WSU Five-Year Program Review Self-Study

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Department/Program: Parson Construction Management (CM) Program

Semester Submitted: Fall 2022

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Brief Introductory Statement

Since the most recent program review in 2017 the department has changed from the Construction Management Technology Department to the Construction and Building Sciences Department. In 2019, the official name of the program was changed from the "Parson Construction Management Technology (CMT) Program," to the "Parson Construction Management (CM) Program." The Building Design and Construction (BDC) program and the Interior Design (ID) program were added to Construction Management and Facilities Management to make up the new Department.

Facilities Management has been an emphasis within the Construction Management program, but due to low enrollment the decision was made to phase out the Facilities Management option. Classes will no longer be offered for a Facilities Management emphasis as of fall semester 2024.

Due to a variety of factors involving changes to one of the accrediting bodies and internal debate among program faculty about which accrediting body the program should be aligned with, the accreditation that had been in place from the American Council of Construction Education (ACCE) expired in 2016.

In the fall of 2015, the department faculty reviewed the revised policies of the Accreditation Board for Engineering and Technology, Inc. (ABET's) inclusion of Construction Management Programs in the Applied Science Accreditation Commission (ASAC). It was recommended and tentatively approved by the faculty in the aforementioned faculty meeting that the Construction Management program would seek accreditation through ABET's ASAC process, and resign from ACCE at the end of the current accreditation period.

As preparations were being made to seek accreditation through ABET, discussions took place with the industry advisory board to gauge their level of support for the perceived value in reaccrediting the program. The board indicated that as long as the goals of the program could be achieved within the framework of accreditation and did not hinder the flexibility to modify the curriculum as needed or inhibit the student preparation needed by industry, they were mostly supportive.

One of the faculty (recently retired) made an extensive study of the accrediting bodies to present to the Industry Advisory Board and found that due to leadership changes bringing a more inclusive team approach to ACCE, the program appeared to be better served by the focus of ACCE than with ABET. Accordingly, a new debate began among faculty as to the best course of action with most, but not all, faculty at that time concluding that to continue with ACCE would be best even though the accreditation with them had expired.

During this time, the long-time program coordinator made the decision to retire and then just months later the department administrative assistant retired followed shortly thereafter by the department chair. The retirement of these two faculty and the administrative assistant along with the recent retirement of yet another, and the most senior, faculty has delayed the effort to become reaccredited. As of the writing of this report, one of our new tenure-track faculty, who was recently part of the successful accrediting of a program at a peer university, will be attending the ACCE mid-year conference in February, 2023 to assess and report back what the next steps should be for the program with regards to accreditation.

The Parson CM program has offered B.S. degrees with an emphasis in Construction Management and Facilities Management, but as mentioned, the Facilities Management emphasis will no longer exist beginning Fall semester 2024. The program also offers an Associate of Applied Science (AAS) degree.

In order to receive their diploma, CM students are required to take a final assessment during their last semester in which they must receive a minimum score of 192 out of a possible 300 on the Associate Constructor (AC) Level 1 exam given by the American Institute of Constructors (AIC) and the Constructor Certification Commission. "The AC (Associate Constructor) certification is intended for constructors entering the construction field and exam questions will be primarily based upon education knowledge."

This exam provides an independent direct measure of our program outcomes compared to national outcomes. Historically, the Parson CM program has done very well on the exam. Examining recent exam results, the average score for WSU CM students for the spring 2022 test was 225 compared to a national average of 214. Looking further in the recent past, the average comparison for Fall 2021 was 212 vs. 199; for Spring 2021 it was 230 vs. 202. The exams were cancelled for a time during the COVID pandemic. A score of 215 is a passing score in order to receive the certification. More information on the AC exam is available at http://www.professionalconstructor.org/Home/.

Through several program review sessions amongst our faculty curriculum changes were proposed to address some of the areas where students have not scored consistently higher than the national average and at times have scored lower. These curriculum changes were submitted to the college and University curriculum committees and have received approval for inclusion in the fall 2023 catalog.

With classes offered in the evening, the program has traditionally catered non-traditional students who often are working full-time and also attend school full time. Due to recent initiatives by one of our faculty, Jeremy Farner and the Wadman Center for Excellence, we have observed an increase in the number of enrolled traditional students to complement the non-traditional students. A pathways program was created for the building sciences in conjunction with the Associated General Contractors and the State of Utah. One attractive benefit is that local High School students in six different northern Utah school districts can earn guaranteed four-year partial tuition scholarships to Weber State University.

Standard A - Mission Statement

To Prepare students from diverse backgrounds for success in any sector of the construction industry.

Standard B - Curriculum

Curriculum Map

Program Learning Outcome 1: To prepare students for entry into successful careers in Construction Management emphasizing the mastery of construction management fundamentals, the ability to solve construction management problems, and the importance of construction management judgement, leadership, construction investigation, and the creative process of construction management applications.

Program Learning Outcome 2: To instill in students the sense of pride and confidence that comes from applying their knowledge of construction management principles and procedures to the economic and social benefit of society.

Program Learning Outcome 3: To encourage students in an understanding of the professional and ethical obligations of the construction manager, to conduct themselves as professionals, recognizing their responsibility to protect the health and welfare of the public, and to be accountable for the social and environmental impact of their construction management practice.

Program Learning Outcome 4: To establish an educational environment and curriculum in which students participate in cross disciplinary, team-oriented, open-ended activities that prepare them to work in integrated construction management teams.

Program Learning Outcome 5: To offer curriculum that encourages students to become broadly educated construction managers and life-long learners, with a sold background in the basic sciences and mathematics, and understanding and appreciation of the arts, humanities, and social sciences, and ability to communicate effectively for various audiences and purposes, and a desire to seek out further educational opportunities.

Program Learning Outcome 6: To expose students to advances in construction management practice as preparation for opportunities in professional practice and graduate education.

		Pro	gram Outco	Learr omes	ning			
Core Courses in Department/Program	Learning Outcome 1	Learning Outcome 2	Learning Outcome 3	Learning Outcome 4	Learning Outcome 5	Learning Outcome 6		
CMT 1100 – Construction Management Orientation	Ι	Ι	Ι	Ι	Ι	Ι		
CMT 1150 – Construction Graphics								
CMT 1220 – Construction Contracts	Ι		Ι		Ι			
CMT 1310 – Materials and Methods								
CMT 1330 – Civil Materials								
CMT 1550 – Construction Safety								
CMT 2210 – Construction Jobsite Management	Ι	Ι	Ι	Ι	Ι	Ι		
СМТ 2260 – МЕР								
CMT 2340 – Civil Design and Layout					Ι			
CMT 2360 – Commercial Design and Codes								
CMT 2410 – LEED GA Preparation		R	R	R	R	R		
CMT 2640 – Quantity Survey								
CMT 2990 – Construction Management Seminar	R	R	R	R	R	R		
CMT 3115 – Construction Cost Estimating								
Core Courses in Department/Program	Program Learning Outcomes							

	Learning Outcome 1	Learning Outcome 2	Learning Outcome 3	Learning Outcome 4	Learning Outcome 5	Learning Outcome 6
CMT 3130 – Construction Planning and Scheduling						
CMT 3310 – Leadership in the Construction Industry	R	R	R	R	R	R
CMT 3370 – Preconstruction Services						
CMT 4120 – Construction Accounting and Finance						
CMT 4150 – Construction Equipment and Methods						
CMT 4330 – Applied Structures						
CMT 4350 – Temporary Structures						
CMT 4510 or 4520 – Design Charrette / ASC Student Competition	R	R	R	R	R	R
CMT 4570 – Approaches to Construction Contracting						
CMT 4620 – Senior Project	Е	Е	E	E	E	Е

Note: I = Introduce, R = Reinforce, E = Emphasize

Standard C - Student Learning Outcomes and Assessment

A. <u>Measurable Program Learning Outcomes</u>

At the end of their study at WSU, students in this program will apply principles to:

- 1. Create and apply effective communications
- 2. Create a construction project safety plan
- 3. Create construction project cost estimates
- 4. Create construction project schedules
- 5. Create a business plan for a small construction company
- 6. Analyze methods, materials, and equipment used to construct projects
- 7. Apply construction management and supervisory skills as a member of a multidisciplinary team
- 8. Apply current software applications to the construction process
- 9. Apply basic surveying techniques for construction layout and control
- 10. Apply the preconstruction process and alternate delivery methods
- 11. Apply the principles of construction risk management
- 12. Apply the principles of construction accounting, cost control, and profit maximization
- 13. Understand construction quality assurance and control
- 14. Understand the legal implications of construction contracts and documents and regulatory law
- 15. Understand the principles of sustainable construction
- 16. Understand the principles of construction design
- 17. Understand the principles of effective leadership
- 18. Understand professional and ethical responsibility
- 19. Understand how to develop professional relationships

	Student Learning Outcomes																		
Core Courses in Department CM Program	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CMT 1100 – Construction Mngmt Orientation	1						1	1		1	1				1			1	1
CMT 1150 – Construction Graphics	2																		
CMT 1220 – Construction Contracts										2	2		1	3				2	
CMT 1310 – Materials and Methods						3													
CMT 1330 – Civil Materials						1													
CMT 1550 – Construction Safety	2	1									2							2	
CMT 2210 – Construction Jobsite Management	2						2	2		2	2		2						
СМТ 2260 – МЕР															2	1			
CMT 2340 – Civil Design and Layout									3										
CMT 2360 – Commercial Design and Codes								2											
CMT 2410 – LEED GA Preparation															3				
CMT 2640 – Quantity Survey			1																
CMT 2990 – Construction Management Seminar																			2
CMT 3115 – Construction Cost Estimating	2		2					2										2	
CMT 3130 – Const. Planning and Scheduling				1				2			2								

