Engineering Design Technology BS

Develop Knowledge And Skills

Goal Description:

Students will develop theoretical knowledge, practical skills with 3D modeling tools, and hands-on practical skills relevant to the Engineering Design Technology, including becoming proficient in using design software packages, developing critical think skills, generating additive or subtractive manufacturing prototypes, and writing technical documents.

Providing Department: Engineering Design Technology BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Development Of Students Knowledge And Skill

Learning Objective Description:

Students will demonstrate competency in applying product design and development tools such as Creo Parametric, AutoCAD, Solidworks (CAD) software and 3D printer to design and prototype products.

Attached Files

EDT Assessment-Plan-Summary_Learning Objective Description.pdf

RELATED ITEM LEVEL 2

ETDD 4339 Computer-Aided Drafting Productivity

Indicator Description:

All students enrolled in the program are required to complete ETDD 4339 and successfully demonstrate effective use of resources and acceptable designing skills. Each semester, seven randomly selected assignments from five randomly selected students enrolled in the course will be reviewed by faculty members with expertise in the field. Faculty members will utilize Table Expectations to decide whether a student has meet criteria for the course (meets expectations, exceeds expectations, and far exceeds expectations) or not (below expectation).

Criterion Description:

There is a general consensus among faculty members that at least 70% of the students enrolled in ETDD 4339 will perform at an acceptable level with a score of 3.5 (meets standards) or higher.

Assignments:

There are two types of assignments: In-class Labwork Assignments (Classwork CW) and Homework Assignments (HW). CW assignments are given based on the techniques discussed in the class. Unless otherwise specified by the instructor, in-class lab assignments must be completed in the class meeting hours.

Final Grading: Final grades will be determined by assigning the following weighting to each area:

Attendance and Observed Performance:	10%
Homework Assignments:	20%

In-class (Classwork) Assignments: 10%
Group Project: 10%
Mid Term Exam (15%)/Quiz (10%): 25%
Final Exam: 25%

Grading Scale

A (90-100)
B (80-89)
C (70-79)
D (60-69)
E (<60)

Part Grading				Total
Sketch				
	Weak Dimensions	25%		100%
	Broken & Overlapping lines	25%		
3D Model				
	3D Tools	50%		

Drawing Grading		Total
Views		

	Orthogonal	12.50%	50%	100%
	Projected	12.50%		
	Sections, Aux, Detail	25%		
Dimensions				
	Dimensions	25%	50%	
	Datums, Axis	25%		

Assembly Grading				Total
Assembly				
	Constraints	12.50%	50%	100%
	Orientation	12.50%		
	Sections	25%		
Assembly Drawing				
	Views	25%	50%	
	BOM	25%		

Findings Description:

For the Spring 2024 semester, the course **ETDD 4339 – Advanced CAD** has a detailed performance breakdown for each student, similar to previous offerings in Spring 2022, Fall 2022, and Spring 2023. Here's an interpretation of the provided table:

CW	HW	Att	Grp Project	MT	Quiz	Final	Average	EC (CW)	Final Grade
9.872222222	17.46793651	10	10	15	8.8	25	96.14015873	19	100
9.896296296	15.98666667	10	10	15	9.65	25	95.53296296	2	100
0.766666667	0	1.111111111	0	0	0	0	1.877777778	0	1.877777778
12.59259259	19.50031746	10	10	15	5	25	97.09291005	32	100
0.727777778	0	1.111111111	0	4.95	0	0	6.788888889	0	6.788888889
7.627777778	15.26984127	7.777777778	10	15	9.5	25	90.17539683	3	100
8.594444444	16.76126984	8.888888889	10	15	7.9	25	92.14460317	0	100
9.814814815	19.93650794	8.888888889	10	15	10	25	98.64021164	15	100
2.58047619	5.566666667	3.333333333	0	7.5	9.5	0	28.48047619	0	28.48047619
12.96666667	19.97777778	10	10	15	9.75	25	102.6944444	34	100
5.951851852	10.27619048	7.777777778	10	14.25	8.9	25	82.15582011	0	100
1.740740741	0	1.111111111	0	0	0	0	2.851851852	10	2.851851852

