SLO - Senior Project

CM Student Learning Outcomes

Description

Seniors in the CM 4202 Construction Enterprise course complete a construction project that directly measures seven Program SLOs requiring the students to "create" or to "apply" the learned outcome.

- Acceptable Target: Scores equal to or higher than 70 points on related SLO
- Ideal Target: 80 points or higher
- Implementation Plan (timeline): Data gathered each semester; analyzed each academic year
- Key/Responsible Personnel: Instructor of record for CM 4202 Construction Enterprise.

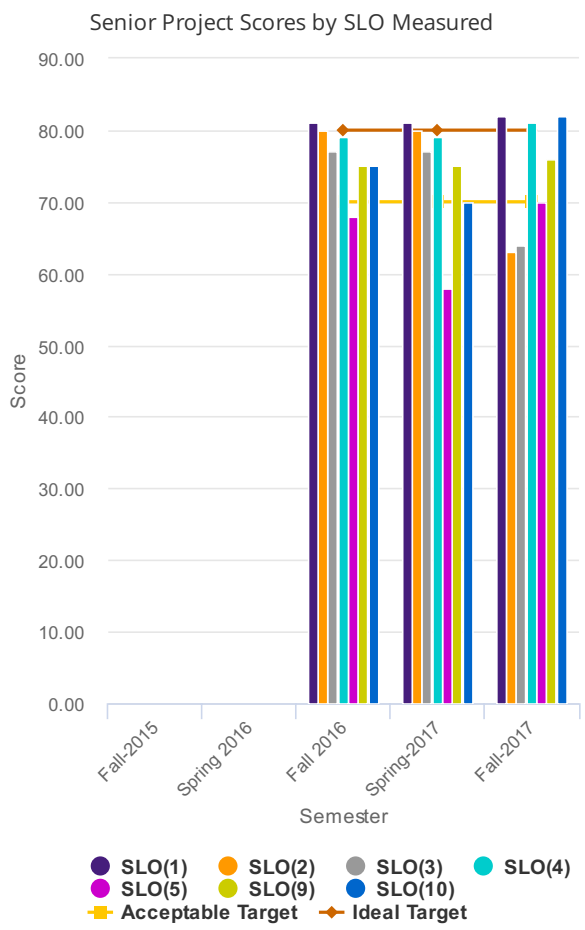
Direct assessment for:

SLO(1) Oral Presentation - Create written communications appropriate to the construction discipline.
SLO(2) Writing Skills - Create written communications appropriate to the construction discipline
SLO(3) Project Safety Plan - Create a construction project safety plan
SLO(4) Estimate - Create construction project cost estimates
SLO(5) Project Schedule - Create construction project schedules
SLO(9) Multidisciplinary Team - Apply construction management skills as a member of a multi-disciplinary team
SLO(10) Applying Technology - Apply electronic-based technology to manage the construction process

Linked Objects

- BSCM Program Objective 4.0 - Establish a techno- stu...
  CM Student Learning Outcomes
- BSCM - SLO 1 Create written communications approp...
  CM Student Learning Outcomes
- BSCM - SLO 2 Create oral presentations appropriate t...
  CM Student Learning Outcomes
- BSCM - SLO 3 Create a construction project safety plan
  CM Student Learning Outcomes
- BSCM - SLO 4 Create construction project cost estima...
  CM Student Learning Outcomes
- BSCM - SLO 5 Create construction project schedules
  CM Student Learning Outcomes
- BSCM - SLO 9 Apply construction management skills ...
  CM Student Learning Outcomes
- BSCM - SLO 10 Apply electronic-based technology to m
  CM Student Learning Outcomes
- Assessment for BSCM
  CM Student Learning Outcomes

Senior Project



Owner

Measure Data

Period		Status	SLO(1)	SLO(2)	SLO(3)	SLO(4)	SLO(5)	SLO(
Fall-2015		Not Defined						
Spring 2016		Not Defined						
Fall 2016		Caution	81.00	80.00	77.00	79.00	68.00	
Spring-2017		Caution	81.00	80.00	77.00	79.00	58.00	
Fall-2017		Caution	82.00	63.00	64.00	81.00	70.00	
Spring-2018		Not Defined						
Fall-2018		Not Defined						
Spring-2019		Not Defined						

Attachments

Data Source

CM 4202 Construction Enterprise - Senior Project

Program - AIC Associate Constructor Exam

CM Student Learning Outcomes

Description

The American Institute of Constructor's (AIC) Associate Construction (AC) Level One exam provides a national comparison to other construction management institutions within the US. AIC assesses 20 SLOs and these are the same program SLOs adopted by the BSCM degree program.

- **Acceptable Target:** 65% passing. Note: national average is around 65% passing.
- **Ideal Target:** 75% passing
- **Implementation Plan (timeline):** Data compiled each academic semester. Analyzed annually.
- **Key/Responsible Personnel:** Instructor of record for CM 4202 Construction Enterprise.

