

School of Construction Program Outcomes
Construction Engineering Technology (BCT)

2013-2014

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The program has undergone significant stresses in the past four years (turnover in leadership and teaching corps). Traditional enrollment has fallen since the recession of 2008-2009 paralleling trends in the construction industry, while distance-learning (online) enrollment has increased. Currently the program has 170 traditional students and 200 online students enrolled.

The following are improvement initiatives in the BCT Program underway in various stages of implementation:

- A. Curriculum Redesign: The curriculum has been evaluated by the School of Construction Curriculum Committee and the following changes have been recommended:
 - a. The addition and/or consolidation of courses. These changes enable the BCT and ACT (Architectural Technology) programs to have a common set of courses in the first two years of study. Additionally, students in each program will gain competencies traditionally specific to each of the programs. This alignment is consistent with industry trends and requirements for entry-level graduates. This change should also address ABET weaknesses above (a, e, g). Status: Submittal materials for the College and University Academic Councils are being reviewed for submission in the Fall 2014 term.
 - b. Renumbering of courses and designation of new prerequisites: Some courses have been designated to receive lower course numbers so as to be taken earlier in the curriculum. The School of Construction Curriculum Committee has determined that new prerequisites are required to increase student success in all course and program outcomes, as well as increase quality overall. Status: Submittal materials for the College and University Academic Councils are being reviewed for submission Fall 2014.
 - c. Cohort matriculation: The BCT and ACT Program Coordinators, along with The School of Construction Curriculum Committee, have developed a Cohort matriculation model which assists with enforcement of course prerequisites and better definition of future course scheduling. Status: Done, implementation to begin in Spring 2015 term.

B.

Sharp ACT & BCT	1. Practice freehand sketching skills of architectural/construction related items								12			12	12						12				
	2. Produce orthographic projections						3-5						3-5										3-5
	3. Identify common architectural symbols	10,11					6-11	14		11		6-11	6-9,11					6-9,11					11
	4. Identify common architectural abbreviations	10						14		10													10,14
	5. Identify common architectural terms	10						13,14		10													10,13,14
Architectural Graphics	6. Create basic 2-D drawings using computer-aided drafting and design software						1-9					1-9	1-9						1-9				1-9
Architectural Graphics Laboratory	7. Create a partial drawing set of a residence using computer-aided drafting and design software	11					11					11	11										11

FA13

School of Construction Program Outcomes

2013-2014

	1. Identify the materials included in CSI Masterformat Divisions 3-14					6				6	6
	2. Create a report on observations made of materials being applied on both commercial and residential construction sites	2				2	2	2	2	2	
Sharp	3. Define common construction processes and materials related terms	5	7,8			5-8			7,8	5-8	5-8
ACT & BCT	4. Create a 1,250 - 1,750 word (5-7 pages) research paper about one construction material					3	3		3	3	3
Building Materials											

Sharp	1. Calculate the components of a force	1-3,8	1-3,8	1-3,8																	
	2. Calculate the moments of forces	5-6, 8-9	5-6, 8-9	5-6, 8-9																	
	3. Work problems involving the method of joints and sections	8	8	8																	
ACT & BCT	4. Work problems involving pulleys	4	4	4																	
	5. Trace load paths on structures	9																			
Statics & Strengths	6. Calculate axial, shear and bearing stresses	4,8-9	4,8-9	4,8-9																	
	7. Calculate axial strain using Hooke's law	4,8	4,8	4,8																	
	8. Calculate thermal stresses	4	4	4																	
	9. Calculate centroids and moments of inertia	5-6,9	5-6,9	5-6,9																	
	10. Construct load, shear, and moment diagrams	5-6,9	5-6,9	5-6,9																	
	11. Calculate flexural stresses and beam deflections	7	7	7																	
	12. Analyze and design columns	7	7	7																	

	1. Recognize the functional areas (structure) of the host organization	3,6,7	
Kemp	2. Identify functional roles (tasks, responsibilities) in industry and the intern's functional role within the host organization	3,6,7	3,6,7
ACT & BCT	3. Identify to which of the life cycle		

