Construction Management BS

Demonstrate Construction Management Knowledge and Skills

Goal Description:

Students will demonstrate knowledge and skills relevant to Construction Management.

Providing Department: Construction Management BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Development Of Students' Knowledge And Skill

Learning Objective Description:

Students will be able to demonstrate competency in key areas of Construction Management by successfully displaying skills in an Estimation Course. The Estimation Course serves as a capstone requirement with required skills in construction math, material pricing, bid tabulation, and project scheduling.

RELATED ITEM LEVEL 2

ETCM 4310 Construction Cost Estimating - Knowledge and Skills

Indicator Description:

The proposed indicators focus on evaluating the effectiveness of the teaching and learning process specific to cost estimation techniques, principles, and skills:

- Demonstrates knowledge of basic cost estimation principles, methods, and terminology.
- Understands the relationship between cost estimation and project planning.
- Shows comprehension of key cost factors, such as labor, materials, overhead, and contingencies.
- Applies appropriate units of measurement and cost estimation techniques.

Utilizes various cost estimation methods to different project scopes and complexities.

Criterion Description:

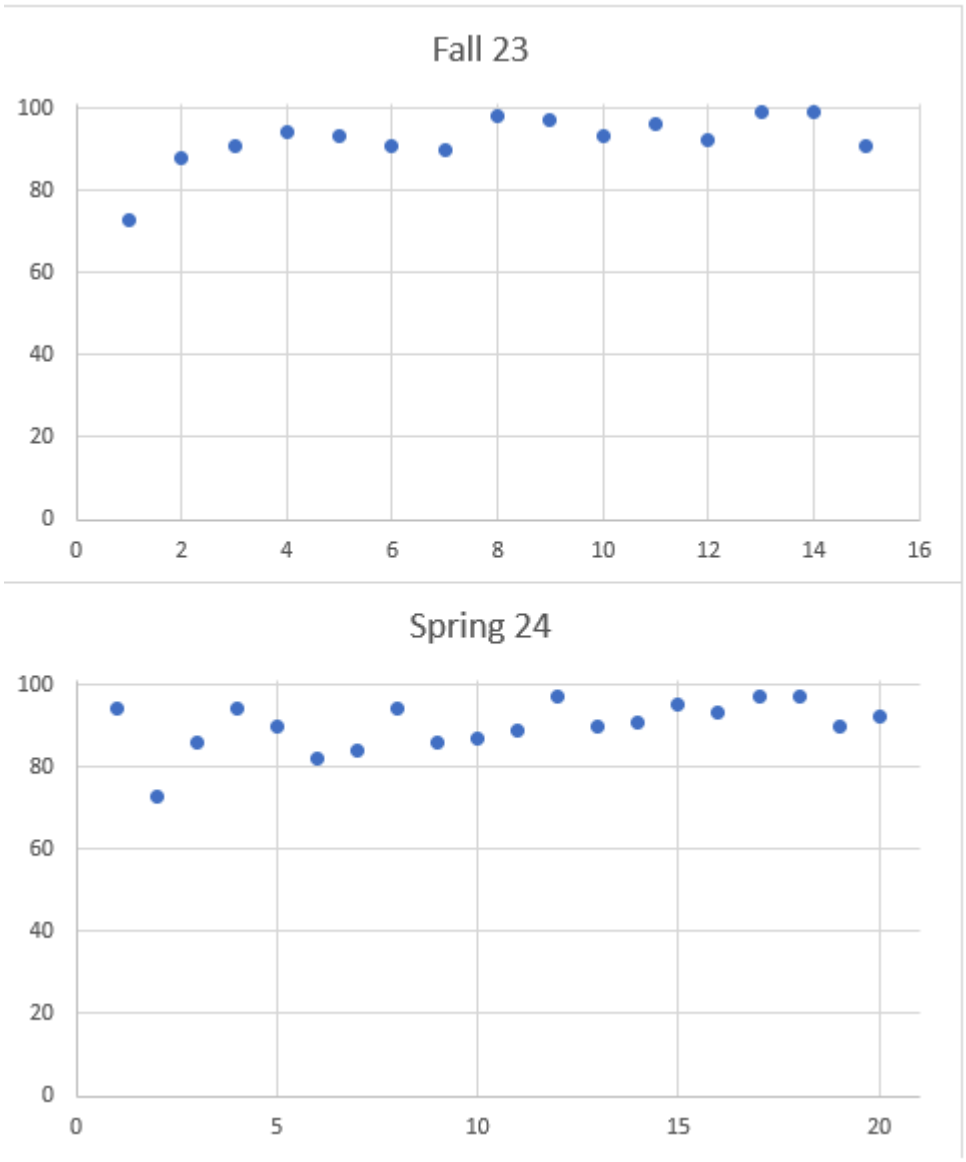
To evaluate students' knowledge of basic cost estimation principles, methods, and terminology, and their understanding of the relationship between cost estimation and project planning, two homework assignments were employed. These assignments required students to apply cost estimation principles and methods for a project scenario. The students' ability to accurately analyze project requirements and generate realistic cost estimates was evaluated.