	Student Learning Outcomes																		
Core Courses in Department CM Program	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
CMT 3310 – Leadership in the Construction Industry							2										3	3	3
CMT 3370 – Preconstruction Services	2		2	2						3						2			2
CMT 4120 – Construction Accounting & Finance					1							3							
CMT 4150 – Construction Equipment & Methods						3													
CMT 4330 – Applied Structures																2			
CMT 4350 – Temporary Structures																2			
CMT 4510 or 4520 – Design Charrette / ASC Student Competition	2						3												
CMT 4570 – Approaches to Const. Contracting					3														
CMT 4620 – Senior Project	3	3	3	3				3			3		3			3			

Note: 1 = Introduced, 2 = Emphasized, 3 = Mastered

B. Other programs

a. <u>General Education Outcomes</u> (if applicable)

 This program supports General Education in the following area(s)

 ⊠ AI
 □ Comp
 □ IL
 ⊠ QL

 ⊠ CA
 ⊠ HU
 ⊠ LS
 ⊠ PS
 ⊠ SS

 □ WSU
 ⊠ DV

b. Concurrent Enrollment (if applicable)

In 2019 as part of the work for the Wadman Center for Excellence a Pathways program was initiated in conjunction with the Associated General Contractors of Utah and the State of Utah where high school students an receive concurrent enrollment credit in Construction Management courses and receive scholarships by completing all of the courses. In 2020-2021 there were 938 high school students and in 2021-2022 there were 936 high school students taking CM-related courses in the six participating school districts in Northern Utah.

This has helped recruitment into the Parson Construction Management Program and the program is seeing an uptick in the enrollment number of younger students just out of high school to complement the non-traditional students working in the industry who typically make up the bulk of the students in the program.

Site visits are made to the schools to observe classes and each year a general meeting is held in the spring with all participants to disseminate key information.

Concurrent CM Enrollment Courses & Participating Schools										
	СМТ	СМТ	СМТ	СМТ						
School 1100 1150 1310 2360										
Fremont	Х									
Granite Technical Institute				Х						
Layton	Х			Х						
Ogden				Х						
Roy	Х									
Weber Innovations		Х	Х	Х						

c. Other interdisciplinary

Parson Construction Management Students participate each year in the Design Charrette Competition and the ASC student competition where the teams are interdisciplinary.

The Design Charrette competition is made up of Interior Design, Building Design and Construction, and Construction Management students. Teams work on the design and construction planning for various out-of-country service projects. Students can then elect to travel to the country and participate in a portion of the construction and interact with the locals.

The ASC competition is typically made up of Construction Management and Building Design and Construction students participating in real-world problems presented to the problem sponsor. The team that makes up the selection committee for the problem sponsor is typically made up of the actual management team who worked on the project for which the students are presenting. Students often comment that this exercise helps them bring all of their learning together to better understand and visualize how the learning from each course contributes to the successful management of a project.

Five-year Assessment Summary

C.

2017-18: Materials, Methods, and Plan reading were again noted as areas needing improvement, particularly in commercial plan reading and the understanding of the various civil materials. A new instructor was assigned for the plan-reading course pedagogical changes and coursework revisions were implemented placing more of a focus on commercial plan reading. Additional lab exercises and materials testing were added. Also, the category of engineering concepts continues to be an area of weakness. The faculty discussed this yet again and are evaluating alternatives to overcome this shortcoming.

2018-19: Planning and Scheduling and Project controls were determined to be areas that needed improvements. Coursework revisions were discussed and modified and through that process a third-party training was scheduled to demonstrate a more robust software to use that is recognized nation-wide and is used by other universities and construction companies. Licenses were obtained through the University, and pedagogical changes were implemented for that course. Notably, the scores in the area of engineering concepts improved and the students scored higher than the national average.

2019-20: Several categories of outcomes (Ten of Nineteen) revealed weaknesses in which the CM students scored lower than the national average in the fall assessment results, which is very unusual. The area of engineering concepts, something that has been a weakness in previous years, was not one of the areas the students scored lower than the national average. The faculty met to discuss the steps necessary to address the weaknesses. One consideration discussed was the potential that the unusually high number of weaknesses could be explained by a group of students who collectively were less academically strong or prepared. The plan was to place more emphasis on these areas and then verify the spring assessment results. Due to the unexpected pandemic in the spring of 2020, the assessment exam was not administered anywhere nationally, so the fall 2020 assessment results will be reviewed.

2020-21: A review of the fall assessment results demonstrated that of the nine categories of weakness from the previous year, in only one category did the students not score several points higher than the national average; That category was sustainable construction, and the students scored only one tenth of a point lower than the national average in that category. We will continue to monitor these categories. The areas of oral presentations and sustainable construction continue to be categories showing weakness falling either below or only slightly above the national average. Through faculty discussions a greater emphasis will be placed on oral presentations throughout the curriculum where applicable and pedagogical changes addressed for sustainable construction.

2021-22: All faculty were challenged with coursework and course delivery methods due to every single class moving to a virtual or online delivery during the pandemic. This made pedagogical changes difficult in the new environment and with no in-person

face-to-face interaction with students. Despite these challenges, the students continued to score well on their final assessment exam scoring above the national average in EVERY category on the fall assessment; however, in the spring assessment, the categories of oral communications and sustainable construction, two categories of weakness at times in the past, were again noted as weaknesses.

The faculty has discussed this both informally and formally over the past 18 months and it has been determined that curriculum changes and updates are needed and particularly to address these two deficiencies. Accordingly, proposed curriculum changes were submitted to the college and University curriculum committees and have officially been accepted for inclusion in the 2023 catalog. Among the curriculum changes made were the following:

- 1. BDC 3000 Sustainable Building Design & Construction. This is a 3-credit course that will be required of all students in addition to the 1-credit LEED course that was the only previously required course dedicated to sustainability.
- 2. In the past the CM students have had the option of participating in either the Design Charrette student competition or the ASC student competition. The ASC student competition is much more rigorous in terms of the oral presentation skills needed. With the new 2023 curriculum updates not only will the ASC student competition be required, but also the local CM Challenge student competition hosted by a peer University. The CM Challenge student competition will be required in the same semester as the Design Charrette student competition, which will also be required. The CM Challenge and the ASC competition both require the same amount of preparation and rigor for the oral presentations and therefore we anticipate that the students' oral presentation skills will improve significantly as incoming students or transfer students are enrolled in that catalog year or current students update their catalog year.

Assessment of Graduating Students

- 1. The program does not assess students receiving the AAS degree in Construction Management.
- 2. The program assessment for the bachelor (BS) degree determined that students graduating from the program are meeting the needs of the construction industry. For the most recent five-year period, the Parson Construction Management program used the Associate Constructor (AC) Level 1 exam, as has been done in the past, as administered by the American Institute of Constructors (AIC) and the Constructor Certification Commission to assess students receiving the BS degree.

Assessment scores are based upon maximum/minimum scores in subject matter areas as well as a maximum/minimum aggregate score for the exam. All program students are required to score a 192 of 300, or better, on the exam to graduate from

the program. Students consistently have met the program's goal by scoring above the national average total test score and have consistently scored above the national average test scores on specific subject matter areas of the exam. The measureable student learning outcomes for subject matter areas of the exam are the following:

- a. *Communication Skills:* Demonstrate effective verbal and written communication skills.
- b. *Engineering Concepts:* Apply the principles of engineering, science, and math to solve practical construction problems.
- c. *Management Concepts:* Apply the principles of accounting and business management to the construction industry.
- d. *Materials, Methods, and Plan Reading:* Evaluate construction materials, methods, and equipment and demonstrate the ability to interpret contract and design documents.
- e. *Bidding and Estimating:* Estimate construction quantities and apply costs to prepare bid proposals for construction projects.
- f. *Budgeting, Costs, and Cost Control:* Apply the principles of accounting to project management, including budgeting and controlling costs.
- g. *Planning, Scheduling, and Control:* Apply the principles of scheduling to construction projects, including activity selection and sequencing, duration calculation, and the development of a scheduling model.
- h. *Construction Safety:* Identify the OSHA standards that apply to the construction industry and develop a safety management plan.
- i. *Surveying and Project Layout:* Apply the principles of math to solve surveying problems and demonstrate the proper use of surveying equipment in construction layout.
- j. *Project Administration:* Apply the principles of project management to construction projects, including site layout, contract administration, quality control, conflict resolution, and record keeping.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
All Areas	AIC Constructor Certification Commission CQE Level 1 The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 249.00National Average: 210.30Max Possible: 300Min Acceptable: 215Spring 2021School's Average: 230.40National Average: 201.60Max Possible: 300Min Acceptable: 215Fall 2021School's Average 211.50National Average: 198.90Max Possible: 300Min Acceptable: 215School's Average: 198.90Max Possible: 300Min Acceptable: 215School's Average: 225.3National Average: 213.9Max Possible: 300Min Acceptable: 215	Students need to improve their communication skills, particularly oral communications and the principles of sustainable construction. Some deficiencies were noted in in one semester in management skills and safety training.	Curricular changes have been submitted and approved for inclusion in the fall semester 2023 catalog to address the deficiencies in oral communication and sustainable construction skills. The safety skills and management concepts were only below the national average for one semester and were improved again on the most recent spring exam, but we will monitor those areas and pay close attention to the fall 2022 exam scores when published.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
a. Communication Skills: Demonstrate effective verbal and written communication skills.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Communication Skills Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 29.00National Average: 26.00Max Possible: 33.00Min Acceptable: 23.65Spring 2021School's Average: 26.13National Average: 23.31Max Possible: 33.00Min Acceptable: 23.65Fall 2021School's Average: 24.83National Average: 23.07Max Possible: 33.00Min Acceptable: 23.65School's Average: 24.83National Average: 23.07Max Possible: 33.00Min Acceptable: 23.65Spring 2022School's Average: 20.63National Average: 21.76Max Possible: 31.00Min Acceptable: 22.22	Students need to improve their communication skills, particularly oral communications	Curricular changes have been submitted and approved for inclusion in the fall semester 2023 catalog to address the deficiencies in oral communication skills

