. The reviewer discussed the ABET requirement of 3 semesters of assessment prior to applying for accreditation. The reviewer also discussed how to stack either ABET (Accrediting Board of Engineering and Technology) accreditation or ACCE (American Council of Construction Education) accreditation on to CMU assessment. This was pointed out as an advantage to some type of program accreditation.

Reviewer observation of the Construction Technology Curriculum

Curriculum in the Construction Technology degree is typical to what one might find in other high quality Construction Technology programs. Courses found in the Construction Technology degree are in close alignment with what is taught at WCU's Construction Management program and other Construction Management programs throughout the region. The courses that are taught at WCCC strengthen the 2+2 articulation agreement between WCCC and CMU. Construction Equipment (CONC 208) and Construction Preparation: Codes, Permits (CONC 251) are both cutting edge courses that other Construction Technology programs would do well to add to their programs of study.

Reviewer Observation of the Construction Technology Program Currency

The Construction Technology program appears to be current with what is occurring in industry. Industry needs center around graduate's ability to use computer software to complete tasks such as bidding, estimating and scheduling along with supervising and managing the construction of a large-scale project. The Construction Technology program at WCCC appears to be meeting this need.

Reviewer observation of the Construction Technology Program meeting Industry

Standards

Construction industry standards typically include knowledge of construction code, bidding, estimating, scheduling, safety, and collaborating with others in a professional manner. WCCC's Construction Technology program prepares students in all of the above mentioned areas. One over-riding indicator as to the whether the program is meeting industry standards is the rate of employment among the graduates. As long as Construction Technology graduates are finding employment, graduates are meeting industry standards.

Reviewer observation of Construction Technology Future trends

The area of Construction Technology and Construction Management seem to be moving in the Facilities Management direction. It is not uncommon for Construction Technology and Construction Management graduates to be hired as Facility Managers at some type of medium or large commercial firm. Facility Managers perform very similar tasks when compared to Construction Managers such as obtaining bids from sub-contractors, overseeing and supervising construction of large projects along with human resource management. Facility managers

typically are hired as permanent employees similar to a staff attorney or accountant with several employees working under them. Facility managers typically utilize professional consulting services for facility studies and/or master planning. These types of activities are very similar to the type of work that Construction Technology and Construction Management graduates do.

Reviewer Recommendations and Goals

Short Term Goals

1. Short term goals for the Construction Technology program might include the addition of some type of Sustainability Construction/Green Building course. Since there is ever increasing awareness and concern for the environment, the addition of some type of Sustainable Construction/Green Building course would be beneficial for Construction Technology graduates. The addition of some type of sustainable construction/green building course would also be a great recruiting course into the Construction Technology program. One course in particular would be Leadership in Energy and Environmental Design (LEED). LEED is a very well-known Green Building entity. LEED has numerous type and levels of certification. Graduates that possess this knowledge would be in high demand.
2. Construction Technology faculty might also want to consider the addition of some type of Construction Ethics course. The area of Ethical Behavior is becoming more prevalent in industry and society. Accrediting bodies (such as ABET) require some type of evidence that students are receiving some type of Ethics related instruction.

3. Another short term goal would be to update WCCC Construction Technology website to include information about the 2+2 articulation with CMU's B.S. in Construction Management degree. Currently the website mentions the B.A.S. degree but not the B.S degree.

Long Term Goals

1. Long term goals for the Construction Technology program might include the pursuit of some type of program accreditation (ABET, ACCE) for both the A.A.S. and B.S. degrees. Any type of formal accreditation adds validity and credibility to the program. This validity and creditability is desirable when the program is compared to other accredited programs on campus. Employers also recognize accredited programs as producing high quality graduates that possess the latest skills and techniques. Another advantage of program accreditation is the ability of "stacking" the program accreditation on to the institutions required program assessment as mentioned above.

Reviewer Program Review Conclusion

The Construction Technology program at Western Colorado Community College appears to have strong support at all levels. Enrollment in the program is strong. The existence of a seamless 2+2 articulation agreement with the Construction Management program at Colorado Mesa University will further strengthen the Construction Technology program at Western Colorado Community College. Since the real estate and construction markets have rebounded the Program can expect continued growth.

L. Scott Hansen, Ph.D.
Department Engineering and Technology
Professor of Engineering Technology-CAD/CAM
Southern Utah University
Cedar City, Utah 84720 hansens@suu.edu www.suu.edu/faculty/hansens