1. Provide average to excellent discussion capabilities with respect to the current issues in construction.	1-4	1-4

Kemp
 BCT
 Seminar

Hannon	Measure with steel tape, correct for errors, and adjust for temperature and tension	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
	Understand the concept of differential leveling	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
	Use level and perform calculations in order to adjust for errors and close the loop	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
Surveying	Use transit and understand the concept of angles and directions	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
	Calculate coordinates based on bearings and distances and vice versa, and also adjust for error closure	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
	Perform construction layout (setting up points of known coordinates/and As-built)	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
	Application of GPS and GIS technology used in Surveying and Construction Layout	1-3	1-3	1-3				1-3					1-3		1-3				1-3		1-3
Hannon	Measuring Distances using Pacing	4,5	4,5	4,5				4,5					4,5								
	Survey Field Note Standards	4,5	4,5	4,5				4,5					4,5								
	Measuring building height using similar triangles	4,5	4,5	4,5				4,5					4,5								
Surveying Laboratory	Determine the Finish Floor Elevation of a building using differential leveling	4,5	4,5	4,5				4,5					4,5								
	Traverse survey	4,5	4,5	4,5				4,5					4,5								
	Excel Spreadsheet of Compass Rule	4,5	4,5	4,5				4,5					4,5								
	Building Layout	4,5	4,5	4,5				4,5					4,5								

	FA13	F-F		FA13	ONL		SP14	F-F		SP14	ONL
1. Midterm				1	36	36	100%	1	13	14	93%
2. Final Exam				2	36	36	100%	2	13	14	93%
3 Research Paper				3	36	36	100%	3	13	14	93%
		AVG			AVG			AVG		AVG	

BCT 205L

	FA13	F-F		FA13	ONL		SP14	F-F		SP14	ONL																		
4 Leveling Exercise	79	101.886	683.088	222.977	reW	nBT/TT0	1	Tf-0.007	Tc	0.003	Tw	7.9071	-0	0	7.9008	61.0	S9.9778	Tm	(4	L)-31(e)-9(v)1(e)-9(lin)18(g)20(E)-1-9(v)83	Tm	83.088	222.977	reW	nBT/TT0	1	Tf-0.007	Tc	0.

School of Construction Program Outcomes

2013-2014

Langar	1. Identify and understand Building System and Materials.	6-8		6-8					1-4, 6-8,		6-8						6-8							
	2. Identify and evaluate sources of information on building systems			6-8					6-8															
	3. Understand Sequenced Activities for Construction of Systems.	6-8		6-8					4, 6-8	6, 7	6-8					6-8					7, 8			
Building Systems II	4. Determine Resources Required to complete the installation of the system	6-8		6-8					4, 6-8	6, 7	6-8						6-8					2, 6-8		
	5. Understand, compare, and evaluate building materials from the perspective of technological, human, ecological, and economic performance.	1-4, 6-8,		6-8		6, 7			4, 6-8	6, 7	6-8						4, 7, 8	6-8				6-8		
	6. Understand, compare, and evaluate building materials from the perspective of supply chain	6-8		6-8					4, 6-8	6, 7	6-8													
	7. Analyze and express constructability issues.	6-8		6-8						6, 7	6-8													6-8
	8. Perform as an integral member of a technical team and communicate effectively within the team and with other teams within the class					1, 5, 7		6, 7	5, 7															

	Assessment	#students >= C	#students	Ratio	Assessment	#students >= C	#students	Ratio	Assessment	#students >= C	#students	Ratio	Assessment	#students >= C	#students	Ratio
	FA13	F-F			FA13	ONL			SP14	F-F			SP14	ONL		
1 Quiz I	1	9	19	47%									1	23	31	74%
2 Quiz II	2	2	19	11%									2	12	31	39%
3 Quiz III	3	10	19	53%									3	7	31	23%
4 Quiz IV	4	8	19	42%									4	19	31	61%
5 Team Assignment I	5	19	19	100%									5	21	31	68%
6 Team Assignment II	6	16	19	84%									6	30	31	97%
7 Class Participation	7	18	19	95%									7	30	31	97%
8 Final Exam	8	12	19	63%									8	24	31	77%
			AVG				AVG					AVG			AVG	