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
b.Engineering Concepts: Apply the principles of engineering, science, and math to solve practical construction problems	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Engineering Concepts Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 21.00National Average: 16.94Max Possible: 24.00Min Acceptable: 17.20Spring 2021School's Average: 20.25National Average: 17.19Max Possible: 24Min Acceptable: 17.20Fall 2021School's Average: 17.17National Average: 16.76Max Possible: 24.00Min Acceptable: 17.20Spring 2022School's Average: 18.38National Average: 17.34Max Possible: 24Min Acceptable: 17.20	Students successfully demonstrated an understanding of Engineering concepts.	No curricular or pedagogical changes needed at this time. We will monitor this as it had previously been a weakness.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
c.Management Concepts: Apply the principles of Accounting and business management to the construction industry.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Management Concepts Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 22.00National Average: 18.52Max Possible: 30.00Min Acceptable: 21.50Spring 2021School's Average: 21.25National Average: 19.07Max Possible: 30.00Min Acceptable: 21.50Fall 2021School's Average: 19.67National Average: 19.52Max Possible: 30.00Min Acceptable: 21.50School's Average: 19.52Max Possible: 30.00Min Acceptable: 21.50School's Average: 24.75National Average: 22.59Max Possible: 30.00Min Acceptable: 21.50	Students successfully demonstrated an understanding of management concepts.	No curricular or pedagogical changes needed at this time. We will monitor this as it had previously been a weakness.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
d.Materials, Methods, and Plan Reading: Evaluate construction materials, methods, and equipment and demonstrate the ability to interpret contract and design documents.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Materials, Methods, and Project Modeling and Visualization Section The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 23.50National Average: 19.97Max Possible: 30.00Min Acceptable: 21.50Spring 2021School's Average: 22.63National Average: 19.25Max Possible: 30.00Min Acceptable: 21.50Fall 2021School's Average: 19.83National Average: 19.83National Average: 18.45Max Possible: 30.00Min Acceptable: 21.50Spring 2022School's Average: 23.88National Average: 22.14Max Possible: 30.00Min Acceptable: 21.50	Students successfully demonstrated an understanding of materials, methods, and plan reading concepts.	No curricular or pedagogical changes needed at this time.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
e.Bidding & Estimating: Estimate construction quantities and apply costs to prepare bid proposals for construction projects	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Bidding and Estimating Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 24.50National Average: 20.06Max Possible: 30.00Min Acceptable: 21.50Spring 2021School's Average: 24.50National Average: 20.09Max Possible: 30.00Min Acceptable: 21.50Fall 2021School's Average: 24.83National Average: 21.39Max Possible: 30.00Min Acceptable: 21.50Spring 2022School's Average: 22.00National Average: 20.97Max Possible: 30.00Min Acceptable: 21.50	Students successfully demonstrated an understanding of Bidding and Estimating.	No curricular or pedagogical changes needed at this time.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
f.Budgeting, Costs, and Cost Control: Apply the principles of accounting to project management, including budgeting and controlling costs.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Budgeting, Costs, and Cost Control Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 30.00National Average: 24.61Max Possible: 33.00Min Acceptable: 23.65Spring 2021School's Average: 24.88National Average: 21.84Max Possible: 30.00Min Acceptable: 23.65Fall 2021School's Average: 24.83National Average: 21.39Max Possible: 30.00Min Acceptable: 23.65School's Average: 21.39Max Possible: 30.00Min Acceptable: 23.65Spring 2022School's Average: 25.88National Average: 23.80Max Possible: 34.00Min Acceptable: 24.37	Students successfully demonstrated an understanding of budgeting, costs, and cost control.	No curricular or pedagogical changes needed at this time.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
g.Planning, Scheduling, and Control: Apply the principles of scheduling to construction projects, including activity selection and sequencing, duration calculation, and the development of a scheduling model. projects	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Planning, Scheduling, and Schedule Control Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 25.00National Average: 23.21Max Possible: 33.00Min Acceptable: 23.65Spring 2021School's Average: 23.25National Average: 21.83Max Possible: 33.00Min Acceptable: 23.65Fall 2021School's Average: 24.50National Average: 22.12Max Possible: 33.00Min Acceptable: 23.65School's Average: 22.12Max Possible: 33.00Min Acceptable: 23.65Spring 2022School's Average: 22.13National Average: 20.52Max Possible: 31.00Min Acceptable: 22.22	Students successfully demonstrated an understanding of planning, scheduling and control.	No curricular or pedagogical changes needed at this time.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
h.Construction Safety: Identify the OSHA standards that apply to the construction industry and develop a safety management plan.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Construction Safety Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 27.00National Average: 21.13Max Possible: 30.00Min Acceptable: 21.50Spring 2021School's Average: 22.00National Average: 19.15Max Possible: 30.00Min Acceptable: 21.50Fall 2021School's Average: 17.83National Average: 18.68Max Possible: 30.00Min Acceptable: 21.50School's Average: 17.83National Average: 18.68Max Possible: 30.00Min Acceptable: 21.50School's Average: 22.25National Average: 20.52Max Possible: 29.00Min Acceptable: 20.78	Students successfully demonstrated an understanding of construction safety with one exception when the average score dipped below the national average on the fall 2021 exam.	No curricular or pedagogical changes needed at this time; however, we will monitor the scores of the current (November 2022) and future exams once those have been published to determine if additional steps are required to bring the scores consistently above the national average again.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
i.Surveying and Project Layout: Apply the principles of math to solve surveying problems and demonstrate the proper use of surveying equipment in construction layout	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Construction Geomatics Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 19.00National Average: 16.71Max Possible: 24.00Min Acceptable: 17.20Spring 2021School's Average: 18.63National Average: 16.40Max Possible: 24.00Min Acceptable: 17.20Fall 2021School's Average: 16.33National Average: 15.73Max Possible: 24.00Min Acceptable: 17.20Spring 2022School's Average: 18.75National Average: 17.53Max Possible: 24.00Min Acceptable: 17.20	Students successfully demonstrated an understanding of surveying and project layout.	No curricular or pedagogical changes needed at this time.

Measurable Learning Outcome	Method of Measurement	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will:	Direct & Indirect Measures			
j.Project Administration: Apply the principles of project management to construction projects, including site layout, contract administration, quality control, conflict resolution, and record keeping.	AIC Constructor Certification Commission CQE Level 1 Construction Fundamentals – Project Administration Section. The program's goal is to be above the national average and the minimum acceptable in this area.	Fall 2020School's Average: 28.00National Average: 23.22Max Possible: 33.00Min Acceptable: 23.65Spring 2021School's Average: 26.75National Average: 23.37Max Possible: 33.00Min Acceptable: 23.65Fall 2021School's Average: 26.33National Average: 23.46Max Possible: 33.00Min Acceptable: 23.65Spring 2022School's Average: 26.75National Average: 24.95Max Possible: 33.00Min Acceptable: 23.65	Students successfully demonstrated an understanding of Project Administration.	No curricular or pedagogical changes needed at this time.

3. The program does not currently have a Master's Degree in Construction Management.

Standard D - Academic Advising

Advising Strategy and Process

The Department of Construction and Building Sciences has a written policy governing advising. This policy covers the following topics:

- Advising assignments
- Procedures for waiving courses
- Current and past articulation agreements along with expiration dates
- Waiving of prerequisites
- The student's responsibilities regarding advising
- The program's philosophy regarding the scheduling of classes
- Requirements for departmental honors
- Procedures for documenting student advising

Students are encouraged to meet with an advisor at the beginning of their freshman and junior years.

The advising for CM students has been done with the combination of the college advisors and the CM program coordinator/advisor and when applicable with the FM coordinator/advisor. Students are encouraged to meet with one of the college advisors when they first enter the University as a freshman or as a transfer student in order to discuss general education courses, a graduation plan, financial aid, and all other general questions. When specific CM course or degree questions need to be addressed, the students are encouraged to meet with the CM coordinator/advisor.

As of fall semester 2018, students taking CMT 1100 Construction Orientation are required to submit a personalized graduation plan to use as a working document/guide throughout their education showing each semester and the courses they project to take in that semester. The college advisors also assist the students in making a graduation plan typically before they enroll in CMT 1100. The program coordinator/advisor will often provide a color-coded projection of classes based on the individual student's input of their work schedule and expected course load to help them visualize a projected graduation plan.

If a student is pursuing an emphasis in FM, then they would meet with the FM advisor.

