

Construction Management ABET Assessment Results: Spring 2020 to Spring 2022

Summaries of Results: Course Assessment

Most courses are currently evaluated and assessed on a semester basis. This leads to alternate evaluation of ABET SLOs. The program currently uses formative, summative, objective, subjective, and embedded methods to gather the data relayed to the student learning outcomes. In addition, the program uses score and similar rubrics to measure the assessments. Rubrics are on Likert scales converted to percentages. Currently the CM faculty uses both indirect (FCARS) and direct assessment metrics. The indirect assessment is based on students' perceptions of the course as well as how they felt about themselves in the course. The direct assessments are based on students' performance on either quizzes, tests, homework, labs, exams, and/or projects. The outcome data on indirect assessments will be available to the visiting team.

Table 4-3 presents the results of direct assessment of student learning outcomes along with the performance indicators, the population size, the term in which the assessment took place, and the percentage of the students that met the level of attainment. The program's scores indicate that 80% or close to 80% of the students have attained 80% or higher on most of the assessments, although COVID seemed to affect performance for some students. For example, for SLO 1, all measured assessments showed students' performance in excess of 80% target. Scores show us areas for improvement. For example, CM 401 in the spring of 2022 students struggled with computing cost estimates for their capstone projects. For SLO 2, the only concern is in CM 401 as well where students often struggle with CPM scheduling. For spring 2022, the reason was due to the unavailability of the CPM software because of the university's campus-wide system failure. For SLO 3, the students' performances were relatively satisfactory. Students' performance in SLOs 4 was marginal. Faculty will continue to stress the importance of written and oral communication. SLO 5 assessments were somehow satisfactory, although certain improvements are needed. Students need to understand how to analyze ethics case study based on the construction industry professional standard of practice. Progress is also being made regarding SLO 6. The COVID periods made it difficult for faculty to assign students in teams as classes were moved online.

The ABET Criterion 3 of the General Criteria are listed as follows:

1. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
2. An ability to formulate or design a system, process, procedure or program to meet desired needs.
3. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
4. An ability to communicate effectively with a range of audiences.

5. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
6. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

Table 4–3 Summary of Direct Courses Assessments

Course	Method	Performance Indicator	Percentage of Students Obtained 80%						Attained?
			Term	N	%	Term	N	%	
Outcome (1)									
CM 331	Assignment	Calculate the strain of a specimen in tensile testing	SP20	15	92	dropped			
CM 331	Test	Calculating Retaining Structure & sliding stability	F20	7	83	F21	12	72	Y/N
CM 412	Final project	Heat loss/heat gain design and computation	SP20	19	92	SP 21 SP 22	17 15	84 90	Y
CM 448	Assignment	Calculate grain size analysis & related problems	F20	10	88	SP 21 SP22	8 12	92 91	Y
CM 401	Assignment	Construction cost estimate computations	SP20	7	85	SP22	12	52	Y/N
Outcome (2)									
CM 394	Term project	Develop a CPM schedule for a building project	F21	14	100	SP22	7	93	Y
CM 401	Term project	Develop a preliminary schedule for a building project	F21	10	80	SP22	12	53	Y/N
CM 412	Term project	Heating and cooling equipment design & U-Factor	SP 20	17	92	SP21 SP22	17 15	91 81	Y
Outcome (3)									
CM 190	Lab	Bulk absorption specification of a stone	SP20	36	92	F21	20	89	Y
CM 331	Lab Exp	Retaining structure & sliding stability	SP20	15	68	F21	11	83	N/Y
CM 331	Assignment	Structural system – Load tracing	SP21	15	84	dropped			
CM 448	Lab	Water content experiment (F20); Dry Unit weight (SP21)	F20	10	91	SP21 SP22	8 12	91 80	Y
Outcome (4)									
CM 320	Project	Written safety report	SP21	28	71				N
CM 401	Reports	Senior capstone project written report	SP20	7	89	F20 SP22	10 13	84 82	Y

CM 256	Presentation	Video presentation	F20	31	65				N
Outcome (5)									
CM 320	Case study	Threaded discussion – Constr. Ethics	F21	19	72	SP 22	8	77	N
CM 438	Case study	Ethics case study – Ethical consideration in construction business	SP20	9	79	F21 SP22	19 5	74 74	N
CM 450	Case study	Ethical conducts in construction management	F21	12	89	SP 22	6	93	Y
Outcome (6)									
CM 224	Survey Lab	Field work	SP20	6	100	F20	6	100	Y
CM 438	Case study	Racetrack case project				SP22	5	74	N
CM 448	Lab	Water content of soil calculations	F21	8	90	SP22	12	87	Y