School of Construction Program Outcomes Construction Engineering Technology (BCT)

ACT 301	Building Codes	Jenna Wright (Adjunct)
AEC 315	Mechanical Systems	Fairuz Shiratuddin (Adjunct)
AEC 316	Electrical Systems	Fairuz Shiratuddin (Adjunct)
AEC 390	Engineering Economics	Md. Sarder
BCT 445/L	Soils and Foundations	(Adjunct)
BCT 458/L	Planning and Scheduling	Sean Regan (adjunct)
BCT 478	Construction Law	Sean Regan (adjunct)

General Criteria (a-k)	20
Associate Degree / Lower division Baccalaureate Degree Criteria	21
Baccalaureate Degree Criteria	22
	23
	28
	29

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.
  - 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 ma

#### 2013-2014

	1. Practice freehand sketching skills of architectural/construction related items						12		12	12				12		
	2. Produce orthographic projections				3-5					3-5						3-5
Sharp	3. Identify common architectural symbols	10,11			6-11	14		11	6-11		6-9,11			6-9,11		11
ACT & BCT	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	<ol><li>Create a partial drawing set of a residence using computer-aided drafting and design software</li></ol>	11			11				11		11					11

FA13

#### 2013-2014

	1. Identify the materials included in CSI Masterformat Divisions 3-14				6							6	6
	<ol><li>Create a report on observations made of materials being applied on both commercial and residential construction sites</li></ol>	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		3
Building Materials													

6

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

#### 2013-2014

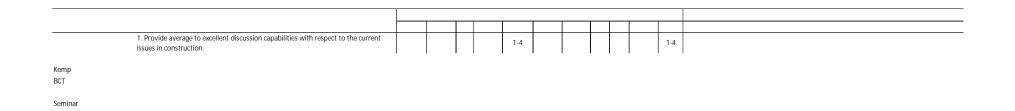
 1. Recognize the functional areas (structure) of the host organization
 3.6.7

 2. Identify functional roles (tasks, responsibilities) in industry and the intern's functional role within the host organization
 3.6.7

 3. Identify to which of the life cycle
 3.6.7

3,6,7

Kemp ACT & BCT



Measure with steel tape, correct for errors, and adjust for temperature and tension 1-3 129700144

	1. Identify and understand Building System and Materials.	6-8	6-8					1-4, 6-8,		6-8			6-	8		
Langar	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	<sup>',</sup> 6-	В	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			FA1	3 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	

										1			1					(
	1. Introduce types of construction contracting systems	4, 6-9		4, 6-9	4, 6-9	4, 6-9			4, 6- 9			7-9						
Langar	2. Define the prevalent types of business ownership	1, 6-9		 1, 6-9	1,6-9	1, 6-9												
	<ol><li>List the duties/functions within overall organizational structure of a construction company</li></ol>	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		
•	<ol> <li>Define and list estimating functions/operations and their relationship to managing a construction company</li> </ol>	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												
	<ol> <li>Familiarize with construction industry, associated stakeholders, and relationship between them</li> </ol>	1, 5, 8, 9		1, 5, 8, 9	1, 5, 8, 9	1, 5, 8, 9												
	<ol> <li>Define the types of construction surety bonds and inurances available and list the uses of each</li> </ol>	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	í –
	10. Define the accounting methods used in the construction industry	4, 7-9		4, 7-9	4,7-9	4, 7-9									1			1
	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	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%

	Site Plan Analysis	1	1		1	1	1		1	1	1	1			1		1			
Basha	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		Í	
	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
 1-4
 1-4

 3.
 Categorize work into various scope packages
 2-4

 4.
 Determine general conditions and overhead costs
 1-4
 1-4
 1-4

	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								
Langar	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			e	6,7	
	6. Understanding of project chronology	6, 7		6, 7	6,7	6, 7			6,7	6	6, 7		6			e	6,7	
	7. Describe and implement job safety management practices	4,6-8		4, 6-8	4, 6-8	4, 6-8				6						4,	1, 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								
	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								

									#students >= C	#students				
	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			A	VG			AVG			AVG	

#### 2013-2014

1

5,7

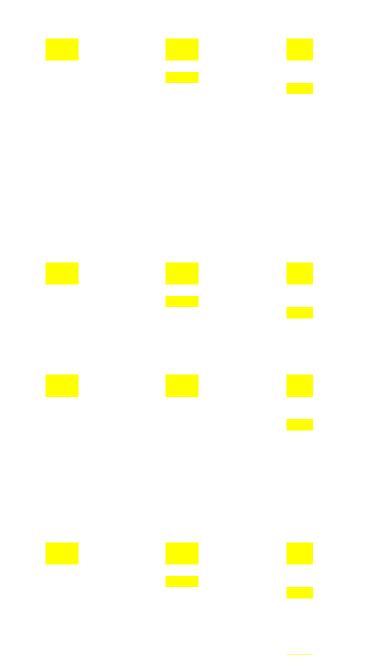
5

Kemp

Locate appropriate CFR reference for various construction hazards
 Visually recognize compliance and non-compliance issues and situations

7 1

5



AS	591	713	83%	FA13	322	413	78%	F-F	227	299	<mark>76%</mark>	83	59	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
								ONL	95	114	83%				FA13: F-F = 76% ( 227 of 299 ); ONL = 83% ( 95 of 114 );
				SP14	269	300	90%	F-F	17	17	100%				SP14: F-F = 100% ( 17 of 17 ); ONL = 89% ( 252 of 283 );
								ONL	252	283	89%				
AS	520	651	80%	FA13	212	276	77%	F-F	190	251	<mark>76%</mark>	80	52	0 651	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
								ONL	22	25	88%				FA13: F-F = 76% ( 190 of 251 ); ONL = 88% ( 22 of 25 );
				SP14	308	375	82%	F-F	45	52	87%				SP14: F-F = 87% ( 45 of 52 ); ONL = 81% ( 263 of 323 );
								ONL	263	323	81%				
AS	177	195	91%	FA13	86	99	87%	F-F	27	28	96%	91	17	7 195	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
								ONL	59	71	83%				FA13: F-F = 96% ( 27 of 28 ); ONL = 83% ( 59 of 71 );
				SP14	91	96	95%	F-F	30	30	100%				SP14: F-F = 100% ( 30 of 30 ); ONL = 92% ( 61 of 66 );
								ONL	61	66	92%				
AS	38	41	93%	FA13	16	19	84%	F-F	0	0	0%	93	38	8 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
								ONL	16	19	84%				FA13: F-F = 0% ( 0 of 0 ); ONL = 84% ( 16 of 19 );
				SP14	22	22	100%	F-F	4	4	100%				SP14: F-F = 100% ( 4 of 4 ); ONL = 100% ( 18 of 18 );
								ONL	18	18	100%				
AS	1271	1514	84%	FA13	513	612	84%	F-F							

Shane Germany	
Sketchbook	
Sketchbook	
Sketchbook	Small sample size, similar to BCT comments
CAD Exercises	Small sample size, ,monitor
Quizzes	Small sample size, ,monitor
Fire al Francis a	14/22 ACT-BCT Students opted not to submit the final or submitted it grossly incomplete; Monitor,
Final Exercise	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: Co delivery has been altered to reduce cheating. Assignments are graded but awarded less credit towa the student's overall grade. Exams are now proctored, ensuring each student understands and reta the course materials.				
Doris Kemp 1. Internship agreement 4. Implement conversation between instructor/supervisor	Low numbers of students: no action required				

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

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	308.078 241.455	53 Tm(e)	)Tj/TT09

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