The advisors are the following:

CM Program Coordinator/Advisor: Russell Butler

FM Program Coordinator/Advisor: Pete van der Have

College Advisor Liason for CM: Tanya Scott College Advisor: Angie Payan College Advisor: Aimee Golden College Advisor: Julie Christensen

All students seeking a B.I.S. degree are required to meet with the Program Coordinator/Advisor to review the requirements and to have the paperwork signed. Typically the student requests the Program Coordinator/Advisor to be on their committee.

All students seeking departmental honors, a second Bachelor's degree, or a minor in Construction Management are required to meet with the Program Coordinator/Advisor.

With 100% of students working who want to, rendering placement advice mostly unnecessary, the questions and guidance typically come in the form of advice regarding the direction of their career or certain positions within the industry. The Program Coordinator/Advisor shares industry experience to make them aware of the many opportunities that exist and then as needed put them in touch with industry professionals working in the positions they are most interested in.

Students interested in pursuing graduate degrees are highly encouraged to do so and the advice is tailored to their plans. If students are considering a B.I.S. degree they are made aware that some Universities don't view the B.I.S. degree as having sufficient rigor so they can determine whether that could hinder their ability to pursue certain degrees or attend certain institutions.

Effectiveness of Advising

To date, no data has been collected to determine the effectiveness of advising.

Past Changes and Future Recommendations

Through discussions between the CM program advisor and the college advisors, common pitfalls and bottlenecks have been identified and adjustments made to initial advising, CatTracks, program curriculum, and the information that is disseminated in the Construction Orientation course as well as to ongoing student advising as they move through the program.

From these discussions and adjustments, the advisors provide advice on how to avoid these mistakes. This information also needs to be passed on to all program faculty in order to continue to encourage students to come in for advising and particularly at the

beginning of their senior year. A recommendation for the future would be to train all program faculty including full-time and adjuncts and then seek their help in reminding students at key times throughout their education of common pitfalls that have impeded timely graduation or merely caused frustration for their predecessors to help them avoid repeating those same issues.

Standard E – Faculty

Programmatic/Departmental Teaching Standards

At the beginning of each fall semester the Department Chair meets with all full-time tenure-track faculty and the Program Coordinator meets with all full-time non-tenure-track faculty to review the college merit form and discuss the goals set for the coming year for teaching, scholarship, and service. The faculty then report their accomplishments at the end of spring semester.

The students evaluate all courses taught by tenure-track and adjunct faculty. For tenured faculty, the students evaluate one course each semester (fall and spring). The evaluations include both a numeric rating (on a scale of 1 to 4) and comments to open ended questions. The evaluations are provided to the faculty at the completion of the semester. For tenured and tenure-track faculty, the numeric ratings from these evaluations are placed in their professional file; which are kept in the Dean's office.

The Department Chair reviews all tenure-track faculty each year, except for the years that they are formally reviewed for progress towards tenure or tenure. The results of these reviews are placed in the faculty's professional file.

Faculty Qualifications

Tenure-track faculty are required to have a minimum of five years of full-time experience in the construction industry and a master's degree in construction management or a related field. Instructors and adjunct facility are required to have a minimum of five years of full-time experience in the construction industry and a bachelor's degree in construction management.

	Tenure	Contract	Adjunct
Number of Faculty with Doctoral Degrees	1		1
Number of Faculty with Master's Degrees	1	2	1
Number of Faculty with Bachelor's Degrees		1	7
Other Faculty			
Total	2	3	9

Faculty & Staff (current academic year)

Faculty Scholarship

Drew Allen (Adjunct Faculty-CM): Mr. Allen continues to stay current with his professional development through his professional organizations as well as attending industry-sponsored training. (Teaches Seminar, Senior Project, and Leadership classes)

Michael Allison (Adjunct Faculty-CM): Mr. Allison continues his scholarship and professional development through his work with Weber State University, Salt Lake Community College, and the construction industry . He professional develops as he evolves course content with industry trends and changes. He is engaged in LEED continuing education. He is engaged in preparing and updating industry training materials for the largest commercial contractor in Utah. He attends seminars and workshops related to his areas of expertise. He is engaged daily in the industry which relates directly to the course curriculum. (Teaches MEP class)

Russell Butler (Full-Time Faculty-CM): Mr. Butler participates in his scholarship and professional development through attendance at industry workshops, conferences and training. He regularly attends professional development opportunities from ABC, AGC, and ACI as well as other industry sponsored training for various CM software applications. He also attends faculty presentations and training at the ASC conference and other ASC sponsored events. He regularly participates with ABC in training as well as assists a prominent design firm with contract administration to stay current in the field. In 2021 he was a visiting team member for the accreditation committee to reaccredit the CM program for a peer University in the north west. Every year for the past five years he has been in charge of the program's CM student competitions both locally and out-of-state and has supported the Design Charrette competition. (Teaches CM Orientation, Contracts & Specifications, Jobsite Management, and Preconstruction Services Classes)

Shawna Code (Adjunct Faculty-FM): Ms. Code continues her professional development through her work with the university. She continues her development with coursework development with APPA's Institute for Facilities Management and the Leadership Academy as well as coursework preparation for International Facilities Management Association. Her continuing educational development through APPA, RMA and IFMA Annual Meetings and attending seminars and workshops related to her areas of expertise. (Teaches Environmental Issues in FM, Computer Aided FM)

Jeremy Farner (Full-Time Faculty-CM): Mr. Farner has presented to peers locally and internationally multiple times over the past few years and has two peer reviewed publications in the past year. He participates in professional development through attendance at industry workshops, and regularly attends ASC, ABC, Autodesk, and other professional development opportunities. (Jeremy Teaches Construction Graphics, Senior

Project, Materials & Methods, LEED GA Exam Prep, Commercial Design & Codes, Design Charrette, and ASC Competition)

Lucio Gallegos (Adjunct Faculty-CM): Mr. Gallegos continues to stay current with his professional development through facilitating training for industry professionals with his current employer, the Associated Builders and Contractors of Utah and through his professional organizations as well as attending industry-sponsored training. (Teaches Construction Safety)

Thomas A Hales (Full-Time Faculty-CM): Mr. Hales continues to stay current with his scholarship and professional development through his professional organizations as well as attending industry-sponsored training and conducting relevant research. Mr. Hales stays current through multiple on-line and in-person engineering and construction continuing education courses. In addition, he is involved with several research projects with which research is being conducted and journal papers are being written. Some of those projects include studying out-of-plane lateral forces on concrete panels with openings, simplified post/pier embedment equations, glass-fiber-reinforced-polymer confined concrete columns and helical piles used for residential construction. (Teaches Temporary Structures, Construction Equipment & Methods, Construction Accounting and Finance, and Materials and Methods)

Elizabeth Hill (Adjunct Faculty-CM): Ms. Hill continues to stay current with her professional development through her professional organizations as well as attending industry-sponsored training. She is involved in several organizations that promote women in business and is a frequent presenter for diversity, equity, and inclusion. (Teaches Business Planning class)

J.D. Julander (Full-Time Faculty-BDC): Mr. Julander continues his scholarship and professional development through developing his courses based on the knowledge and skills gained as he continues to work on projects outside of teaching, through his professional organizations, and through attending industry-sponsored training. . He still currently works on both residential and commercial projects using various software and digitizing techniques. His continual thirst for knowledge drives his desire to stay on the cutting edge of technology and to share that information with his students and co-workers. He is currently in the process of writing a book for architectural rendering. (Teaches Commercial Design & Codes class)

Cling Kingsley (Adjunct Faculty-CM): Mr. Kingsley continues to stay current with his scholarship and professional development with his current employer and through his professional organizations as well as attending industry-sponsored training. (Teaches Civil Design & Layout class)

Matthew Meyer (Adjunct Faculty-BDC): Mr. Meyer participates in his scholarship and professional development through attendance at industry trainings, conferences and workshops; completing a 5-day Industrial Ventilation course in October 2022, and attending the Germicidal UV, and National Demolition Association conferences in 2022. He supported the program's student competition during the 2022-2023 academic year and plans to attend the Kenya schoolhouse construction activity in March of 2023. (Teaches the LEED-GA Class)

Pieter J. van der Have (Full-Time Faculty-FM; Dept. Chair): Mr. van der Have has presented at APPA educational programs, and has contributed to developing certifications programs and facilities assessment processes for APPA, and international organizations for educational facility management. He is a past president of APPA. He was contributing author to publications by RSMeans, APPA and other educational organizations. Until recently, he was a regular contributor to *College Planning & Management*, a professional trade journal, with over 100 articles focusing on facility management, ranging from HR challenges to chiller maintenance. He has been an active member of two facility related professional associations, and ASFM (Associated Schools of Facility Management). Since becoming chair of this department, he has been deeply committed to recruitment, retention, and graduation, as well as continuous development of faculty. (Teaches FM Operations, Energy Mgmt. in FM, FM Senior Project, Long Term Facility Planning)

Dan Wall (Adjunct Faculty-CM): Mr. Wall maintains his scholarship and professional development through his current employer. His membership in industry organizations enables him to continue his scholarship and professional development through professional associations in the construction industry and through attending industry-sponsored training. (Teaches Quantity Survey and Cost Estimating)

Tim Willard (Full-Time Faculty-CM): Mr. Willard maintains his scholarship and professional development through attending various workshops and seminars. He maintains certification in his profession as a structural engineer through various structural design coursework and seminars. He maintains his professional license as a Utah Licensed Structural Engineer through continuing educational credits in his profession. (Teaches Civil Materials, LEED GA, Construction Planning & Scheduling, Applied Structures, Design Charrette/ASC Student Competition)

Mentoring Activities

The college offers training to the department's tenure track faculty in the promotion and tenure process, measuring outcomes, and other university related issues. Jeremy Farner and Thomas Hales are the only tenure-track faculty within the Parson Construction Management program. Mentoring has been limited. The program coordinator and

department chair have provided informal mentoring for new faculty discussing current policy, classroom issues, continuing education, and course development. No formal mentoring program has been established for the program. Six of the fourteen faculty noted above teach classes full time while the remaining eight teach between one and three classes as adjuncts.

