



# Central Washington University

Degree Program Student Learning Outcome Assessment Plan

Department: Engineering Technologies, Safety and Construction

Program: BS-Construction Management

Student Learning Outcome (performance, knowledge, attitudes)	Related CWU Strategic Outcome(s) <a href="http://www.cwu.edu/strategic-planning/">http://www.cwu.edu/strategic-planning/</a>	Method(s) of Assessment (What is the assessment?)*	Who Assessed (Students from what courses - population)**	When Assessed (term, dates)***	Standard of Mastery/ Criterion of Achievement (How good does performance have to be?)
<p><b>1. Cognitive: Knowledge/Knowing</b></p> <p>1.A. Graduates shall be able to identify and describe the legal, economic and social aspects of the construction industry, the construction process and construction contract systems.</p> <p>1.A.1. The student shall be able to identify and explain construction contracts and the roles and responsibilities of all parties involved with 80% accuracy.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p>CMGT 444 and CMGT 445 Exam</p>	<p>Seniors</p>	<p>Fall</p>	<p>80%</p>
<p>1.A.2. The student shall demonstrate knowledge of lien laws, local and national labor laws and the contractors' and owners' rights pertaining to these</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p>CMGT 444 and CMGT 445 Final Exam</p>	<p>Seniors</p>	<p>Fall</p>	<p>80%</p>

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areas with 80% accuracy.					
1.A.3. The student shall be able to explain various construction dispute resolution techniques and various steps that may be taken to avoid disputes with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 444/445 Exams	Seniors	Fall	80%
1.A.4. Students shall be able to describe basic management principles, organizational behavior and structure as these related to the construction industry with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 455/456 Quizzes or Assignments	Seniors	Spring	80%
1.B. Graduates shall demonstrate analytical skills and knowledge in the area of structures, construction finance, cost analysis, construction safety, construction materials, construction methods and building systems.  1.B.1. Students shall demonstrate an understanding of managerial accounting techniques as they relate to the		CMGT 485 Exam or Assignment	Seniors	Spring	80%

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construction industry with 80% accuracy.					
1.B.2. Students shall demonstrate an understanding of mathematics and science; including chemistry, physics and mathematics through calculus with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	IET 312 exam question on shear and moment diagrams	Juniors	Winter or Spring	80%
1.B.3. The student shall demonstrate knowledge of types and uses of construction materials, including wood, steel and concrete. This knowledge shall include understanding terminology, units of measure, sizes and gradations, standard designations, specifications and testing techniques, with 75% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 265 Exam questions CMGT 460/461, average of exam 1	Sophomores Seniors	Fall or Winter Spring	75% 75%
1.B.4. Students shall demonstrate knowledge in the areas of structural mechanics, including statics and strength of materials with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	IET 311 Exam, Find reactions for a beam	Juniors	Fall or Winter	80%

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1.B.5. Students shall demonstrate an understanding of, electrical and mechanical systems with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 320, Assignment to calculate the electrical load for a house  CMGT 442, Assignment to calculate the heat load for a building	Juniors/seniors  Juniors/Seniors	Winter  Spring	80%  80%
1.B.6. Students shall demonstrate knowledge of soil mechanics and foundation types and principles of design with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 450, Assignment to calculate the bearing capacity of a shallow foundation	Seniors	Fall	80%
1.B.7. Students shall demonstrate a working knowledge of construction cost accounting, financing, insurance, bonding, bidding and procurement practices, depreciation and expensing, cost forecasting, cash flow requirements, time value of money and project payment procedures, with 70% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	AIC Exam section; Budgeting, Costs and Cost Control, overall scores of CMGT seniors	Seniors	Spring	70%
1.B.8. The student shall demonstrate knowledge of construction safety training, procedures, record keeping, maintenance,	1.1.1 Students will achieve programmatic learning outcomes.	AIC Exam section; Construction Safety, overall scores of CMGT seniors  SHM 323 Final exam,	Seniors  Juniors	Spring  Fall	70%  70%

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inspection, penalties and compliance with state and federal regulations with 70% accuracy.		average scores			
1.B.9. Students shall demonstrate an understanding of construction project management; including concepts, roles and responsibilities of individuals, administrative systems and procedures, cost control systems, proper job site and office documentation and quality control philosophies and applications with 70% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	AIC Exam section; Management Concepts, overall scores of CMGT seniors	Seniors	Spring	70%
1.B.10. Students shall be able to demonstrate knowledge of proper project planning, including staffing and equipment and material usage with 80% accuracy.		CMGT 455/456 Project	Seniors	Spring	80%

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<p><b>2. Affective: Attitudes/Feelings/Values</b></p> <p>2.A. Graduates shall obtain employment as construction professionals in entry-level positions. Graduates shall also possess the skills, knowledge, attitude and behavior to advance within the industry.</p> <p>2.A.1. Students shall be able to identify and understand ethical issues relevant to the various parties in the construction process, and to react in a manner consistent with ethical standards established by the construction industry associations, with 80% accuracy.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p>Average scores of CMGT 265 ethics assignments</p> <p>Average score of CMGT 444/445 ethics assignment</p>	<p>Sophomores</p> <p>Seniors</p>	<p>Fall or Winter</p> <p>Fall</p>	<p>80%</p> <p>80%</p>
<p>2.A.2. Students shall demonstrate the ability to work in groups and act as team players, with a success rate of 80%.</p>	<p>1.1.1 Students will achieve programmatic learning outcomes.</p>	<p>Average scores on CMGT 267 final project</p>	<p>Sophomores</p>	<p>Spring</p>	<p>80%</p>