Langar	1. Introduce types of construction contracting systems	4, 6-9					4, 6-9	4, 6-9	4, 6-9					4, 6-9					7-9					
	2. Define the prevalent types of business ownership	1, 6-9					1, 6-9	1, 6-9	1, 6-9															
	3. List the duties/functions within overall organizational structure of a construction company	6-8					6-8	6-8	6-8															
Construction Organization	4 Understand teamwork, operate in teams, and importance of ethics	5-7					5-7	5-7	5-7			5-7											1,8,9	
	5. Define and list estimating functions/operations and their relationship to managing a construction company	2, 4, 7-9					2, 4, 7-9	2, 4, 7-9	2, 4, 7-9										2, 4, 7-9					
	6. Define the types of project delivery	1, 2, 6, 8, 9					1, 2, 6, 8, 9	1, 2, 6, 8, 9	1, 2, 6, 8, 9															
	7. Familiarize with construction industry, associated stakeholders, and relationship between them	1, 5, 8, 9					1, 5, 8, 9	1, 5, 8, 9	1, 5, 8, 9															
	8. Define the types of construction surety bonds and insurances available and list the uses of each	8, 9					8, 9	8, 9	8, 9										8, 9					
	9. Define scheduling and explain relationship between activities	3, 7, 8, 9					3, 7-9	3, 7-9	3, 7-9					3, 7-9					4, 7-9	7				3, 7-9
	10. Define the accounting methods used in the construction industry	4, 7-9					4, 7-9	4, 7-9	4, 7-9															
	11. List the duties/functions within field organizational structure of a construction company	7, 8					7, 8	7, 8	7, 8															
	12. Realize the importance of safety and role of organization in implementation	3, 8, 9					3, 8, 9	3, 8, 9	3, 8, 9															3, 8, 9

	FA13	F-F			FA13	ONL			SP14	F-F			SP14	ONL								
1 Quiz I	1	2	25	8%									1	26	38	68%						
2 Quiz II	2	6	25	24%									2	9	38	24%						

Basha	Site Plan Analysis	1	1			1	1	1				1	1	1	1			1		1		
	Organizational Chart & Cost Control Plan	1	1			1	1	1				1	1	1	1			1	1	1	1	
	Document & Material Control Plans & Video Presentation for items 1 through 3.	1	1			1	1	1				1	1	1	1			1		1		
Senior Project	Safety Plan	1	1			1	1	1				1	1	1	1			1		1	1	
	Estimate	1	1			1	1	1				1	1	1	1	1		1	1	1		
	Schedule	1	1			1	1	1				1	1	1	1			1		1	1	
	Executive Summary	1	1			1	1	1				1	1	1	1			1		1		
	Final Notebook Submittal & Final Video Presentation	1	1			1	1	1				1	1	1	1			1		1		