Diversity of Faculty

The faculty includes two females and eleven males who are Caucasian and one Hispanic male. In alignment with the diversity goals of our college, we will actively seek additional gender and ethnic diversity of our faculty as full-time or adjunct positions become available.

Ongoing Review and Professional Development

The college and the Department Chair support the faculty attending one major conference per year, with the college covering the transportation cost and the department covering the seminar costs.

The Department Chair supports the attendance of full-time faculty to the ASC (Associated Schools of Construction) Region 6 Student competitions where the faculty spends time interacting with their peers from other construction management programs and also spends one day attending presentations and training related to teaching in construction management programs.

Faculty are encouraged to attend the annual conference of the Associated Schools of Construction where journal papers are presented and other leadership meetings are held such as those for the construction management honor society Sigma Lambda Chi.

The Department Chair supports the faculty continuing their professional development by attending local training provided by the Associated General Contractors of America (AGC), Associated Builders and Contractors, Inc. (ABC), the Utah Mechanical Contractors Association (UMCA), etc.

The Department Chair supports faculty attending free training provided by the Teaching, Learning, and Assessment Forum and other university sponsored training.

The Department Chair supports faculty attending training provided by the local and regional construction related organizations and other department, college, and university sponsored training programs.

Use and impact of high impact educational experiences

Currently we have just one high-impact education experience, which is CMT 4620 Senior Project where students prepare a proposal for a design-build project. To date we have not measured any outcomes for this course as a high-impact experience.

Evidence of Effective Instruction

i. Regular Faculty

The evidence of effective learning consists of the student evaluation and the formal peer reviews that are performed as part of the promotion and tenure process. Both of these are maintained in the faculty's professional file.

We have implemented course outcomes to measure the success of course instruction; however, with the turnover in program faculty retiring (three of four in the last four years), an interim Dept. chair for a year, and the COVID-19 pandemic, the courses were not measured as they had been in previous years. Previously, approximately 25% of the courses were measured each year and will be measured going forward. The data from the course outcomes assessment are used to measure the effectiveness of the course and help instructors improve the courses.

ii. Adjunct Faculty

The evidence of effective learning consists of the student evaluation. Copies of these are maintained in the Department's office.

We have implemented course outcomes to measure the success of course instruction; however, with the turnover in program faculty retiring (three of four in the last four years), an interim Dept. chair for a year, and the COVID-19 pandemic, the courses were not measured as they had been in previous years. Previously, approximately 25% of the courses were measured each year and will be measured going forward. The data from the course outcomes assessment are used to measure the effectiveness of the course and help instructors improve the courses.

Standard F – Program Support

Adequacy of Staff

The Parson CM Program is part of the Department of Construction and Building Sciences. The department has one full-time administrator and one work-study student. The level of support staff is currently adequate for our needs.

i. Ongoing Staff Development

The Staff Development program provides funding for professional development of Weber State University's exempt and non-exempt staff members. Staff Development Committee members representing each division, including the area of Diversity; evaluate proposals four times a year.

Grant proposals are judged on how much the project benefits the individual, their department, and the University as a whole.

The President's Council has allocated funding for the express purpose of staff development. Weber State University staff is fortunate to have administrative support for professional growth and development. The Staff Development Committee encourages any interested exempt or non-exempt staff to submit their requests, using the guidelines on the grant checklist. Executives, faculty, and students are not eligible for staff development grants.

The written request need not be elaborate, sophisticated, or complicated, but must be complete and meet the guidelines. If staff have concerns about writing this proposal, they may contact any member of the committee for assistance.

Staff Development grants may include such things as the following:

- Team Building
- Conferences
- Staff Retreats
- Campus Speakers
- Workshops
- Audio/Video Training
- Group/Individual Training Seminars

Training is offered through the Office of Workplace Learning.

Adequacy of Administrative Support

The Dean is and has been supportive of both the program and department.

Academic Support Units

The names and titles of the individuals responsible for each of the units that teach courses required by the program being evaluated are:

Mathematics – Department Chair – Dr. Sandra Fital-Akelbek Physics – Department Chair – Dr. Colin Inglefield Communications – Department Chair – Dr. Anne Bialowas Accounting – Department Chair – Dr. James Hansen Economics – Department Chair – Dr. Gavin Roberts Business – Department Chair – Dr. Jennifer Anderson Botany – Department Chair – Dr. Suzanne Harley School of Computing – Department Chair – Dr. Kyle Feuz

Non-academic Support Units

The names and titles of the individuals responsible for each of the units that provide nonacademic support to the program being evaluated are listed below:

The Stewart Library has a full time librarian assigned to the college. In addition, each department has a budget for library materials. The University Librarian is Dr. Wendy Holliday, Extension 6403, and the librarian assigned to our college is Diana Meiser, extension 7495.

Because the college maintains its own computing resources, it does not rely on services from the university's information technology office. The individual that maintains the computing services for the college is Brad Naisbitt, Extension 7762.

Placement and employment services are taken care of through the University's Career Services office. Aimee Golden is the career services specialist and works jointly with the career services office as well as the Engineering, Applied Science and Technology college. Aimee's extension is 6447.

Tanya Scott, extension 6877, and Angie Payan, extension 6369 provides student advising for non-core coursework.

Alicia Christensen, extension 7552, handles recruiting for the college.

College and program development is managed through the WSU Development Office. Kristin Wojciechowski, extension 7209, provides college and departmental support.

Administrative support of the program is sufficient to meet the needs of the program.

Adequacy of Facilities and Equipment

The program has space on the Davis campus in Layton, Utah. The Department has dedicated office space, with eight classrooms that are shared with other programs when not being used by the Department. There are three large storage closets located between classrooms, two of which are shared with NUAMES High School. The space also includes a dedicated senior project room, a dedicated computer lab, and a dedicated civil materials and testing lab. The office space includes 14 offices, some of which are shared with other programs. There is also space for four adjunct instructors, an administration office, a secretarial station, and a work room / storage room and copy center.

Facilities are adequate for the program.

Adequacy of Library Resources

The Stewart Library houses numerous books, journals, media holdings and electronic journals. All students, including distance education students, may access the WSU Stewart Library from any location via the Internet. Students may access any number of electronic databases in this manner. In addition, students may request interlibrary loan options from this website. The library has a dedicated librarian for the College of Engineering Applied Science and Technology. The holdings and services of the library are more than adequate for the Parson Construction Management program. The Davis Campus has a full service library located at the Weber State Davis Campus located in Building D-2, second floor.

Library resources are adequate for the program

Standard G - Relationships with External Communities

Description of Role in External Communities

For the past five years the Construction Management Industry Advisory Committee (IAB) has typically met twice per year in September and February. During the pandemic the committee met virtually and its effectiveness was lacking. It was also noted that whereas in the past the board was made up of nearly all influential decision makers, many of those

were no longer attending. In addition, many representatives from new companies that have not been financial supporters of the program were in attendance. Discussions took place about reassessing the makeup of the Industry Advisory Board to determine the quality and number of those on the board. The board did not meet in September of 2022.

Attendees have typically included Industry advisors, CM faculty, the Department Chair, Student leaders, University Development personnel, and the Dean or associate Deans of the college. The committee chairperson conducts the board meetings. The program has benefitted from the board providing advice and suggestions on curriculum and course content and have advised on employment strategies. They have also provided generous scholarships and department funding and have been instrumental in obtaining support and backing for donations and scholarships for the program and department.

Summary of External Advisory Committee Minutes

The following documents are copies of the, A) Agenda for the September 16, 2020 IAB meeting, and the, B) Meeting minutes from the February 12, 2020 IAB meeting.