To evaluate students' comprehension of key cost factors and their ability to apply appropriate units of measurement and cost estimation techniques, two homework assignments were employed. The students were provided with project scenarios and asked to develop a cost estimate using the appropriate techniques and terminology. Their ability to accurately analyze project requirements and generate realistic cost estimates was evaluated.

The students' knowledge of various cost estimation methods to different project scopes and complexities was evaluated by written exams. The midterm and final exams included questions about different estimation techniques, cost factors, formulas, and industry standards.

Findings Description:

For Fall 2023, the class consisted of 15 students. Out of these, 14 students successfully scored 75% or higher, translating to 93.33% of the class meeting the benchmark. This significantly exceeds the set benchmark of 80%. In Spring 2024, the class size increased to 22 students. From this group, 20 students scored 75% or higher. The compliance rate in this instance was 91.67%, again surpassing the established benchmark of 80%. These results indicate strong performance across both semesters, with a consistent majority of students achieving scores above the set threshold. This trend demonstrates effective teaching strategies and student comprehension of the material.



In the academic terms of Fall 2023 and Spring 2024, students were assessed against the benchmark requiring that at least 85% score a minimum of 4 on a 5-point rubric in their final project evaluations. During Fall 2023, 93.33% (14 out of 15) of the students met or exceeded this benchmark, with a significant majority scoring the maximum of 5. The performance trend continued upward in Spring 2024, where 95% (21 out of 22) of the students achieved scores of 4 or above, including a substantial number securing the top score. These results indicate a consistent surpassing of the benchmark and highlight the effectiveness of the curriculum and instructional strategies, underscoring strong student capabilities and dedication across consecutive academic terms.

RELATED ITEM LEVEL 3

ETCM 4310 Construction Cost Estimation- Knowledge and Skills

Action Description:

1. Enhance Instructional Methods:

Action: To further improve exam performance, the course will incorporate real-world cost estimation scenarios, allowing students to apply theoretical knowledge in a practical setting.

Responsible Group: Course instructors.

Completion Date: To be implemented from the start of the next academic year.

Rationale: a need for more practical, application-based learning opportunities.

2. Review and Expand Course Content:

Action: The curriculum will be reviewed to ensure it includes the latest industry standards and technologies related to cost estimation. This may include guest lectures from industry professionals and updates to course materials.

Responsible Group: Course instructors.

Completion Date: To be implemented from the start of the next academic year.

Rationale: address the need for students to be exposed to current and comprehensive industry practices.

4. Strengthen Assessment Methods:

Action: Develop a more robust rubric for the final project evaluation, with clearer criteria that align closely with industry expectations.

Responsible Group: Course instructors.

Completion Date: To be developed and ready for use in the next academic year.

Rationale: The need for a more detailed rubric was identified based on the variance in project scores and the goal of achieving greater consistency and alignment with professional standards.

Develop Professional Skills

Goal Description:

Students will gain necessary work force experience to compete in the construction field.