Linked Objects

BSCM Program Objective 1.0 - Provide a core body of ...
CM Student Learning Outcomes

Assessment for BSCM
CM Student Learning Outcomes

Analysis

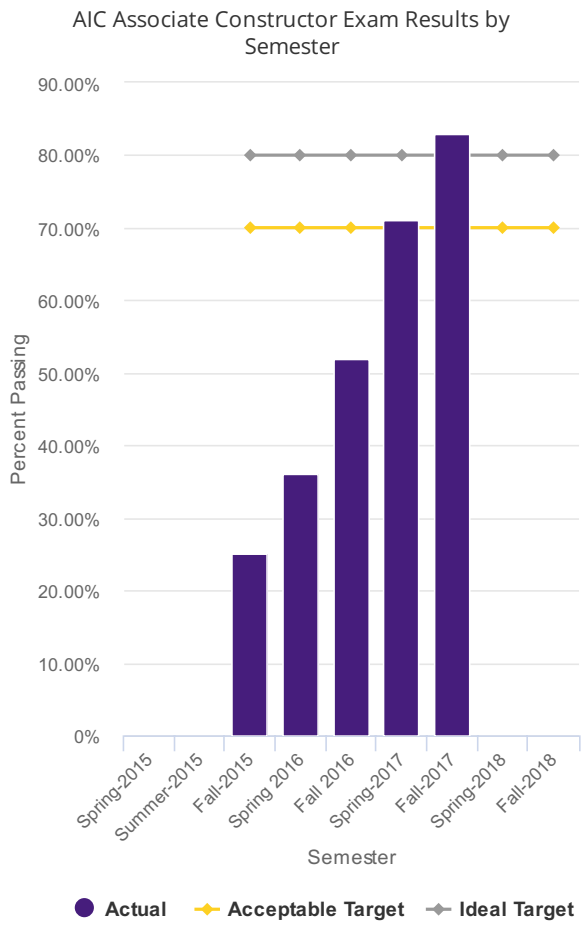
Fall 2016

Recommendations

Fall 2016

Attachments

AIC Associate Constructor Exam



Data Source

AIC AC Level I Exam

Measure Data

Period		Status	Actual	Acceptable Target	Ideal Target
Fall-2015		Below Plan	25.00%	70.00%	80.00%
Spring 2016		Below Plan	36.00%	70.00%	80.00%
Fall 2016		Caution	52.00%	70.00%	80.00%
Spring-2017		At or Above Plan	71.00%	70.00%	80.00%
Fall-2017		At or Above Plan	83.00%	70.00%	80.00%
Spring-2018		No Information		70.00%	80.00%
Fall-2018		No Information		70.00%	80.00%
Spring-2019		No Information		70.00%	80.00%

SLO AIC AC Level I exam

CM Student Learning Outcomes

Description

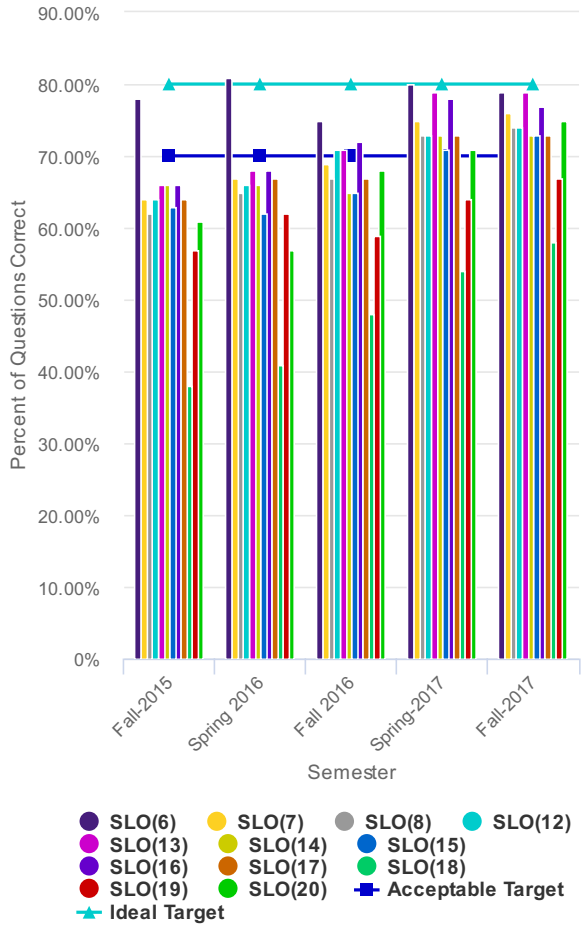
The American Institute of Constructor's Associate Construction (AC) Level One exam provides a national comparison to other construction management institutions within the US. AIC assesses 20 SLOs and these are the same program SLOs adopted by the BSCM degree program.

- Acceptable Target: 70% of the student anwsering the questions correctly
- Ideal Target: 80% of the students answering the questions correctly
- Implementation Plan (timeline): Data gathered each semester; analyzed each academic year
- Key/Responsible Personnel: Instructor of record for CM 4202 Construction Enterprise.

Direct Assessment:

SLO(6) Analyze professional decision based on ethical principles.
SLO(7) Analyze construction documents for planning and management of construction processes
SLO(8) Analyze methods, materials, and equipment used to construct projects
SLO(12) Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process
SLO(13) Understand construction risk management
SLO(14) Understand construction accounting and cost control
SLO(15) Understand construction quality assurance and control
SLO(16) Understand construction project control processes
SLO(17) Understand the legal implications of contract, common, and regulatory law to manage a construction project.
SLO(18) Understand the basic principles of sustainable construction
SLO(19) Understand the basic principles of structural behavior
SLO(20) Understand the basic principles of mechanical, electrical and piping systems.

