Assignment 1: ASCE CEBOK3
CE 4200 Professional Practice Issues
Spring 2023 Semester
100 POINTS

Topic: Understanding the ASCE CEBOK3

Type: Individual

I. PURPOSE

The purpose of this learning exercise is to help you comprehend – in both breadth and detail – the relationship between civil engineering skills/ outcomes identified in the *ASCE Body of Knowledge Third Edition* (CEBOK3) and your program of study represented in the undergraduate civil engineering curriculum at Texas Tech University.

A. SKILLS

This assignment is to help you practice the following skills that are essential to your success in this course and in professional life beyond school:

i. Recognize learning objectives represented in your undergraduate courses
ii. Identify and classify CEBOK3 outcomes that exist within an identified learning event (course)
iii. Compare, contrast and prioritize CEBOK3 outcomes within a particular learning event (course)

B. KNOWLEDGE

This assignment will also help you to become familiar with the following important content knowledge in this discipline:

i. Topic 1. The knowledge, skills and attitudes (CEBOK3 outcomes) necessary for entry into the practice of civil engineering
ii. Topic 2. The diversity, complexity and breadth of your civil engineering education

II. TASK

A. WHAT TO DO

Part 1. First, familiarize yourself with the source materials provided as part of Lecture 1. These include:

- Civil Engineering Degree Program, Texas Tech University
- Course descriptions, 2021-2022 Undergraduate and Graduate Course Catalog
- ASCE Body of Knowledge, Third Edition
- This assignment

Part 2. The focus of the assignment is a 1-page form entitled "Compare CE Degree Program vs. ASCE Body of Knowledge Outcomes". This form identifies all courses in the undergraduate civil engineering program (rows) and all 21 outcomes in the CEBOK3 (columns). You will use this form two times.

- First, identify all CEBOK3 outcomes that you think are associated with *each course* in the curriculum (comprehensive)

- Second, identify the *primary CE*BOK3 outcome associated with each course in the curriculum (select only ONE).

Part 3. Having carefully completed both elements of Part 2, write a not-to-exceed one-page narrative wherein you address the following questions:

a. From your comprehensive and selective analysis, state whether you think the CE curriculum adequately and appropriately covers all CEBOK3 outcomes. Are there are any deficiencies and/or unnecessary duplication? Explain your answer.

b. You may have noticed the total credit hours in the curriculum is 129. This number is fixed and cannot change. Do you agree or disagree with 129 hours? Justify your answer.

c. Can you do *better*? Assume the curriculum would benefit from refinement to more fully achieve the CEBOK3 outcomes. Keeping in mind the zero-sum nature of the curriculum; that is, the course credit hour total must remain constant at 129 hours:
    a. What course(s) if any would you delete and likewise, what would you add in its place?
    b. What course(s) should be added and likewise, what would you delete to make room?

This part of the assignment should be typed, 12-pt, double space, 1-inch margin. One page maximum. Penalty for exceeding one page is 50%.

B. HOW TO DO IT

1) Carefully review the source documents. I suggest you start with the form entitled "Compare CE Degree Program vs. ASCE Body of Knowledge Outcomes." This will give you an idea of what you will be looking for. Then, work through the ASCE CEBOK3 to get familiar with each of the 21 outcomes. I assume you are reasonably familiar with our civil engineering curriculum, but I've included a link to the catalog if you need to refresh your memory.

2) Using the form entitled "Compare CE Degree Program vs. ASCE Body of Knowledge Outcomes," first, identify *all* CEBOK3 outcomes that you think are associated with *each course* in the curriculum (comprehensive). I envision you would do this one row (i.e., one course) at a time. Start with the first course (Math 1451) and go through the entire CEBOK3 to identify all the outcomes you think are "significantly" covered in this course. Mark each outcome with a "1" in the appropriate box. Note that the course might only have one outcome, or you might have a course where multiple outcomes are addressed, or perhaps a course exists that does not associate with any outcome. Either way, do your best to call it like you see it. Complete your assessment of the course, and note every outcome you think is reasonably associated. Total up the number of "1's" for that course in the "Totals" column. Then go to the next row (Chem 1307) and repeat. And so on, and so forth. Upon completion, the one-page "comprehensive" form should have 1's where every CEBOK3 outcome is represented in the entire civil engineering curriculum. Be sure to total the number of 1's in each column as well.

3) Use the form again. But this time when you go through each course, for every course that represents *more* than one outcome (for example, CE 4200 represents six outcomes if I counted correctly when I prepared the syllabus), I want you to identify the one outcome you think is the *priority* for the course. That is, you will associate one CEBOK3 outcome – the *primary* one – for each course. Again, it is possible that a course may not be associated with any outcomes. Call it like you see it. Add up and identify the totals for both the rows (most will be "1") and the columns.

4) You now have two copies of the form, one representing a comprehensive association of CEBOK3 outcomes to the CE curriculum, and one representing a selective association. This is *your* evaluation of the civil engineering curriculum. You are now to use this evaluation to answer the three questions identified in Part 3 above. Write up your answers in the form of a not-to-exceed one page narrative.