Providing Department: Construction Management BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Demonstrate Professional Skills

Learning Objective Description:

Students completing the BS in Engineering Technology will demonstrate skills necessary to compete in the professional marketplace through an internship.

- Students completing the BS in Engineering Technology will demonstrate skills necessary to compete in the professional marketplace through an internship.
- Students will establish a professionalism to be ready to start their successful careers in each professional field through an internship.
- Students will improve their written, oral, and graphical communication skills with stakeholders in each professional field to maintain professional working relationships.

At the conclusion of these courses, the student will have demonstrated successfully the following competencies:

1. Work in an Industrial Environment.
2. Work in either a Field Management, a Construction Management, a Superintendent Management, Project Management, Safety Management or combinations of responsibilities.
3. Develop the required reports and maintain progressive reviews that identify the progress being made on the project.
4. Supervise workers in the various trades that are under their responsibilities.
5. Write change orders on specification sheets.
6. Prepare project documents and resources to support the activities for a project.
7. Communicate with subcontractors and maintain professional working relationships.
8. Write and maintain punch list and other required documentation.
9. Exhibit characteristics associated with successful employment in industry.

RELATED ITEM LEVEL 2

ETEC 4391 Internship Evaluation

Indicator Description:

Students enrolled in the program should complete ETEC 4391 in the end of their third or final year (Junior or Senior) of enrollment.

ETEC 4391 addresses key concepts and skills, as well as practical demonstrations of competency relevant to the field of each program in the Department of Engineering Technology. All students in this course will be evaluated by their internship supervisor and by their course instructor on a faculty-developed rating scale.

Students need to meet the below student eligibility to register ETEC4391 for 3 credits or 6 credits.

- Minimum semester hours - 32 hrs. Including 21 within the academic major for your degree program or the 15 within the academic minor for your minor program. Some internships may specify courses / content to have been completed.
- Minimum grade of “C” or higher in ENG 1301 and 1302 or equivalent.
- Transfer students become eligible upon the successful completion of one full-time semester if all other eligibility requirements are fulfilled and apply according to

instructions on announcements.

- Special information regarding Industrial Technology Trades and Industry Certification Program internships (ETEC 4391) - Due to the unique structure of this program, the above listed eligibility requirements do not apply. See the Trades and Industry Certification Program coordinator regarding specific requirements for this program.

The students in ETEC 4391 in Summer 2022 were evaluated by the following detail rubric:

COURSE EVALUATION – GRADING: 100 POINT SCALE

Weekly Reports [10 weekly reports]	20 Points
Summary of Syllabus	3 Points
Resume	3 Points
LinkedIn	2 Points
EMAIL Communication Skills	2 Points
ONLINE Video Review and Summary (1 video)	10 Points
FINAL SUMMARY PAPER	20 Points
FINAL SUMMARY PRESENTATION	20 Points
Supervisor's Evaluation	15 Points
Supervisor's working hour verification letter	5 Points
TOTAL	100 Points

Grade Scale - Final grades will be based upon the following points.

Your final numerical point will ROUND OFF to THE NEARNEST WHOLE NUMBER.

A = +90 Points

B = 80 – 89 Points

C = 70 – 79 Points

D = 60 – 69 Points

F = under 60 Points

Criterion Description:

It is expected that at least 85% of the students enrolled in ETEC 4391 will achieve above average standard (B or higher) of performance on the supervisor evaluation rating scale and the final letter grade. In general, if the students in ETEC 4391 miss to submit any assignments, the assignments not submitted will impact their final grades by two letter grades.

All assignments should be submitted to Blackboard by the specific due dates as below.