AIC Associate Constructor Level 1 Exam



Data Source

AIC AC Level One Exam

Linked Objects

- BSCM - SLO 6 Analyze professional decisions based o...
  CM Student Learning Outcomes
- BSCM - SLO 7 Analyze construction documents for pla...
  CM Student Learning Outcomes
- BSCM - SLO 8 Analyze methods, materials, and equip...
  CM Student Learning Outcomes
- BSCM - SLO 12 Understand different methods of proje...
  CM Student Learning Outcomes
- BSCM - SLO 13 Understand construction risk managem
  CM Student Learning Outcomes
- BSCM - SLO 14 Understand construction accounting a...
  CM Student Learning Outcomes
- BSCM - SLO 15 Understand construction quality assur...
  CM Student Learning Outcomes
- BSCM - SLO 16 Understand construction project contr...
  CM Student Learning Outcomes
- BSCM - SLO 17 Understand the legal implications of c...
  CM Student Learning Outcomes
- BSCM - SLO 18 Understand the basic principles of sus...
  CM Student Learning Outcomes
- BSCM - SLO 19 Understand the basic principles of stru...
  CM Student Learning Outcomes
- BSCM - SLO 20 Understand the basic principles of me...
  CM Student Learning Outcomes

Analysis

Fall 2016

Recommendations

Fall 2016

Attachments

Measure Data

Series	Fall 2016
SLO(6)	75.00%
SLO(7)	69.00%
SLO(8)	67.00%
SLO(12)	71.00%
SLO(13)	71.00%
SLO(14)	65.00%
SLO(15)	65.00%
SLO(16)	72.00%
SLO(17)	67.00%
SLO(18)	48.00%
SLO(19)	59.00%
SLO(20)	68.00%
Acceptable Target	70.00%
Ideal Target	80.00%

AIC - Constructor Certification Commission

PRELIMINARY REPORT - SUBJECT TO REVISION

School Report - Learning Outcome Scores

(Graduating Seniors)

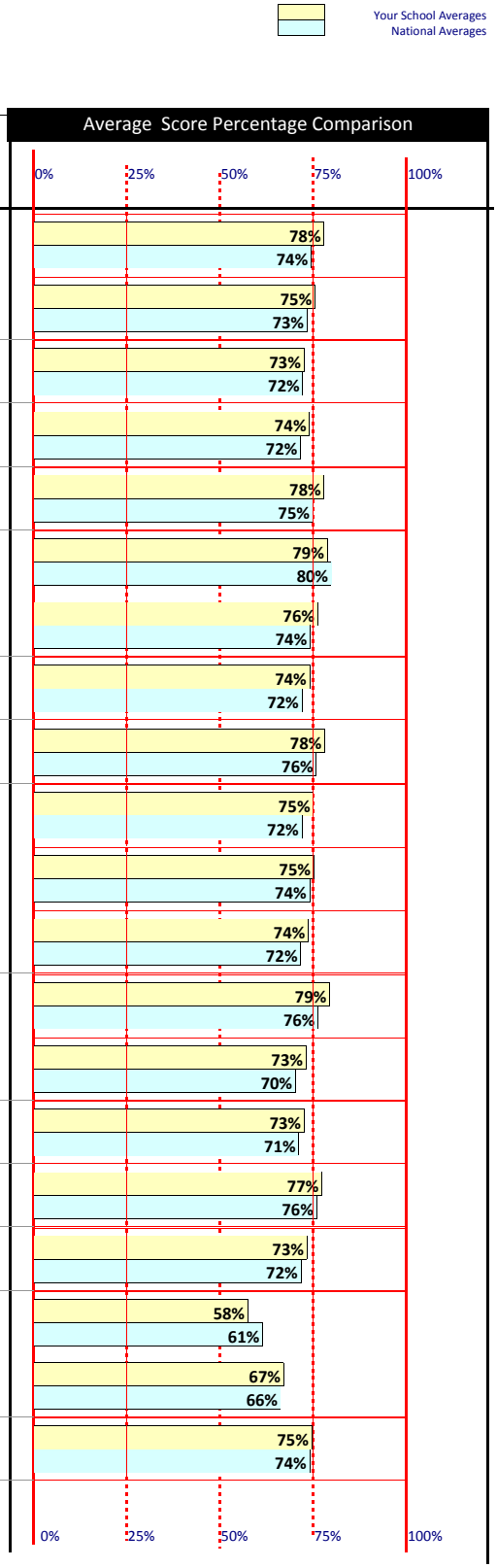
Louisiana State University (LA003)

Level 1 Examination - Construction Fundamentals - November 2017

	Your School Candidates	National Candidates
Number of Candidates Tested:	65	743
Number of Candidates Passed:	54	505
Number of Candidates Failed:	11	238

Learning Outcomes Score Summaries

		School Average	National Average
01	Create written communications	78%	74%
02	Create oral presentations	75%	73%
03	Create a construction project safety plan	73%	72%
04	Create construction project cost estimates	74%	72%
05	Create construction project schedules	78%	75%
06	Analyze decisions based on ethical principles	79%	80%
07	Analyze construction documents for planning	76%	74%
08	Analyze methods, materials, and equipment	74%	72%
09	Apply construction management skills as team member	78%	76%
10	Apply electronic-based technology to manage process	75%	72%
11	Apply basic surveying technology for layout	75%	74%
12	Understand different project delivery methods	74%	72%
13	Understand Construction risk management	79%	76%
14	Understand construction accounting & cost control	73%	70%
15	Understand construction quality assurance & control	73%	71%
16	Understand construction project control processes	77%	76%
17	Understand the legal implications of contracts	73%	72%
18	Understand the principles of sustainable construction	58%	61%
19	Understand the principles of structural behavior	67%	66%
20	Understand the principles of MEP	75%	74%



Program - Senior Exit Exam

CM Student Learning Outcomes

Description

Seniors in the CM 4202 Construction Enterprise course take a comprehensive exit exam to assess student learning across the entire CM curriculum.