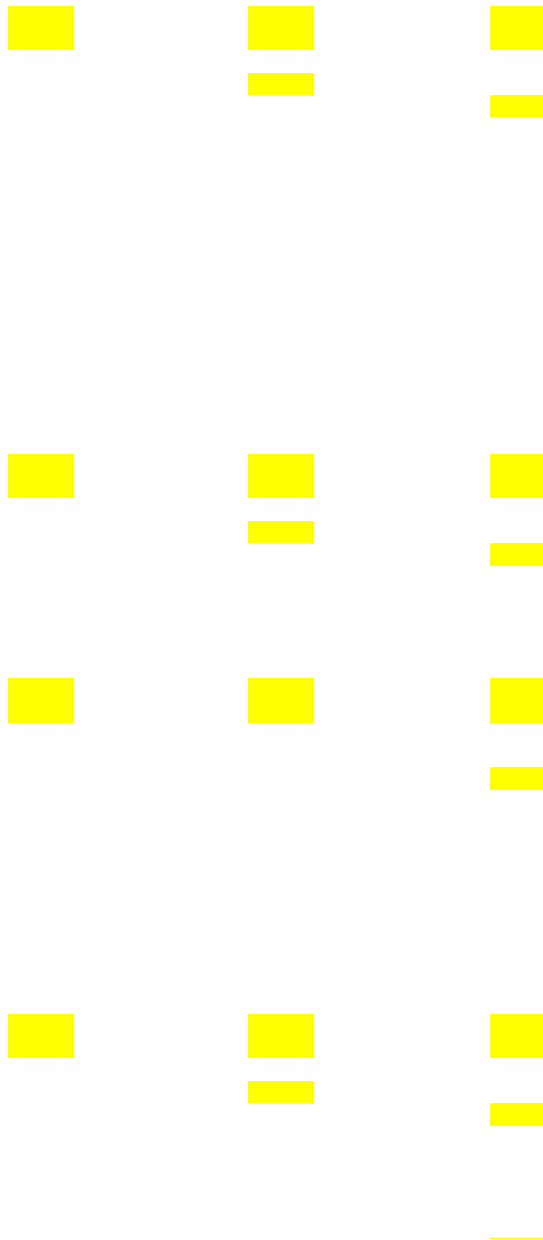
	1. Identify and assemble the components of a construction cost estimate	1-4	1-4	1-4	1-4
	2. Be familiar with the start up activities for assembling a complete bid			1-4	1-4
	3. Categorize work into various scope packages		2-4		
Fletcher	4. Determine general conditions and overhead costs				

Langar	1. Delivery methods, CM selection criteria	1, 2, 5, 7, 8				1, 2, 5, 7, 8	1, 2, 5, 7, 8	1, 2, 5, 7, 8			5, 7	6, 7									
	2. Explain the bid documents, bid components, and procurement strategies	3, 6-8				3, 6-8	3, 6-8	3, 6-8			7	7				6					
	3. Introduction to construction law	4, 7, 8				4, 7, 8	4, 7, 8	4, 7, 8											4, 7, 8		
Project Management	4. Importance of Teamwork	5-7				5-7	5-7	5-7	5-8	5-8		5, 6							5-7		
	5. Prepare, evaluate, and modify job schedules	6, 7				6, 7	6, 7	6, 7				6		6, 7		6				6, 7	
	6. Understanding of project chronology	6, 7				6, 7	6, 7	6, 7			6, 7	6		6, 7		6				6, 7	
	7. Describe and implement job safety management practices	4, 6-8				4, 6-8	4, 6-8	4, 6-8				6								4, 6-8	
	8. Introduction to the concept of best practices	5, 7, 8				5, 7, 8	5, 7, 8	5, 7, 8	5, 7, 8	5, 7, 8	5, 7, 8	5									
	9. Understanding of use of technology and its impact on project management	1, 2, 6-8				1, 2, 6-8	1, 2, 6-8	1, 2, 6-8			7	7									

	FA13	F-F			FA13	ONL			SP14	F-F			SP14	ONL				
1 Quiz I	1	3	7	43%									1	20	30	67%		
2 Quiz II	2	3	7	43%									2	9	30	30%		
3 Quiz III	3	3	7	43%									3	15	30	50%		
4 Quiz IV	4	0	7	0%									4	25	30	83%		
5 Team Assignment I	5	7	7	100%									5	27	30	90%		
6 Team Assignment II	6	7	7	100%									6	28	30	93%		
7 Class Participation	7	7	7	100%									7	27	30	90%		
8 Final Exam	8	1	7	14%									8	24	30	80%		
			AVG			AVG					AVG			AVG		AVG		

#students >= C
#students

Kemp	1. Locate appropriate CFR reference for various construction hazards 2. Visually recognize compliance and non-compliance issues and situations	5	7	1	1	5,7 5
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School of Construction Program Outcomes