5) Compile your assignment for submittal. There should be three pages total: your one-page narrative, followed by the comprehensive form (*all* the 1's), and then the selective form (one "1" per course). That is what you will turn in. Follow the homework submittal guidelines carefully (these are posted on the website). HINT: this assignment and ALL assignments *must be* submitted electronically via Blackboard – no email, no paper copies accepted. Also, I *only* accept PDFs – no MSWord documents and no pictures. Also, I only accept *one file* per assignment, so combine the three pages into one file – and upload to Blackboard your one PDF document. This means you will likely need to write up your narrative using MSWord but convert this to PDF, and you will need to print and scan your forms to create a PDF, or maybe take a picture of the forms and convert the photo to a PDF, or something like that before you create the combined PDF file. Again, you must submit one PDF document having three pages for this assignment—no more and no less.

III. CRITERIA FOR SUCCESS

A. CHECKLIST

Overall, your assignment will consist of three pages: your one-page narrative, followed by the comprehensive form (all the 1's), and the selective form (one "1" per course). Here is the detailed grading rubric:

Task	Score	Evaluation Criteria
Comprehensive analysis (20 pts)		
-Identify all CEBOK3 objectives	15	Objectives for each course are appropriate; not too few and not too many
-Appropriately mark all objectives	5	I can easily and clearly see your assessment
Selective analysis (20 pts)		
-Identify primary CEBOK3 objectives	15	The primary objective for each course is reasonable and appropriate
-Appropriately mark objective	5	I can easily and clearly see your assessment
Narrative (30 pts)		
-Response to Q1	10	Assessment of curriculum is reasonable, justified
- Response to Q2	10	Assessment of credit hours is reasonable, justified
- Response to Q3	10	Recommended improvement to curriculum is reasonable, justified
Format and Grammar (30 pts)		
-Format	10	All three pages, PDF, one file, readable
-Major	10	Subject-verb agreement, major wordiness, sentence needs major revision, informality
-Minor errors	5	Proper use of comma, hyphens, capitalization
-Spelling	5	Number and intensity of misspelled words
TOTAL	**100**	

B. EXAMPLES

I have not posted an example for you of prior high-quality work on this assignment. Challenge: make your assignment of sufficient quality so as to become an example for next semester!

COMPARE CE DEGREE PROGRAM VS. ASCE BODY OF KNOWLEDGE OUTCOMES

Semester	Course Number	Credit Hours	Course Description	Mathematics 1	Natural Sciences 2	Social Sciences 3	Humanities 4	Materials Science 5	Engineering Mechanics 6	Experimental Methods and Data Analysis 7	Critical Thinking & Problem Solving 8	Project Management 9	Engineering Economics 10	Risk & Uncertainty 11	Breadth in Civil Engineering Areas 12	Design 13	Technical Depth 14	Sustainability 15	Communication 16	Teamwork & 17	Lifelong Learning 18	Professional Attitudes 19	Professional Responsibilities 20	Ethical Responsibilities 21	TOTALS
FRESHMAN (FALL)	Math 1451	4	Calculus I with Applications																						
	Chem 1307	3	Principles of Chemistry I																						
	Chem 1107	1	Experimental Principles of Chemistry I																						
	EGR 1207	2	Engineering Graphics: Software B																						
	Hist 2300	3	History of the United States to 1877																						
	Engl 1301	3	Essentials of College Rhetoric																						
	CE 1130	1	Civil Enginering Seminar I																						
FRESHMAN (SPRING)	Math 1452	4	Calculus II with Applications																						
	Chem 1308	3	Principles of Chemistry II																						
	Chem 1108	1	Experimental Principles of Chemistry II																						
	Phys 1408	4	Principles of Physics I																						
	Engr 1315	3	Introduction to Engineering																						
	Engl 1302	3	Advanced College Rhetoric																						
SOPHOMORE (FALL)	Math 2450	4	Calculus III with Applications																						
	ECE 3301	3	General Electrical Engineering																						
	CE 2301	3	Statics																						
	CONE 2302	3	Surveying																						
	CE 2201	2	Construction Materials Laboratory																						
	Pols 1301	3	American Government																						
SOPHOMORE (SPRING)	Math 3350	3	Higher Mathematics for Engineers and Scientists I																						
	CE 3303	3	Mechanics of Solids																						
	IE 2324	3	Engineering Economic Analysis																						
	CE 3305	3	Mechanics of Fluids																						
	IE 3341	3	Statistics																						
	various		International Experience																						
JUNIOR (FALL)	CE 3309	3	Environmental Engineering																						
	CE 3171	1	Environmental Engineering Laboratory I																						
	CE 3354	3	Engineering Hydrology																						
	CE 3440	4	Structural Analysis I																						
	CE 3103	1	Mechanics of Solids Laboratory																						
	Hist 2301	3	History of the United States since 1877																						
	CE 3105	1	Mechanics of Fluids Laboratory																						
JUNIOR (SPRING)	CE 3372	3	Water Systems Design																						
	CE 3341	3	Principles of Structural Design																						
	CE 3302	3	Dynamics																						
	CE 3321	3	Introduction to Geotechnical Engineering																						
	CE 3121	1	Geotechnical Engineering Laboratory																						
	Pols 2306	3	Texas Politics and Topics																						
SENIOR (FALL)	CE 4200	2	Professional Engineering Practice Issues																						
	CE 4343	3	Design of Concrete Structures																						
	various	3	Design Elective ONE																						
	various	3	Oral Communication																						
	CE 4361	3	Transportation Engineering																						
SENIOR (SPRING)	CE 4330	3	Design of Engineering Systems																						
	various	3	Design Elective TWO																						
	ENGR 2392	3	Engineering Ethics and its Impact on Society																						
	various	3	Creative Arts/ Multicultural																						
	various	3	Basic Science Elective																						
		129	TOTALS																						