WEBER STATE UNIVERSITY Engineering, Applied Science & Technology



Parson Construction Management Program Industry Advisory Board Meeting

Date & Time: September 16, 2020; 7:30 – 8:30 a.m.		1	Meeting No: 2020.Fa.02	
Meeting Participants				
Bryan McCurdy			Todd Laker	
Brian Rague			Jake Goodliffe	

Michael Allison		Scott McKinnon	
Scott Parson		Ben Wheelwright	
Dan Pennock		Rich Thorn	
Kinley Puzey		Jeremy Farner	
Heather Johnson		Dave Hill	
Jed Haacke		Allyson Saunders	
David Stryker		Patrick Scott	
Matt Brower		Guy Letendre	
Steve Peterson		Tyler Dehaan	
Chris DeHerrera		Pete van der Have	
Liz Hill		Russell Butler	
Kelli Booth		Nate Lechtenberg	
Janae Thomas		Clint Costley	
Jason Bennie		Bryan Webb	
Scott Dixon		Jim Cavey	
Kelly Stackaruk			
X = In Attendance		* = Via Telephone	



WEBER STATE UNIVERSITY

Engineering, Applied Science & Technology



AGENDA

Sect.		Description
1.	Welcome a. b.	Pledge of Allegiance Introductions/New Attendees

	IAB Updates
	a. Committee Structure / Focus
	 Discuss approach in light of Covid-19 logistical challenges
2	b. CM Course Delivery
2.	 Report on current course delivery
	Student Competitions
	a. CM Challenge at BYU
	 How can industry partners assist in the virtual format?
2	b. ASC Competition
3.	c. New Proposed Heavy/Civil competition
	Parson CM Updates
	a. Faculty Search Results
	b. Wadman Center for Excellence Update
	 Discuss formally Polling industry for thoughts on pursuit of accreditation. Brogger Matrice as requested by Sectt.
4.	 Program metrics as requested by scott Alumni tracking info via thorough exit interviews and keeping touch with alumni as requested by
	Dan Pratt
	CM Alumni
	 All Exam in October. Currently determining whether it will be administered. Indate on New Fall Alumni Golf Event
5.	b. Opuale on New ran Alumni Gon Event.
	Miscellaneous
	 b. Interest level to tour new facility in February contingent on approval?
6.	



	NEXT MEETING
8	Proposed date for the next meeting is either Wednesday February 10th or 17th, 2020 either of which would follow the virtual ASC Student competition Feb. 3rd – 6th, 2020 7:30 – 8:30 a.m. Date preference?
	Does this time of day still work for evening?





Parson Construction Management Industry Advisory Board Meeting Minutes February 12, 2020

The meeting was called to order at 7:35 AM by Todd Laker, who led the Pledge of Allegiance.

Attendance: Elizabeth Hill, Brian Rague, Russell Butler, Steven Peterson, Jeremy Farner, AllysonSaunders, Pete van der Have, Todd Laker, Scott Parson, Chris DeHerrera, Patrick Scott, Dave Hill, Matthew Brower, Michael Allison, Tyler Dehaan, Nate Lechtenberg, Clint Costley, Jason Bennie, Guy Letendre, Heather Johnson, Dan Pennock, Kinley Puzey, Bryan Webb, Scott Dixon, Jim Cavey.

Industry Advisory Board Updates

The committee's structure and focus have been updated. The two new sub-committees will be Recruitment and Curriculum, respectively. The Recruitment group will work together with faculty and members of the industry to step up the recruitment of new students. They will also discuss effective ways for Industry to provide input and oversight into the program.

- Jeremy Farner indicated that currently, the pathways program reaches down to those in the 9th grade. Scott Parson asked about beginning recruiting efforts earlier, such as 8th grade or below.
- Recruitment will take place at the junior high school and regular high school level.
- Members of the committee will attend career days and work with advisors to make students aware of the
 potential a career in construction management has to offer.

The curriculum committee will work together with faculty to discover and provide classes that teach students in the Construction Management program to be ready for hire during their educational experience and after graduation from Weber State University.

- Industry partners will work together with faculty to determine where the gaps in the curriculum are
 regarding classes that Construction Management students must pass to graduate.
- This model will ensure that a student's educational path is relevant to the work graduates will perform when hired by a company.
- Input from industry partners is essential to be sure that students are receiving the tools they need to be successful in the construction industry.

Student Competitions

WSU Construction Management students attended two competitions in this academic school year.

 The Construction Management Challenge at BYU provided a venue where students could practice for the ASC Competition in Reno. Each of the three WSU teams did very well at the challenge. WSU Construction Management student teams placed:

First in Heavy Civil, first in Design-Build, and third in Commercial.

- ASC in Reno was a great experience for everyone involved. While none of the teams placed in the
 competition, they performed well in most cases and learned leadership, team building, and other realworld skills. Some students determined they will return next year and win.
- Thanks to all of the industry partners that supported the event and made it possible for students to attend the competition.
- Will contact Ron Sines of CRH to assess the status of the proposed new Heavy/Civil national student
 competition. Joe & Russ spoke with Ron in August and expressed our interest in participating. Ron
 indicated they were working on the details of how to roll out the competition and would let us know when
 it was ready. He estimated that it would be spring of 2020.

Parson Construction Management Updates

The department is conducting a faculty search for two Construction Management program instructors, a Building Design and Construction faculty member, and a half time Interior Design instructor.

Jeremy Farner reported on the Wadman Center of Excellence

- The next event will be Design-Build Day (DBD) is on April 9, 2020. More information about the event can be found at <u>www.weber.edu/buildingdesign</u>.
- · All industry partners are encouraged to participate in the DBD event.
- Student attendance at DBD is expected to be 600.
- For more information about the Utah Architecture, Engineering and Construction Pathway program is, go to this link <u>https://www.ksl.com/article/46520547/utah-launches-new-career-pathways-program-aimedat-construction-industry</u>
- Construction Management, Interior Design, and Building Design Construction students are presently
 engaged in the construction of a Net-Zero Home for the Solar Decathlon. Students and Faculty will
 present in Washington DC this summer at the Solar Decathlon Event.
- Enrollment for CMT 1100 increased 77% from spring 2019. The increase in enrollment is closely correlated to outreach and recruitment efforts.

Construction Management Alumni

The AIC Exam will be administered on April 4, 2020. In the past, the Construction Management Alumni group has provided lunch for the students taking the exam. Matt suggested reaching out to Drew Allen of the CM Alumni association to coordinate.

The new Fall Alumni Golf Tournament is scheduled for September 11, 2020.

Miscellaneous

- Scott Parson asked for an update on the current enrollment, how many are graduating this spring, and
 whether all scholarship funds are awarded each year or if any have gone unused. Russ and Liz will extract
 that data and provide it to the board.
- Update on new Automotive /Computer Science Building at Davis Campus and the new Noorda Building
 on the main campus:
 - The new Noorda Building for the College of Engineering, Applied Science and Technology is
 progressing well and is currently in the Design Development phase. Once construction on the
 new Computer Engineering and Automotive Technology Building is complete on the WSU Davis

campus, the Computer Science (CS) and Automotive Technology programs will move to the WSU Davis campus.

- When construction on the Noorda building on the Ogden Campus is complete, about half of the CS students will return to the main campus for classes in the new facility. Having more students on the Davis campus should have the effect of more course options taught at Davis and in the evenings, which will continue to benefit the Construction Management Students with less need to travel to the main campus.
- Chris DeHerrera (ABC) announced an important issue that will likely affect more and more
 projects. Certain municipalities are beginning to require that any project over 3 million dollars must have
 in-house apprenticeship programs in place or will they will be subject to a fine. There are currently bills
 under consideration in the legislative session favorable to funding these programs.

Events

Design-Build Day, April 3, 2020 Construction Management Golf Tournament, June 2, 2020 Fall Alumni Golf Tournament, September 11, 2020 The next meeting is Wednesday, September 16, 2020, from 7:30 - 8:30 a.m. in Building Do3, room 309, on the Weber State University Davis Campus, in Layton, UT.

Community and graduate Success

Currently there is no formal measurement of graduate placement or other key information that could be tracked and reported as key indicators of success to determine the level of satisfaction within the community proper or the construction community; however, an exit questionnaire and alumni tracking document is being developed for the Construction Management program. This document or these questions have been used successfully at a peer University's construction management program and were shared with the Parson Construction Management Program upon request.

Ancectodally, feedback from our industry partners has been that of high praise regarding the caliber and training of students graduating from the program. Their feedback has been consistently positive with the only minor or somewhat negative comment being the desire for us to be able to provide them with more graduates to fill their needs. One prominent industry partner has expressed on several occasions that when they hire a Parson CM student who has worked their way through school, their company is the beneficiary of an employee with eight years of experience rather than just the four that represents the number of years they were in school.

Similarly, the feedback from both current students and those who have graduated has been equally as positive. Many enrolled students, nearly all of which work full-time while attending school, quite often offer unsolicited gratitude to the faculty for the opportunities their education has provided them. Past graduates are great supporters of the program and regularly offer similar praise.

Standard H – Program Summary

Results of Previous Program Reviews

lem Identified	Action Taken	Progress		
	Previous 5 Year Program Review:			
	Year 1 Action Taken: None			
	Year 2 Action Taken: None			
	Year 3 Action Taken: None			
Issue 1 – Review The Use of Technology throughout the curriculum	Year 4 Action taken: Informal discussions implemented by program coordinator and new faculty	The increased use of Bluebeam across courses was discussed as well as the possibility of creating a dedicated course. The use of others programs such as Xactware were discussed and increased use of Procore implemented.		
	Previous 5 Year Program Review:			
	Year 1 Action Taken: None			
Issue 2 - Improvement in students' presentation skills	Year 2 Action Taken: Discussion of adding presentation opportunities in individual classes in the immediate future.	A few faculty have agreed to add at least one more opportunity to present material for selected assignments or projects.		
	Year 3 Action Taken: Possible curriculum changes discussed.	Considerable push back from certain faculty presenting all of the reason it won't work or won't be approved.		

	Year 4 Action taken: Met and discussed potentially positive changes. New faculty on board with these ideas. As a group we identified potential curriculum changes that we propose to submit.	Curriculum changes that were discussed to be submitted fall 2022 that will provide multiple oral presentation opportunities / requirements that have been optional	
	Previous 5 Year Program Review:		
	Year 1 Action Taken: None		
Issue 2 The Need to invest in	Year 2 Action Taken: None		
continuing education such as	Year 3 Action Taken: None		
externships for faculty to maintain relevancy.	Year 4 Action taken: Brief Informal Discussions Held	Discussed as a faculty after viewing presentation at the ASC faculty meetings in Reno. Discussed with Washington Faculty Member who participated.	