2013-2014

AS	591	713	83%	FA13	322	413	78%	F-F	227	299	76%	83	591	713	83% (591 of 713) of student work samples (projects, exams, quizzes, papers) were scored 70 (out of 100) or better on all assessments supporting ABET Associate Degree Program Specific Criteria 'a' FA13: F-F = 76% (227 of 299); ONL = 83% (95 of 114); SP14: F-F = 100% (17 of 17); ONL = 89% (252 of 283);
								ONL	95	114	83%				
				SP14	269	300	90%	F-F	17	17	100%				
								ONL	252	283	89%				
AS	520	651	80%	FA13	212	276	77%	F-F	190	251	76%	80	520	651	80% (520 of 651) of student work samples (projects, exams, quizzes, papers) were scored 70 (out of 100) or better on all assessments supporting ABET Associate Degree Program Specific Criteria 'b' FA13: F-F = 76% (190 of 251); ONL = 88% (22 of 25); SP14: F-F = 87% (45 of 52); ONL = 81% (263 of 323);
								ONL	22	25	88%				
				SP14	308	375	82%	F-F	45	52	87%				
								ONL	263	323	81%				
AS	177	195	91%	FA13	86	99	87%	F-F	27	28	96%	91	177	195	91% (177 of 195) of student work samples (projects, exams, quizzes, papers) were scored 70 (out of 100) or better on all assessments supporting ABET Associate Degree Program Specific Criteria 'c' FA13: F-F = 96% (27 of 28); ONL = 83% (59 of 71); SP14: F-F = 100% (30 of 30); ONL = 92% (61 of 66);
								ONL	59	71	83%				
				SP14	91	96	95%	F-F	30	30	100%				
								ONL	61	66	92%				
AS	38	41	93%	FA13	16	19	84%	F-F	0	0	0%	93	38	41	93% (38 of 41) of student work samples (projects, exams, quizzes, papers) were scored 70 (out of 100) or better on all assessments supporting ABET Associate Degree Program Specific Criteria 'd' FA13: F-F = 0% (0 of 0); ONL = 84% (16 of 19); SP14: F-F = 100% (4 of 4); ONL = 100% (18 of 18);
								ONL	16	19	84%				
				SP14	22	22	100%	F-F	4	4	100%				
								ONL	18	18	100%				
AS	1271	1514	84%	FA13	513	612	84%	F-F							



Shane Germany

Sketchbook

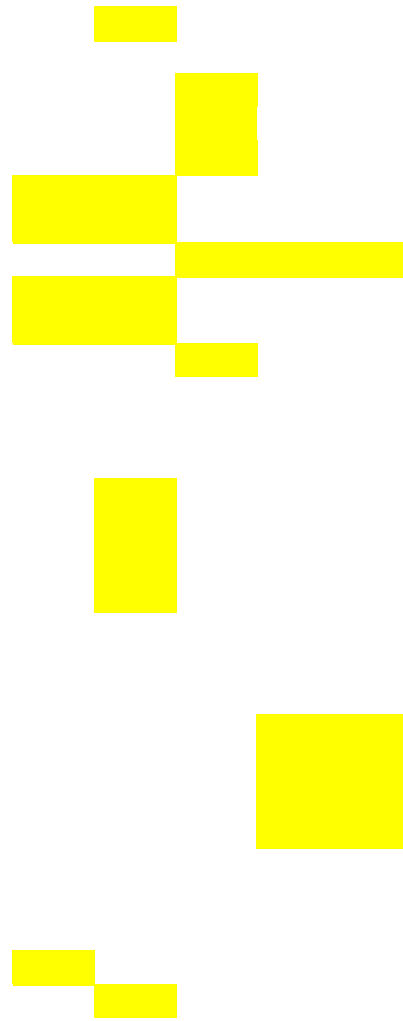
Sketchbook

Sketchbook

CAD Exercises

Quizzes

Final Exercise



Small sample size, similar to BCT comments







Small sample size, ,monitor








Small sample size, ,monitor

14/22 ACT-BCT Students opted not to submit the final or submitted it grossly incomplete; Monitor, prepare students better for the reality of a culmulative final & time commitment;