- **Acceptable Target:** Average 70% passing the exam
- **Ideal Target:** 80% passing the related component of the exam
- **Implementation Plan (timeline):** Data collected each semester; analyzed annually
- **Key/Responsible Personnel:** Instructor of record for CM 4202

Linked Objects

BSCM Program Objective 1.0 - Provide a core body of ...
CM Student Learning Outcomes

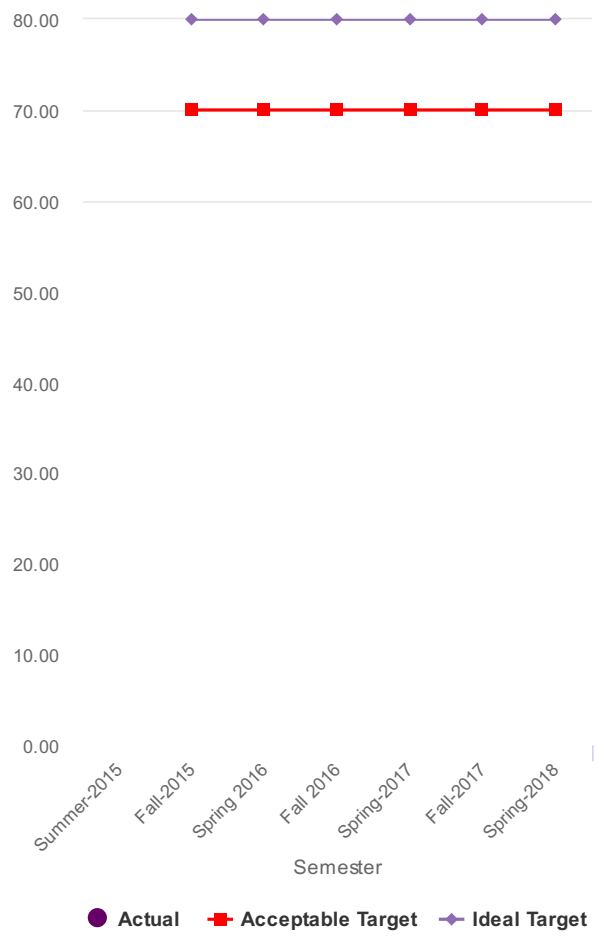
Assessment for BSCM
CM Student Learning Outcomes

Attachments

Data Source

Department CM Senior Exit Exam

Program - Senior Exit Exam



Measure Data

Period		Status	Actual	Acceptable Target	Ideal Target
Fall-2015		Below Plan	29.00	70.00%	80.00%
Spring 2016		Caution	53.00	70.00%	80.00%
Fall 2016		Below Plan	43.00	70.00%	80.00%
Spring-2017		Below Plan	43.00	70.00%	80.00%
Fall-2017		Caution	57.30	70.00%	80.00%
Spring-2018		No Information		70.00%	80.00%
Fall-2018		No Information		70.00%	80.00%
Spring-2019		No Information		70.00%	80.00%

SLO Senior Exit Exam

CM Student Learning Outcomes

Description

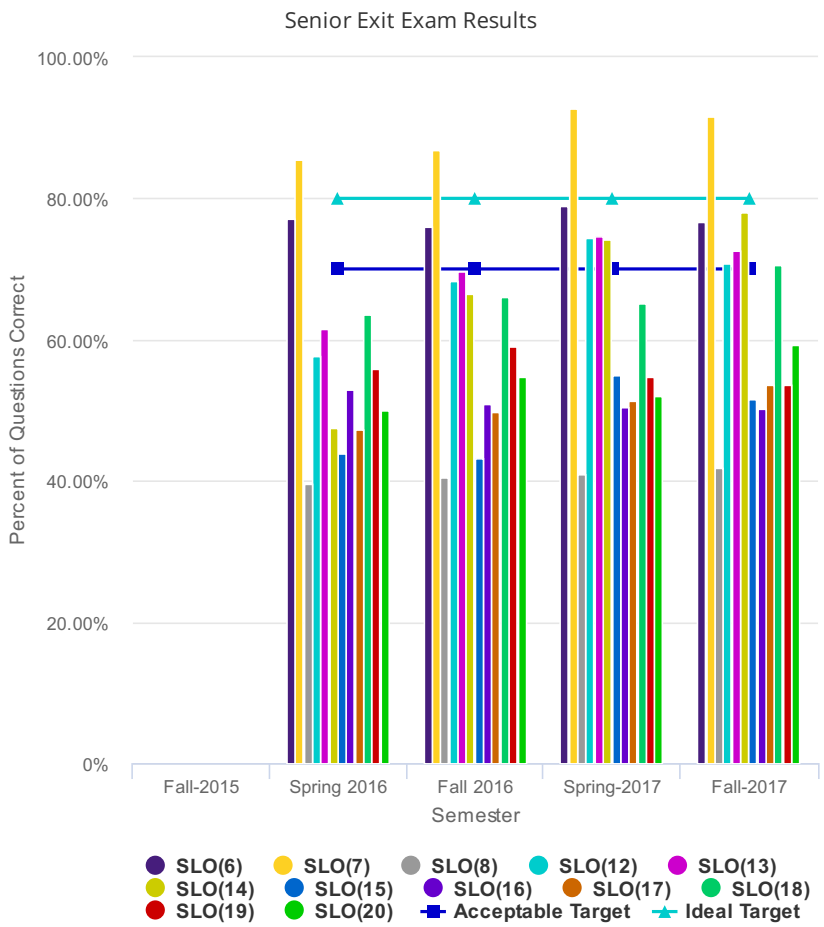
Graduating seniors take an a comprehensive exit exam in their last semester in college. It assesses our twenty BSCM program SLOs indirectly or directly.

- Acceptable Target: 70% of the student answering the questions correctly
- Ideal Target: 80% of the students answering the questions correctly
- Implementation Plan (timeline): Data gathered each semester; analyzed each academic year
- Key/Responsible Personnel: Instructor of record for CM 4202 Construction Enterprise.