With nearly 100% turn over in faculty due to retirement, a new department administrative assistant, three department chairs, and a pandemic since the previous review, no meaningful pursuit or measurement and tracking of the recommendations has taken place; however, each of these items have been discussed and in some cases improved upon despite the logistical challenges presented by turnover in faculty, staff and administration. The effort to improve the students' presentation skills was recently addressed via curriculum changes approved for fall 2023. Individually various faculty have either added software programs to their coursework or increased the use of existing programs, but these items need deliberate follow up. Some very informal discussion has occurred regarding externships based on a program sponsored by AGC and ASC together with Universities where each pays 1/3 of the cost.

Action Plan for Ongoing Assessment Based on Current Self Study Findings

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken		
Issue 1 - Curriculum Review	Current 5 Year Program Review:		
Review 25% of defined program curriculum,	Year 2 Action to Be Taken: Submit curriculum changes as required.		
during years 2, 3, 4, and 5 for modifications and	Year 3 Action to Be Taken: Submit curriculum changes as required.		
updates supporting industry needs and	Year 4 Action to Be Taken: Submit curriculum changes as required.		
standards.	Year 5 Action to Be Taken: Submit curriculum changes as required.		
Lagua 2 Dragram Quitagmag	Current 5 Year Program Review:		
Poviow one third program outcomes with	ear 2 Action to Be Taken: None		
Industry Advisory Board (IAB) and update or	Year 3 Action to Be Taken: Update "Program Outcomes" as appropriate.		
modify as appropriate during years 3.4 and 5	Year 4 Action to Be Taken: Update "Program Outcomes" as appropriate		
	Year 5 Action to Be Taken: Update "Program Outcomes" as appropriate.		
	Current 5 Year Program Review:		
	Year 2 Action to Be Taken:: Update "Learning Outcomes" as appropriate. ;		
Issue 3– Student Learning Outcomes	Make changes in program listings as necessary		
Review 25% program outcomes with faculty	Year 3 Action to Be Taken:: Update "Learning Outcomes" as appropriate. ;		
and Industry Advisory Board (IAB) updating or	Make changes in program listings as necessary		
modifying as appropriate during years 3, 4, and	Year 4 Action to Be Taken:: Update "Learning Outcomes" as appropriate. ;		
5	Make changes in program listings as necessary		
	Year 5 Action to Be Taken:: Update "Learning Outcomes" as appropriate. ;		
	Make changes in program listings as necessary		

Action Plan for Staff, Administration, or Budgetary Findings

Problem Identified	Action to Be Taken		
	Current 5 Year Program Review:		
	Year 1 Action to Be Taken: Program faculty to review program-staffing data		
	and develop succession plan for program. Review succession plan		
	information with Department Chair, College Dean and Industry Advisory		
	Board.		
	Year 2 Action to Be Taken: Review and update succession plan. Review		
Issue 1 – Program Staff/Faculty:	succession plan with Department Chair, College Dean and Industry Advisory		
Develop program faculty succession plan	Board.		
	Year 3 Action to Be Taken: Review and update succession plan. Review		
	succession plan with Department Chair, College Dean and Industry Advisory		
	Board.		
	Year 4 Action to Be Taken: Review and update succession plan. Review		
	succession plan with Department Chair, College Dean and Industry Advisory		
	Board.		
	Current 5 Year Program Review:		
	Year 1 Action to Be Taken: Program faculty, Industry Advisory Board and		
	College Dean to review and update program strategic plan.		
Lanua 2. Dragram Stratagia Dian.	Year 1 Action to Be Taken: Program faculty, Industry Advisory Board and		
Revise and update program strategic plan:	College Dean to review and update program strategic plan.		
	Year 1 Action to Be Taken: Program faculty, Industry Advisory Board and		
	College Dean to review and update program strategic plan.		
	Year 1 Action to Be Taken: Program faculty, Industry Advisory Board and		
	College Dean to review and update program strategic plan.		

<u>APPENDICES</u>

Appendix A: Student and Faculty Statistical Summary

Construction Management	2017- 2018	2018- 2019	2019- 2020	2020- 2021	2021- 22*
Department Student Credit Hours Total ¹	4,558	5,069	5,480	6,426	7,434
Construction Management SCH	2,390	2,496	2,507	2,937	3,591
Building Design and Construction SCH	0	333	387	552	771
Interior Design SCH	2,168	2,240	2,586	2,937	3,072
Student FTE Total ²	151.9	169.0	182.7	214.2	247.8
Construction Management FTE	79.7	83.2	83.6	97.9	119.7
Building Design and Construction FTE	0.0	11.1	12.9	18.4	25.7
Interior Design FTE	72.3	74.7	86.2	97.9	102.4
Student Majors ³ (Construction					
Management and CMT Only)	175	164	173	169	183
Second Major or Concentration	35	31	37	32	33
Minors	5	5	4	5	4
Program Graduates ⁴ (Construction					
Management and CMT Only)					
Associate Degree	20	24	11	21	7
Bachelor Degree	25	25	18	20	12
Student Demographic Profile ⁵					
(Construction Management and CMT					
Only)					
Female	11	11	14	9	22
Male	164	153	159	160	161
Faculty FTE Total ⁶ Department (Inludes					
BDC, CMT, and Prof Sales for FY 18 and 19,					
BDC and CMT for 20 and 21)	26.4	25.7	12.4	13.6	N/A
Adjunct FTE	10.6	9.4	3.9	5.0	N/A
Contract FTE	15.8	16.3	8.5	8.6	N/A
Student/Faculty Ratio ⁷ (Department)	5.7	6.6	14.8	15.8	N/A

Appendix B:

Faculty (current academic year)

	Tenure	Contract	Adjunct
Number of Faculty with Doctoral Degrees	1		1
Number of Faculty with Master's Degrees	1	2	1
Number of Faculty with Bachelor's Degrees		1	7
Other Faculty			
Total	2	3	9

Contract/Adjunct Faculty Profile

		Tenure	Highest	Years of	Areas of
Name	Rank	Status	Degree	Teaching	Expertise
Drew Allen	А	NTT	В	6	СМ
Michael Allison	А	NTT	В	2.5	СМ
Russell Butler	Ι	NTT	М	11	СМ
Shawna Code	А	NTT	В	7	FM
Lucio Gallegos	А	NTT	В	5	СМ
Elizabeth Hill	А	NTT	М	4	СМ
J.D. Julander	Ι	NTT	В	13	BDC
Clint Kingsley	А	NTT	В	1	СМ
Matt Meyer	А	NTT	Р	8	BDC
Pete van der Have	Ι	NTT	В	14	FM
Dan Wall	А	NTT	В	21	СМ
Tim Willard	Ι	NTT	М	22	СМ

A = Adjunct, I = Instructor, NTT = Non Tenure Track, B = Bachelor's Degree, M = Master's Degree, P = PhD, CM = Construction Management, FM = Facilities Management, BDC = Building Design and Construction.

Appendix C: Staff Profile

Name	Job Title	Years of Employment	Areas of Expertise
Elizabeth Hill	Administrative Specialist	9	Administrative Support

Appendix D: Financial Analysis Summary

Department of Construction and Building Sciences					
Funding	17-18	18-19	19-20	20-21	21-22
Appropriated Fund	588,630	833,389	1,105,269	1,005,860	903,166
Other: IW Funding from CE	65,315	76,050	100,230	133,415	97,590
Special Legislative Appropriation					
Grants or Contracts					
Special Fees/Differential Tuition	9,905	35,132	22,737	26,443	27,005
Total	663,850	944,571	1,228,236	1,165,718	1,027,761
Student FTE Total	151.90	169.00	182.70	214.20	247.80
Cost per FTE	4370.31	5589.18	6722.69	5442.19	4147.54

Name	Organization	
Rich Thorn	Associated General Contractors of Utah	
Jason Babcock	Babcock, Scott & Babcock Const. Attorneys	
Michael Allison	Big-D Construction	
Patrick Scott	Brighton Homes	
Chris DeHerrera	Associated Builders and Contractors of Utah	
Brian Webb	Cache Valley Electric	
Heather Johnson	CSDZ	
Russ Mumford	Okland Construction	
Guy Letendre	WSU – Economic Director	
Dave Hill	Utah Plumbing & Heating Contractors Association	
Jed Haacke	Hughes General Contractors	
Scott Parson	Staker Parson	
Dave Ferro	WSU - Dean	
Mike McDonough	Layton Construction Company	
Tim Homer	Wasatch Electric	
Morgan Green	Green Constrcution	
Clint Costley	Kier Construction	
Todd Laker	Holcim-LaFarge	
Allen Clemons	Stout Construction	
Pete van der Have	WSU – Const. & Bldng Sciences Dept. Chair	
Chris Martineau	CL Martineau Homes	
Bryan McCurdy	Hughes General Contractors	
Liz Hill	WSU – Administrative Assistant	
Slade Opheikens	R & O Construction	
Rob Smith	The Church of Jesus Christ of Latter-day Saints	
Russell Butler	WSU – Parson CM Coordinator	
Steve Kier	Kier Construction	
Jeremy Farner	WSU - Parson CM Professor	
Tim Willard	WSU – Instructor	
Dave Wadman	Wadman Corporation	
Allyson Saunders	WSU – Associate Dean	
Kinley Puzey	Davis Technical College	
Eric Wells	Granite Construction	
Thomas Hales	WSU – Parson CM Professor	
Parry Hilton	Wood	
Jim Cavey	Jacobsen Construction	
Jake Goodliffe	Staker Parson	
Ben Wheelwright	Wadman Corporation	
Scott Dixon	Stacey Construction	
Dan Pratt	Hughes General Contractors	

Appendix E: External Community Involvement Names and Organizations

Jason Bennie	Sundt Construction
Drew Allen	BHI
Bob Murri	City Creek Construction
Nate Taggart	NUAMES High School
Nate Lechtenberg	Stout Construction

Appendix F: Site Visit Team (both internal and external members)

Name	Position	Affiliation
Nicole Flink	Assistant Professor	Weber State University
Jared Baker	Lecturer	Southern Utah University
Kendall Smith	Vice-President	Hughes General Contractors

Ethics Paper Assignment Instructions

Overview:

Ethics in construction is a topic discussed in almost every class to some extent. It may be brought up annually in your careers in business as a workshop topic or training subject. The law details the minimally accepted behavior, so for anyone who wants to rise above the minimally accepted behavior and have an industry with high ethical standards, it is up to each of us individually.