Jessica Sharp		
3. Assignment 3		Cheating was discovered, so multiple students received a "0" for this assignment. Remediation: Course delivery has been altered to reduce cheating. Assignments are graded but awarded less credit towards the student's overall grade. Exams are now proctored, ensuring each student understands and retains the course materials.
5. Assignment 5		Cheating was discovered, so multiple students received a "0" for their submission. Remediation: Course delivery has been altered to reduce cheating. Assignments are graded but awarded less credit towards the student's overall grade. Exams are now proctored, ensuring each student understands and retains the course materials.
Doris Kemp		
1. Internship agreement		
4. Implement conversation between instructor/supervisor		
		Low numbers of students: no action required

School of Construction Program Outcomes

Sandeep langar			
1 Quiz I			Moniter, small sample
1 Quiz I			Small Sample
2 Quiz II			Moniter, small sample
3 Quiz III			Explicitly mention what the quiz covers
3 Quiz III			Small Sample
4 Quiz IV			Explicitly mention what the quiz covers
4 Quiz IV			Small Sample
6 Team Assignment II			Small Sample
9 Final Exam			Moniter, small sample
9 Final Exam			Small Sample

Sandeep langar			
1 Quiz I			Small Sample
1 Quiz I			
			
			
			
			
			

School of Construction Program Outcomes

2013-2014

GC	1772	1945	91%	GC	2500	2827	88%	GC	1529	2019	76%	
GC	1534	1688	91%	GC	2313	2614	88%	GC	1373	1561	88%	
GC	889	929	96%	GC	779	911	86%	GC	139	154	90%	
GC	954	1017	94%	GC	831	989	84%	GC	1073	1201	89%	
GC	1642	1874	88%	GC	1593	1776	90%	GC	998	1354	74%	
GC	1271	1439	88%	GC	2129	2436	87%	GC	2037	2531	80%	
GC	894	966	93%	GC	1792	1986	90%	GC	1690	2137	79%	
GC	832	929	90%	GC	621	731	85%	GC	379	443	86%	
GC	974	1121	87%	GC	608	694	88%	GC	913	1067	86%	
GC	207	234	88%	GC	302	359	84%	GC	390	548	71%	
GC	2183	2512	87%	GC	2923	3296	89%	GC	1329	1500	89%	
AS	1331	1490	89%	AS	2206	2504	88%	AS	591	713	83%	
AS	1016	1080	94%	AS	1219	1419	86%	AS	520	651	80%	
AS	332	342	97%	AS	c4351	579	628	92%	AS	177	195	91%
AS	832	949	88%	AS	435	509	85%	AS	38	41	93%	
AS	146	195	75%	AS	719	830	835	-0.0	10.7877	308.078	241.4553	Tm(e)Tj/TT09

School of Construction Program Outcomes

2013-2014

			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'a' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'b' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'c' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'd' was 2.8. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'e' was 3.1. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'f' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'g' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'h' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'i' was 3.3. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'j' was 3.1. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'k' was 3.2. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met
			Average of 19 ratings on the evaluation category supporting 2013-2014 ABET Associate Degree Program Specific Criteria 'a' was 3.1. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Met

	Average of 19 ratings on the evaluation category supporting 2013-2014 ABET General Criteria 'd' was 2.8. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Require degree plan check to ensure increased sample size of respondents
	Average of 19 ratings on the evaluation category supporting 2013-2014 ABET Associate Degree Program Specific Criteria 'd' was 2.9. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Require degree plan check to ensure increased sample size of respondents
	Average of 19 ratings on the evaluation category supporting 2013-2014 ABET Baccalaureate Degree Program Specific Criteria 'f' was 2.9. (4 = Very True; 3 = True; 2 = Somewhat True; 1 = Not True)	Require degree plan check to ensure increased sample size of respondents