Direct Assessment:

SLO(6) Analyze professional decision based on ethical principles.
SLO(7) Analyze construction documents for planning and management of construction processes
SLO(8) Analyze methods, materials, and equipment used to construct projects
SLO(12) Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process
SLO(13) Understand construction risk management
SLO(14) Understand construction accounting and cost control
SLO(15) Understand construction quality assurance and control
SLO(16) Understand construction project control processes
SLO(17) Understand the legal implications of contract, common, and regulatory law to manage a construction project.
SLO(18) Understand the basic principles of sustainable construction
SLO(19) Understand the basic principles of structural behavior
SLO(20) Understand the basic principles of mechanical, electrical and piping systems.

SLO Senior Exit Exam



Data Source

AIC AC Level One Exam

Linked Objects

- BSCM - SLO 6 Analyze professional decisions based on ethical principles
  CM Student Learning Outcomes
- BSCM - SLO 7 Analyze construction documents for planning and manageme...
  CM Student Learning Outcomes
- BSCM - SLO 8 Analyze methods, materials, and equipment used to construc...
  CM Student Learning Outcomes
- BSCM - SLO 12 Understand different methods of project delivery and the ro...
  CM Student Learning Outcomes
- BSCM - SLO 13 Understand construction risk management
  CM Student Learning Outcomes
- BSCM - SLO 14 Understand construction accounting and cost control
  CM Student Learning Outcomes
- BSCM - SLO 15 Understand construction quality assurance and control
  CM Student Learning Outcomes
- BSCM - SLO 16 Understand construction project control processes
  CM Student Learning Outcomes
- BSCM - SLO 17 Understand the legal implications of contract, common, and...
  CM Student Learning Outcomes
- BSCM - SLO 18 Understand the basic principles of sustainable construction
  CM Student Learning Outcomes
- BSCM - SLO 19 Understand the basic principles of structural behavior
  CM Student Learning Outcomes
- BSCM - SLO 20 Understand the basic principles of mechanical, electrical and...
  CM Student Learning Outcomes

Attachments

Measure Data

Series	Fall 2016
SLO(6)	76.00%
SLO(7)	86.80%
SLO(8)	40.44%
SLO(12)	68.22%
SLO(13)	69.60%
SLO(14)	66.50%
SLO(15)	43.20%
SLO(16)	51.00%
SLO(17)	49.67%
SLO(18)	66.00%
SLO(19)	59.00%
SLO(20)	54.67%
Acceptable Target	70.00%
Ideal Target	80.00%

Senior Exit Exam - Fall 2017

Friday, October 27, 2017

	Exam A	Exam B
Number of complete graded first attempts	59	59
Average grade of all attempts	**59.54%**	**63.20%**
Standard deviation (for highest graded attempt)	11.18%	7.24%
Score distribution skewness (for highest graded attempt)	0.0642	-0.0533
Score distribution kurtosis (for highest graded attempt)	-0.4772	-0.823
Coefficient of internal consistency (for highest graded attempt)	64.58%	69.45%
Error ratio (for highest graded attempt)	59.51%	55.28%
Standard error (for highest graded attempt)	6.65%	4.00%

Discriminative Efficiency - Estimate how good the discrimination index is relative to the difficulty of the question; too easy or too hard < 15%

SLO 1 - Understanding construction accounting and cost control

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S01D_Q01 Edit - Depr	59	96.61%	18.25%	25.00%	0.99%	1.02%	29.58%	88.34%
S01D_Q05 Edits Whe	59	96.61%	18.25%	25.00%	0.99%	0.94%	24.35%	72.79%
S01D_Q101 Edit - Wh	59	94.92%	22.16%	25.00%	2.56%	2.22%	26.84%	59.70%
S01D_Q132 - Product	59	42.37%	49.84%	20.00%	2.56%	3.01%	14.69%	18.25%
S01D_Q133 - Product	59	49.15%	50.42%	20.00%	2.56%	4.17%	39.58%	48.91%
S01D-Q02 - The differ	59	89.83%	30.48%	25.00%	0.99%	0.82%	8.23%	14.59%
S01D-Q03 Edits - This	59	81.36%	39.28%	25.00%	0.99%	0.51%	-1.69%	-2.38%
S01D-Q04 - Working (	59	72.88%	44.84%	25.00%	0.99%	0.59%	-1.77%	-2.25%
	AVG	**77.97%**	**ACCE - SLO 14**					

SLO - 2 Understand construction risk management

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S02D_Q06 Edit All of	59	84.75%	36.26%	25.00%	0.99%	1.16%	15.64%	23.88%
S02D_Q07 Edit Comp	59	91.53%	28.09%	25.00%	0.99%	1.03%	17.40%	33.42%
S02D_Q08 - Define ris	59	76.27%	42.91%	25.00%	0.99%	1.04%	8.27%	10.92%
S02D_Q09 - Typical st	59	69.49%	46.44%	25.00%	0.99%		-18.38%	-23.22%
S02D_Q10 - Which of	59	40.68%	49.54%	25.00%	0.99%	1.88%	33.58%	40.77%
	AVG	**72.54%**	**ACCE - SLO 13**					

SLO 3 - Understand the legal implications of contract, common, and regulatory law to manage a construction project

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S03D_Q11 Edit2 -A wi	59	64.41%	48.29%	25.00%	0.99%	1.37%	15.28%	18.75%
S03D_Q12 Edits - Whi	59	3.39%	18.25%	20.00%	0.99%		-13.64%	-37.29%
S03D_Q13 - What is c	59	23.73%	42.91%	25.00%	0.99%	0.32%	-4.56%	-6.35%
S03D_Q14 - What is t	59	98.31%	13.02%	25.00%	0.99%	0.71%	19.71%	84.43%
S03D_Q15 - Which or	59	33.90%	47.74%	25.00%	0.99%	1.70%	27.80%	34.88%
S03D_Q16 Edits - ___	59	98.31%	13.02%	25.00%	0.99%	0.74%	21.54%	92.22%
	AVG	**53.68%**	**ACCE - SLO 17**					