Assignments	Due Date
10 Weekly Reports (Weekly Logs) (6/1/2022 – 8/2/2022: 10 weeks)	By Midnight, Every Sunday i.e. The 1st Weekly Report (5/30/2022-6/3/2022) → By Midnight, 6/5/2022 (Sunday)
Summary of Syllabus	6/5/2022
Resume	6/5/2022
LinkedIn	6/12/2022
ONLINE Video Review and Summary (1 Video)	6/19/2022
EMAIL Communication Skills	No due date. (Based on your email communication between a student and an instructor)
FINAL SUMMARY PAPER	7/24/2022
FINAL SUMMARY PRESENTATION	7/24/2022
Supervisor's Evaluation	7/24/2022

Supervisor’s working hour verification letter	7/24/2022

Weekly Reports are due Midnight, Every Following Sunday:
Follow and use the format as posted on Blackboard.
Don’t modify the template and fill in every required information on the format.
Please describe your daily activities as specific as you can like the sample.
If your internship begins before the semester, please fill out your daily activities to the attached template and submit your weekly reports to the first week of summer semester.
For instance, if your internship begins 5/15/2023, please write 2 weekly reports from 5/15 to 5/19 and from 5/22 to 5/26 and submit 2 weekly reports with the 1st weekly report (5/29-6/2) to the folder of the 1st weekly report.

Resume:
Example will be on Blackboard – follow the example closely. Upload all your Weekly Reports to ETEC4391-1 on Blackboard before or on due date posted on Blackboard.

LinkedIn Profile:
You will develop a professional LinkedIn profile as a requirement for ETEC 4391, and you should update your profile including your current internship. And then please link your profile to Dr. Min Jae Suh and the LinkedIn page of “Sam Houston State University - Engineering Technology”.

Summary of Syllabus:
This course is an online course, and the course instructor confirms that students read a course syllabus carefully or not. Students summarize key points or core contents after reading the course syllabus.

Email Communication Skills:
When you send your email properly and professionally to a course instructor. One of the purposes of this courses is to improve your professional commination skills. Additionally, the email is the best way to communicate between the instructor and the student because this is ONLINE courses. Please check your school email once a week at least!

Video Review and Summary:
An announcement/notification will be posted to ETEC4391-1 on Blackboard including the link to the video. You will watch the videos and summarize the video topics. 1-page summary should be uploaded before or on the due date to Blackboard.

Supervisor’s Evaluation:
Download the Supervisor Evaluation from Blackboard. Have your immediate supervisor complete the evaluation and email it to Dr. Min Jae Suh, mjs068@shsu.edu

Supervisor’s Working Hour Verification Letter:
The letter should include student’s total working hours at a jobsite to verify complete student’s working hours and potential future working hours to meet 300 working hours or 600 working hours. The letter should be prepared by student’s supervisor or HR and include his/her signature in the letter. There is no specific format, but you can find samples for this letter.
Based on your working hour verification letter, I can confirm you can make 300 working hours or 600 working hours during your internship before or after Summer 10 Semester.
Please see the samples!

Final Summary Paper:
Submit a 2-3 page, 1.5-spaced paper. The paper should describe the history of the company in which you are interning, the job title and description for your position, the actual activities / duties / job tasks you completed while interning and your personal thoughts of the internship such as pros and cons.

Final PPT or Video Presentation:

Create a Power Point presentation that illustrates your internship experience. You will need to include pictures showing the projects / activities you performed.
Upload the presentation file to Blackboard on or before the due date.
OR
Create a 4-5 minute video that describes your experience using a self-recording.
For both of the presentations you need to identify the company, job title, skills you learned, location, travel expected, activities and/or duties you preformed, and pros and cons of your internship. Also include examples of the classes you have taken that supported your experience and skills you think should be included or added to the courses of your major.

Findings Description:

There were 68 Engineering Technology students enrolled in ETEC4391-01 and/or 02 in Summer 2023. The number of students in ETEC4391-01 and/or 02 was increased by one student. Most students successfully completed this course in Summer 2023. The summary of our findings in relation to the learning objectives is shown in the table below.