Objectives:

- Read Chapter 21 and understand the different perspectives of ethics
- Read the "Ethics in the Construction Industry" article by Alfred A. Scalza.
- Read other research sources you come up with

Information Sources:

- Ethics in the Construction Industry article
- Chapter 21 in Construction Contracts book
- Internet, Library, etc.

Instructions:

First read Chapter 21 in the text book and then read the Ethics in the Construction Industry article. There is no absolute right or wrong answer regarding ethics because each person's frame of reference or perception is unique. Write a paper that is 3-1/2 - 4 doublespaced pages in length plus references. For a style guide, use either APA or MLA practices. I suggest asking the writing center to review it and offer feedback. If not the writing center, then ask another person to review it and offer feedback.

As part of the paper, consider answering or incorporating into your paper the questions below addressing how you plan to practice ethics during your career in the built environment or other chosen field. Arrange them in whatever logical order fits the theme of your paper. Feel free to use some of them, all of them, or none of them to develop your thoughts. I simply offer them to generate some thoughts as to how you might approach the topic.

- How do you feel about trade associations creating ethics standards?
- How many people/businesses do you think follow the ethics standards created by trade associations?
- Where do you think the standard ethics of the built environment are wrong and right?
- Should the question of ethics be black & white?
- Should there be consequences for companies who repeatedly use unethical practices? If so, what? Should there be consequences for unethical individuals within companies?
- Where do you think ethics go too far above the law?
- Why do you think people stray from ethics and purposely follow actions that most would consider unethical?
- How do you get past, accept, or even work with a fellow students/employees following unethical practices?
- How is technology playing a role in ethics?
- Do you think personal morals and business ethics are connected?
- As your own personal credo, what actions do you think you might set a goal to follow if asked by an employer to engage in unethical practices?

Due Date:

I've set the due date for the Sunday prior to finals week but hoping that for the sake of your own schedule you'll complete it much sooner so that you're able to focus on other end-of-semester items.

Ethics in Construction or The Built Environment

How I Plan to Practice Ethics During My Career in the Built Environment

J. Hudd Hayes

Construction Management Technology, Weber State University

CMT 1220: Construction Contracts

Mr. Russel Butler

November 26th, 2022

How I Plan to Practice Ethics During My Career in the Built Environment

To articulate how I plan to practice ethics during my career, I will call on a few written works I have referenced so far. The first, perhaps the most important to me when applying ethics in general, is Nichomachean Ethics—Book VIII. Referred to herein as *eudaimonia*, I postulate that if this book by Aristotle is read carefully and consciously, understood in proper context, and applied in practice, it could effectively replace the entire business section, which in itself has pretty much replaced or augmented with the "self-help" section of any major bookstore. We get consumed daily and forget humanity, and we miss, ignore, and lose opportunities to make a difference for people. If we genuinely want to make a difference in doing right by people, if we want to "be ethical," we must become more self-aware, be honest with ourselves and choose to live our lives in pursuit of a golden mean in all activities. Since ethics are not "black and white," all of the construction industry's "codes of ethics" and all of the corporate "codes of business conduct" that have been and would be fathomed are compromised at some point. Notably, eudaimonia only addresses virtue ethics, or how we as individuals show up morally.

Nevertheless, it relates well to how I will practice ethics during my career and connects to A.A. Scalza's statement that "there are three primary ethical directives: loyalty, honesty, and responsibility." All three of these directives appear to be noble. Still, I contend that applying eudaimonia (happiness or flourishing), according to Aristotle, is the connection between "living well and doing well" is foundational to a healthy practice of ethics.

Our Ethical Responsibility

Of Scalza's three primary directives, I am most concerned with how we practice "responsibility" as a "directive." Business schools have successfully indoctrinated return on investment (ROI) or delivering shareholder value (TSR) as the ultimate objective. However,

business schools have yet to be successful at teaching ethics because ethics that are taught are rule-based (what rules determine the right things to do [for shareholder return]) vs. character & value ethics (our internal moral/conscientious guide). It is more valuable to understand philosophical approaches to understanding ethics. Still, it illustrates professors' essential responsibilities in helping students and the industry understand that their inner-moral guide must be critical in decision-making relative to their choices and understanding of philosophical ethics.

So, in contrast to the golden mean of Eudaimonia, I will reference "The Prince: Concerning How Princes Should Keep Faith" by Niccolo Machiavelli (1469-1527), referred to herein as "The Prince ."I will also refer to "The Social Responsibility of Business is To Increase Its Profits" by Milton Friedman (1912-2006), referred to herein as "The Profit ."Whereas ethics is not "black and white," and acknowledging a golden mean in all actions, I point out that both (The Prince and The Profit) are particularly dark or wrong in the philosophy of doing what is right.

The Profit

A very recent rendering of the dark side of The Profit shows how dark it can be. In June of 2022, Ernst & Young, one of the world's five biggest auditing firms, promoted cheating on ethics exams. Ernst & Young is not a construction firm; however, they have had a historical presence in large construction firms as auditors and financial guides. Ernst & Young, an organization looked to for ethical leadership and trusted with massive financial data for their renowned expertise and service in finding cheating in corporate accounting, was recently found to have been cheating. The S.E.C. recently punished and penalized Ernst & Young for systematically helping its auditors cheat. They were not only cheating in general but cheating specifically on the ethics portion of the CPA certification. In this case, with a resonating

philosophy of The Profit "social responsibility" or their "prime directive" (Friedman, 2007) considered, Ernst & Young was losing revenue because they did not have enough CPAs with current credentials to meet the demand of their market share. Or instead, their market share was at risk because they needed more CPAs to meet the opportunity. They were concerned with the most significant number or outcome for themselves—their ROI.

The Prince

When I ponder the question, why do people stray from ethics and purposely follow actions that most would consider unethical? This Ernst & Young example resonates with me from the prince's perspective. The prince emphasizes that "it is necessary to know well how to disguise the characteristic, and to be a great pretender and dissembler; and men are so simple, and so subject to present necessities, that he who seeks to deceive will always find someone who will allow himself to be deceived." (Chapter XVIII: Concerning the Way in Which Princes Should Keep Faith by Nicolo Machiavelli, n.d.) CPAs having legitimate ethics competencies was not their priority; clearly, their eminent priority was to have enough CPAs to meet the requirement of their terminal profit priority of generating more and more revenue. Ernst & Young's reputation as a legitimate accounting/audit firm will suffer severe consequences, and their revenue will be substantially less than it would have been if their "social responsibility" was legitimacy and credibility in service of their customers. Their revenue and expense lines will be adversely impacted for years to come. In other words, not only will they lose business (revenue), but their cost of doing business (expenses) has increased significantly. As many large construction firms have looked to Ernst and Young for financial control and guidance, this case is particularly relevant. As for consequences, the \$100 Million penalty has captured everyone's attention. I suspect that there is a copious amount of dissembling in Ernst & Young

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professionals' behaviors and their customers' behaviors. This embarrassing instance is not easily processed, and individuals will likely need to seek inner eudaimonia.

Eudaimonia

As I stated, eudaimonia is foundational to me. Aristotle (384-322 BC) addressed the concept of life as a human being, and we must take a morally based approach before all else. Our reason for doing this is for the collective progression of humanity. His approach was not like the pessimism demonstrated in the spirits of The Prince or The Profit but instead focused on how we show up and behave to achieve eudaemonia. Since the concept of ethics is not black and white, Aristotle recognized the confusion of the human world. In Aristotle's Nichomachean Ethics--Book VIII, he proposes, through eudaemonia, a method to address and sort the chaos that we humans struggle with and often consider unresolvable. Aristotle addresses the gray of ethics, choosing to navigate the meaning and purpose-of-life question rather than fervently maintain an ambivalence toward it.

Conclusion

Regarding ethics in this 21st century, the construction industry can go above and beyond the indoctrination of old and failed philosophies, such as ROI, as the prime objective. We can redefine shareholder value in this modern globalized environment to include sustainable ethics by becoming more aware of what or transcending the old and bringing in a new deal with a much more significant component of ethical diligence.

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