SLO 4 - Understand construction project control processes

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S04D_Q17 - Define pr	59	52.54%	50.36%	25.00%	0.99%	1.59%	21.21%	25.09%
S04D_Q18 Edit - From	59	15.25%	36.26%	25.00%	0.99%		-23.86%	-37.52%
S04D_Q19 - If a proje	59	57.63%	49.84%	25.00%	0.99%	1.68%	25.25%	30.38%
S04D_Q20 Edits - In e	59	40.68%	49.54%	25.00%	0.99%	1.25%	10.97%	13.60%
S04D_Q21 - Which or	59	62.71%	48.77%	25.00%	0.99%	1.57%	21.86%	26.72%
S04D_Q22 - Which pr	59	59.32%	49.54%	25.00%	0.99%		-11.97%	-14.57%
S04D_Q23 - Your proj	59	84.75%	36.26%	25.00%	0.99%	1.60%	35.00%	52.93%
S04D_Q24 - Your proj	59	28.81%	45.68%	25.00%	0.99%	1.75%	31.53%	41.29%
	AVG	**50.21%**	**ACCE - SLO 16**					

SLO 5 - Understand constuction quality assurance and control

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S05D_Q25 - A lower s	59	72.88%	44.84%	25.00%	0.99%	1.82%	35.88%	46.07%
S05D_Q26 - A _____	59	54.24%	50.25%	25.00%	0.99%	1.49%	17.99%	21.37%
S05D_Q27 Edits - An (	59	6.78%	25.36%	25.00%	0.99%		-27.69%	-57.85%
S05D_Q28 - For a des	59	86.44%	34.53%	25.00%	0.99%	0.70%	3.24%	5.10%
S05D_Q30 Edit - Wha	59	37.29%	48.77%	25.00%	0.99%	0.57%	-2.93%	-3.66%
	AVG	**51.53%**	**ACCE - SLO 15**					

SLO 6 - Understand different methods of project delivery and the roles and responsiblities of all constituencies involved in the design and construction process

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S06D_Q31 Edit 2 - A d	59	69.49%	46.44%	25.00%	0.99%		-15.39%	-19.41%
S06D_Q32 Edit - Cont	59	74.58%	43.92%	25.00%	0.99%	2.08%	50.60%	66.01%
S06D_Q33 - One adva	59	79.66%	40.60%	25.00%	0.99%	2.01%	51.10%	70.93%
S06D_Q34 - Edits2 A (	59	27.12%	44.84%	25.00%	0.99%	1.28%	14.38%	19.32%

S06D_Q35 - Edit2 The	59	83.05%	37.84%	25.00%	0.99%	0.90%	6.89%	10.09%
S06D_Q36 - Which de	59	72.88%	44.84%	25.00%	0.99%	1.43%	19.53%	24.64%
S06D_Q37 - Which of	59	83.05%	37.84%	25.00%	0.99%	1.70%	38.18%	56.60%
S06D_Q38 - Which or	59	77.97%	41.80%	25.00%	0.99%	1.38%	19.80%	26.33%
S06D_Q39 Edit - Whic	59	69.49%	46.44%	25.00%	0.99%	2.04%	44.71%	56.79%
	AVG	**70.81%**	**ACCE - SLO 12**					

SLO 7 Understand the basic principles of structural behavior

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S07D_Q40 - A beam c	59	81.36%	39.28%	25.00%	0.99%	1.53%	28.18%	39.41%
S07D_Q41 - A cantilev	59	42.37%	49.84%	25.00%	0.99%	1.46%	17.19%	20.85%
S07D_Q42 Edits - For	59	40.68%	49.54%	25.00%	0.99%	1.76%	28.61%	35.26%
S07D_Q43 - Material	59	33.90%	47.74%	25.00%	0.99%		-28.10%	-36.11%
S07D_Q44 - Material	59	77.97%	41.80%	25.00%	0.99%	1.36%	19.22%	25.37%
S07D_Q45 - Steel that	59	52.54%	50.36%	25.00%	0.99%	1.26%	10.65%	12.77%
S07D_Q46 - Stirrups i	59	38.98%	49.19%	25.00%	0.99%		-10.56%	-12.88%
S07D_Q47 - Which ma	59	69.49%	46.44%	25.00%	0.99%	0.58%	-2.32%	-2.91%
S07D_Q102 - If a mat	59	69.49%	46.44%	25.00%	2.56%	3.16%	20.54%	27.13%
S07D_Q125 - Free bo	59	28.81%	45.68%	25.00%	2.56%	3.59%	30.71%	40.11%
	AVG	**53.56%**	**ACCE - SLO 19**					

SLO 8 - Understand the basic principles of mechanical, electrical, and plumbing systems

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S08D_Q48 Edits - A ci	59	86.44%	34.53%	25.00%	0.99%	0.89%	8.05%	12.51%
S08D_Q49 - All boiler	59	89.83%	30.48%	20.00%	0.99%	0.82%	8.23%	14.59%
S08D_Q50 - Compare	59	40.68%	49.54%	20.00%	0.99%	1.83%	31.59%	39.09%
S08D_Q51 Edit2 - He	59	50.85%	50.42%	20.00%	0.99%	1.82%	30.31%	36.54%
S08D_Q52 Edit - Of th	59	33.90%	47.74%	20.00%	0.99%	1.60%	23.71%	29.82%
S08D_Q53 Edit - Wha	59	28.81%	45.68%	25.00%	0.99%	0.45%	-3.73%	-4.92%
S08D_Q54 - What is t	59	84.75%	36.26%	20.00%	0.99%	1.14%	14.98%	22.88%
S08D_Q55 - Which of	59	18.64%	39.28%	25.00%	0.99%		-6.64%	-9.90%
S08D_Q56 - Which sy	59	20.34%	40.60%	20.00%	0.99%	1.25%	16.12%	23.39%
S08D_Q57 Edits - Wh	59	96.61%	18.25%	25.00%	0.99%	0.84%	19.12%	57.25%
S08D_Q103 Edit - A 3	59	61.02%	49.19%	25.00%	2.56%	2.11%	1.65%	2.10%
S08D_Q104 - A lightb	59	100.00%	0.00%	25.00%	2.56%	0.00%		
	AVG	**59.32%**	**ACCE - SLO 20**					