Summarized Students' Course Achievements	
Directly supported learning objectives and student outcomes:	-Students completing the BS in Engineering Technology will demonstrate skills necessary to compete in the professional marketplace through an internship. 1.Work in an Industrial Environment. 2.Work in either Field Management, Construction Management, Superintendent Management, Project Management, Safety Management, or combinations of responsibilities. 3.Exhibit characteristics associated with successful employment in industry.
	-Students will establish a professionalism to be ready to start their successful careers in each professional field through an internship. 4. Develop the required reports and maintain progressive reviews that identify the progress being made on the project. 5. Supervise workers in the various trades that are under their responsibilities. 6. Write change orders on specification sheets. 7. Prepare project documents and resources to support the activities for a project.
	-Students will improve their written, oral, and graphical communication skills with stakeholders in each professional field to maintain professional working relationships. 8.Communicate with subcontractors and maintain professional working relationships 9.Write and maintain punch list and other required documentation.

Student's internship supervisors submitted their supervisor's evaluations with their evaluation rating scale and observations to a course instructor, and the evaluation rating was determined by immediate student's internship supervisor using 5 rating scale from A to F and it was based on the performance of internship student at their jobsite during their internship program. 93% of internship students received 'A' from their internship supervisors and 6% of internship students received 'B'. Therefore, 99% of students in this course achieved an A or B from their internship supervisor at their internship employers. Only one student out of 68 students could not receive a student's supervisor's evaluation from a supervisor. The percent in Summer 2023 was almost the same as Summer 2022 and the percent was higher than the target percentile of ETEC4391-1 and/or 2 in summer 2023.

99% of students completed the course in Summer 2023 and 91% of students successfully received above average final letter grades, A or B, at the end of semester. The summary of the distribution of final letter grade is as follows: 91% of students in ETEC4391-01 and/or 02 students achieved above the average final letter grade, and the percentile is higher than the target of criterion, at least 85%

of the students enrolled in ETEC 4391 will achieve above average standard (‘B’ or higher). 4% of students achieved ‘C’, 3% of students achieved ‘D’, and 1% of students could not pass this course in Summer 2023. Overall, the percentile of students who received above average standard (B or higher) was almost similar to Summer 2022.

RELATED ITEM LEVEL 3

ETEC 4391 Internship Evaluation

Action Description:

To improve this course, a course instructor considers students’ professionalism at their workplaces and work ethics. That is the reason why the instructor wants to see their communication skills and weekly logs as one of assignments. Also, the instructor wants to see their professional writing skills and presentation skills through weekly logs, final presentation, and final reports. The instructor tries to develop online supervisor’s evaluation form to provide more convenience to student’s supervisors and improve the efficiency to integrate supervisor’s feedback for our students.

Update to Previous Cycle's Plan for Continuous Improvement Item

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary

The BS in Construction Management keeps updating the course curriculum to meet the ABET ANSAC requirements, the needs of students, and the demand of construction industry. Concurrently, the program tries that all equipment, manpower, and other needs will be provided to implement revised curriculum for students in Construction Management without any challenges or barriers.

Update of Progress to the Previous Cycle's PCI:

The BS in Construction Management revised course curriculum and restructured the course flow to offer the effective course order for CM students. The revised curriculum and course flow can provide more educational options to students in Construction Management and meet the current industry needs. In addition, CM faculty will keep developing new course to follow the trend of construction industry and new student’s needs.

New Plan for Continuous Improvement Item

Closing Summary:

The BS in Construction Management keep updating the course curriculum to minor discrepancies between academia and construction industry and to meet the ABET ANSAC requirements. Also, CM faculty keep monitoring the needs of students to offer innovative courses and improve educational environment. Concurrently, the program tries that all equipment, manpower, and other needs will be provided to implement revised curriculum for students in Construction Management without any challenges or barriers.

Starting from the next academic year, we will integrate practical, real-world experience in cost estimation, which will help bridge the gap between theoretical knowledge and practical application. This initiative, led by the course instructors and supported by the curriculum development team, aims to improve exam performances by providing students with a hands-on learning environment.
Additionally, we will undertake a review and update of the curriculum to include the latest industry standards and technologies, with the updated content ready for the start of the next semester. Moreover, a detailed rubric for evaluating final projects will be developed and implemented in the next academic cycle. This rubric will provide clearer criteria that reflect industry expectations and ensure a consistent and rigorous assessment of student projects.

Finally, we will establish regular semesterly review meetings to assess the effectiveness of these actions and make necessary adjustments.