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2.A.3. The student shall demonstrate knowledge of construction industry organizations, such as; The Associated General Contractors of America (AGC), The National Association of Home Builders (NAHB), The Mechanical Contractors Association (MCA), The American Council for Construction Education and The American Institute of Constructors. Students shall also demonstrate knowledge of the commitment and importance of these organizations to society, with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 265 Assignment or exam	Sophomores	Fall/Winter	80%
<b>3. Skills/Doing</b>  3.A. Graduates shall be able to estimate, plan and schedule a small commercial/residential or heavy/civil project using microcomputers and appropriate software.  3.A.1. Students shall be able to perform accurate	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 343 Final project scores	Juniors	Winter	90%

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detailed quantity takeoffs on a commercial/residential project, including all Construction Specification Institute (CSI) divisions, both manually and utilizing Microsoft Excel, with a success rate of 90%.					
3.A.2. Students shall be able to accurately prepare a bid, based on pricing of materials, labor, equipment, overhead and profit for a commercial/residential or heavy/civil project. In addition, students choosing the general construction option shall be able to utilize estimating software, such as Timberline, to create and submit a bid for a residential/commercial project. Students choosing the heavy/civil construction option shall be able to estimate and bid a heavy/civil project using appropriate software, with an accuracy rate of 90%.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 344/345 Final Project	Juniors	Spring	90%



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3.A.3. Students shall be able to prepare, analyze and update both a Gantt chart and a network (critical path method) schedule for a commercial/residential or heavy/civil project, both manually and utilizing scheduling software (Microsoft Project, SureTrak or similar scheduling software), with a success rate of 70%.	1.1.1 Students will achieve programmatic learning outcomes.	AIC Exam section; Planning, Scheduling and Control, overall score of CMGT seniors  CMGT 447 Final project average score	Seniors  Seniors	Spring  Fall	70%  70%
3.B. Graduates shall be able to demonstrate basic building and material testing skills.  3.B.1. Students shall demonstrate the ability to perform basic field and lab tests on construction materials, including concrete, and soils with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 450, Overall average lab scores  CMGT 460/461, Slump and cylinder tests, overall average lab report scores	Seniors  Seniors	Fall  Spring	80%  80%
3.B.2. Students shall demonstrate the ability to properly use and care for construction surveying instruments, including levels, transits, theodolites, tapes and electronic	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 267 Lab, overall average lab scores	Sophomores	Spring	80%

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distance measuring devices, as these instruments relate to construction projects, with 80% accuracy.					
3.C. Students graduating from the program shall be able to communicate clearly and effectively, orally, graphically and in writing.  3.C.1. Students shall be able to effectively prepare and present a technical oral report on various construction topics, with 80% success	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 346/347 Student presentation average scores	Juniors	Winter	80%
3.C.2. Students demonstrate the ability to make business and professional oral presentations, with 80% success.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 485 Student presentation average scores	Seniors	Spring	80%
3.C.3. Students shall demonstrate the ability to prepare and edit a complete set of working drawings for both a residential or commercial building using AutoCAD software, with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	IET 161 Final project average score	Freshmen/Sophomores  Juniors/Seniors	Fall/Winter/Spring	80%

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3.C.4. Students shall be able to communicate graphically using standard sketching and engineering drawing techniques, including proper dimensioning, orthographic projections, sections, auxiliary views and detail views, with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.	CMGT 265 Sketching and drawing assignments, average scores	Sophomores	Fall/Winter	80%
3.C.5. Students shall be able to properly research a topic, using the reference materials at the library, the Internet and industry resources to prepare written technical reports, with 80% accuracy.	1.1.1 Students will achieve programmatic learning outcomes.  3.1.2 Sustain the number of courses that include research, scholarship, and creative expression skills as key outcomes.	CMGT 346/347 Research paper average score	Juniors	Winter	80%
3.C.6. Students shall be able to clearly demonstrate their written communication skills by writing prose, business letters, resumes, and daily job reports that include proper grammar, spelling and sentence structure, with	1.1.1 Students will achieve programmatic learning outcomes.	AIC Exam section; Communication Skills on written skills, overall score of CMGT seniors	Seniors	Spring	70%

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a 70% success rate.					

\*Method(s) of assessment should include those that are both direct (tests, essays, presentations, projects) and indirect (surveys, interviews) in nature.  
 \*\*Data needs to be collected and differentiated by location (Ellensburg campus vs University Centers) and modality (e.g. online, face-to-face, hybrid)  
 \*\*\*Timing of assessment should ideally be at different transition points of program (i.e., admission, mid-point, end-of-program, post-program)

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**Assessment Cycle**

Analysis and Interpretation: December  
 Improvement Actions: Completed by June  
 Dissemination: Completed by June

All Construction Management outcomes are assessed and reported annually.

**Assessment Oversight**

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