SLO - 9 Understand the basic principles of sustainable construction

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S09D_Q58 - Edit To er	59	94.92%	22.16%	25.00%	0.99%	0.81%	13.51%	33.59%
S09D_Q59 Edits - The	59	52.54%	50.36%	25.00%	0.99%	1.03%	4.96%	5.97%
S09D_Q60 - This mate	59	64.41%	48.29%	25.00%	0.99%	1.06%	6.35%	7.74%
	AVG	**70.62%**	**ACCE - SLO 18**					

SLO 11 - Apply basic surveying techniques for construction layout

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S11_Q61 - What is th	59	84.75%	36.26%	25.00%	0.99%		-7.88%	-11.93%
S11_Q63 - The survey	59	76.27%	42.91%	25.00%	0.99%	1.92%	42.87%	56.70%
	AVG	**80.51%**						

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S11D_Q105 - Edit Cal	59	94.92%	22.16%	25.00%	2.56%	1.88%	17.70%	39.55%
S11D_Q106 Edit - Cal	59	74.58%	43.92%	25.00%	2.56%	3.04%	20.44%	28.68%
S11D_Q107 - Calculat	59	76.27%	42.91%	25.00%	2.56%	3.38%	28.98%	40.32%
S11D_Q108 Edits - Cc	59	91.53%	28.09%	25.00%	2.56%	2.59%	28.05%	52.03%
	AVG	**84.33%**						

SLO 12 - Analyze professional decisions based on ethical principles

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S12D_Q64 Edits - Con	59	79.66%	40.60%	33.33%	0.99%	1.30%	17.86%	24.25%
S12D_Q65 Edit - Cons	59	86.44%	34.53%	33.33%	0.99%	0.84%	6.67%	10.49%
S12D_Q66 - After a $1	59	55.93%	50.07%	25.00%	0.99%	0.67%	-1.86%	-2.23%
S12D_Q68 Edits - Whi	59	84.75%	36.26%	25.00%	0.99%	1.04%	11.68%	17.52%
	AVG	**76.70%**	**ACCE - SLO 6**					

SLO 13 - Analyze methods, materials, and equipment used to construct projects

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S13_Q136 (section A)	59	8.47%	28.09%	25.00%	0.99%		-11.48%	-22.41%
S13_Q137 (Section A)	59	62.71%	48.77%	25.00%	0.99%	1.64%	24.36%	29.54%
S13_Q138 (Section A)	59	98.31%	13.02%	25.00%	0.99%		-9.32%	-40.11%
S13_Q69 - A casemen	59	10.17%	30.48%	20.00%	0.99%	1.05%	16.07%	29.63%
S13_Q70 Edits - Air er	59	50.85%	50.42%	25.00%	0.99%	2.00%	38.18%	46.04%
S13_Q71 - Brick maso	59	32.20%	47.13%	20.00%	0.99%	1.91%	37.67%	48.78%
S13_Q72 - Edits The a	59	32.20%	47.13%	25.00%	0.99%	1.54%	22.04%	28.45%

S13_Q73 - The hingec	59	66.10%	47.74%	25.00%	0.99%	1.04%	6.16%	7.54%
S13_Q74 - Edit Whicl	59	28.81%	45.68%	25.00%	0.99%		-6.29%	-8.38%
S13_Q75 - Which of tl	59	81.36%	39.28%	25.00%	0.99%	1.24%	16.49%	23.40%
S13_Q76 Edits - Wooc	59	67.80%	47.13%	25.00%	0.99%	0.89%	2.96%	3.67%
S13_Q112 - Edit 6.[illegible]Wh	59	69.49%	46.44%	25.00%	2.56%	3.07%	18.75%	24.82%
S13_Q134 -Edit What	59	100.00%	0.00%	25.00%	2.56%	0.00%		
	AVG	**54.50%**						

*Question - **Direct***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S13D_Q109 - Edit2 - V	59	44.07%	50.07%	25.00%	2.56%	2.38%	4.58%	5.69%
S13D_Q110 Edit -A cc	59	44.07%	50.07%	25.00%	2.56%	4.23%	41.48%	51.41%
S13D_Q111 - Edit 5.A	59	44.07%	50.07%	25.00%	2.56%	3.55%	25.16%	30.81%
S13D_Q135 - Edit 8.D	59	88.14%	32.61%	25.00%	2.56%	2.61%	22.73%	38.78%
S13D_Q139 (Section I	59	25.42%	43.92%	25.00%	2.56%	1.46%	-3.15%	-4.18%
S13D_Q140 (Section I	59	22.03%	41.80%	25.00%	2.56%	2.37%	9.59%	12.82%
S13D_Q141 (Section I	59	59.32%	49.54%	25.00%	2.56%	2.86%	12.26%	15.67%
S13D_Q142 (Section /	59	8.47%	28.09%	25.00%	0.99%		-13.14%	-25.67%
S13D_Q143 (Section I	59	16.95%	37.84%	25.00%	2.56%		-14.00%	-20.02%
	AVG	**41.95%**	**ACCE - SLO 8**					

SLO 14 - Analyze construction documents for planning and management of the construction process

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S14_Q77 - Edits Contr	59	100.00%	0.00%	25.00%	0.99%	0.00%		
S14_Q78 Edits - Squai	59	84.75%	36.26%	25.00%	0.99%	1.57%	33.65%	51.44%
S14_Q79 - Working D	59	81.36%	39.28%	25.00%	0.99%	0.66%	0.71%	1.00%
S14_Q80 - Importanc	59	96.61%	18.25%	50.00%	0.99%		-23.47%	-71.01%
S14_Q81 - Relationsh	59	94.92%	22.16%	50.00%	0.99%		-3.57%	-8.68%
	AVG	**91.53%**	**ACCE - SLO 7**					

SLO 18 - Create a construction project safety plan

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S18_Q82 - Edits An ef	59	62.71%	48.77%	25.00%	0.99%	1.82%	31.91%	39.20%
S18_Q83 - Edits A key	59	86.44%	34.53%	25.00%	0.99%	1.28%	21.91%	34.97%
S18_Q84 - Edit2 - On	59	91.53%	28.09%	25.00%	0.99%	1.17%	23.37%	44.07%
	AVG	**80.23%**	**ACCE - SLO 3**					

SLO 19 - Create construction project cost estimates

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S19_Q85 Edits - Bid Fc	59	23.73%	42.91%	25.00%	0.99%	1.17%	12.03%	16.60%
S19_Q86 - Cash Allow	59	38.98%	49.19%	25.00%	0.99%		-7.23%	-8.86%
S19_Q87 Edits - Conti	59	91.53%	28.09%	25.00%	0.99%	0.66%	4.69%	9.06%
S19_Q88 - Detailed Es	59	89.83%	30.48%	25.00%	0.99%		-4.95%	-8.71%
S19_Q89 - Edits Part c	59	81.36%	39.28%	25.00%	0.99%	1.60%	31.29%	44.44%
S19_Q90 - General O\	59	42.37%	49.84%	25.00%	0.99%	1.26%	10.91%	13.36%
S19_Q91 - Edits Wide	59	96.61%	18.25%	25.00%	0.99%	0.87%	20.43%	61.13%
S19_Q113 - Board Fee	59	88.14%	32.61%	33.33%	2.56%	1.54%	2.89%	4.81%
S19_Q114 - Total SF c	59	100.00%	0.00%	33.33%	2.56%	0.00%		
S19_Q115 - Calculate	59	18.64%	39.28%	25.00%	2.56%	2.39%	11.88%	16.70%
S19_Q116 - Calculate	59	45.76%	50.25%	25.00%	2.56%	2.99%	14.02%	16.83%
S19_Q117 - Calculate	59	55.93%	50.07%	25.00%	2.56%	3.33%	20.51%	25.65%
S19_Q118 - Calculate	59	50.85%	50.42%	25.00%	2.56%	3.27%	19.09%	23.04%
S19_Q119 - Calculate	59	13.56%	34.53%	25.00%	2.56%	1.85%	6.15%	9.80%
S19_Q122 - You have	59	88.14%	32.61%	25.00%	2.56%	2.50%	20.22%	33.85%
S19_Q123 - You have	59	27.12%	44.84%	25.00%	2.56%	3.56%	30.96%	40.34%
S19_Q124 - You have	59	54.24%	50.25%	25.00%	2.56%	4.63%	52.47%	64.70%
	AVG	**59.22%**	**ACCE - SLO 4**					

SLO 20 - Create construction project schedules

*Question - **Indirect***	*Attempts*	*Facility index*	*Standard deviation*	*Random guess score*	*Intended weight*	*Effective weight*	*Discrimination index*	*Discriminative efficiency*
S20_Q92 Edits - An ac	59	61.02%	49.19%	25.00%	0.99%	1.34%	13.61%	16.50%
S20_Q93 Edits - The f	59	54.24%	50.25%	25.00%	0.99%	1.75%	27.70%	33.06%
S20_Q94 Edits - A crit	59	59.32%	49.54%	25.00%	0.99%	1.23%	10.42%	12.71%
S20_Q95 Edits - Anotl	59	100.00%	0.00%	20.00%	0.99%	0.00%		
S20_Q96 Edits - prece	59	66.10%	47.74%	25.00%	0.99%	0.33%	-5.23%	-6.42%
S20_Q97 Edits - purpc	59	67.80%	47.13%	33.33%	0.99%	1.82%	33.24%	41.36%
S20_Q98 Edits - The _	59	98.31%	13.02%	20.00%	0.99%		-9.32%	-40.11%
S20_Q99 - activity sta	59	57.63%	49.84%	25.00%	0.99%	1.31%	12.60%	15.12%
S20_Q100 - late activi	59	22.03%	41.80%	16.67%	0.99%	0.90%	5.14%	7.31%
S20_Q120 - Using CPI	59	67.80%	47.13%	20.00%	2.56%	2.80%	13.11%	17.33%
S20_Q121 - Using the	59	81.36%	39.28%	25.00%	2.56%	2.76%	19.00%	27.79%
S20_Q126 - Schedulin	59	47.46%	50.36%	25.00%	2.56%	3.45%	22.83%	28.37%
S20_Q127 - Schedulin	59	50.85%	50.42%	25.00%	2.56%	3.89%	32.52%	40.19%
S20_Q128 - Schedulin	59	72.88%	44.84%	25.00%	2.56%	2.82%	15.19%	21.12%
S20_Q129 - Schedulin	59	71.19%	45.68%	25.00%	2.56%	2.16%	4.06%	5.42%

S20_Q130 - Schedulli	59	50.85%	50.42%	25.00%	2.56%	0.97%	-8.88%	-11.17%
S20_Q131 - Productiv	59	40.68%	49.54%	20.00%	2.56%	3.41%	22.66%	28.48%
	AVG	**62.91%**	**ACCE - SLO 5**					