Explanation:

- **CW (Class Work)**, **HW (Homework)**, **Att (Attendance)**, **Grp Project (Group Project)**, **MT (Midterm)**, **Quiz**, and **Final**: These columns represent the scores in various components of the course.
- **Average**: Represents the average score of the student before extra credit.
- **EC (CW)**: Extra credit points added from class work.
- **Final Grade**: The final grade after considering all components and extra credit.

Key Points:

- **High Achievers**: Most students scored high, with final grades of 100.
- **Struggling Students**: A few students scored very low, indicating potential issues with attendance and assignment submission.
- **Extra Credit**: Some students received significant extra credit, boosting their overall scores.

This detailed performance data helps in understanding the distribution of grades and identifying areas where students might need additional support or encouragement. Overall 70% or more did better than 70% passing grade, where 2 students dropped the course.

RELATED ITEM LEVEL 3

ETDD 4339 Computer-Aided Drafting Productivity

Action Description:

The findings indicate that students are generally achieving success in the ETDD 4339 Computer-Aided Drafting Productivity course. Success is gauged against professional benchmarks, including timely submission of assignments, effective participation in group term projects, and the delivery of presentations meeting professional standards. However, the instructor has observed a challenge among students regarding time management, likely stemming from feeling overwhelmed by the college experience since the students that received the failing grade dropped the course toward the end of semester, which we assume they are taking too many classes. Communicating with those students, one indicated that they were busy with off campus work and will repeat the course in the upcoming semesters.

To support students in overcoming these challenges, the instructor plans to implement the following strategies:

1. Reminder Emails: The instructor will continue sending reminder emails for upcoming assignments. These reminders aim to help students stay on track with their coursework and ensure timely submission of assignments.

2. Recorded Lecture Notes: Additionally, the instructor will persist in uploading recorded lecture notes on the Blackboard platform. Access to these resources can aid students in reviewing course material at their own pace, reinforcing understanding and facilitating better time management.

Develop Professional Skills

Goal Description:

Students completing the BS in Engineering Design will demonstrate skills necessary to compete in the professional marketplace through an internship as well as develop practical hands-on prototypes throughout the courses.

Providing Department: Engineering Design Technology BS

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Demonstrate Professional Skills

Learning Objective Description:

This is a computer applications course for design and drafting and introduces students to the techniques used to produce technical models/drawings. Students will learn drafting practices and how to apply them using computer-aided software. Prior knowledge of drafting software and/or prior experience of working with computers is advantageous, but not required/expected. Students will produce technical drawings using various computer design and drafting practices. Concepts of 2D drawings will be covered along with an introduction to three-dimensional parametric modeling. The intent is to develop fundamental knowledge and skills that are conceptually applicable to any computer-aided design (CAD) system. We define the expectations for this course as below:

Table Expectations

Grade Points	Expectations
<60%	Fails to meet expectation
60% >	Meets Expectations
70%>	Exceeds Expectations
90% >	Far Exceeds Expectations

Table ETDD 1

10%	10%	15%	10%	25%				
Att	Grp Project	MT	Quiz	Final	Average	EC(CW)	Final Grade	Letter Grade
10	10	15	8.8	25	96.14	19	100	A
10	10	15	9.65	25	95.53	2	100	A
1.11	0	0	0	0	1.87	0	1.87	F
10	10	15	5	25	97.09	32	100	A
1.11	0	4.95	0	0	6.78	0	6.78	F
7.77	10	15	9.5	25	90.17	3	100	A
8.88	10	15	7.9	25	92.14	0	100	A
8.88	10	15	10	25	98.64	15	100	A
3.33	0	7.5	9.5	0	28.48	0	28.48	F
10	10	15	9.75	25	102.69	34	100	A
7.77	10	14.25	8.9	25	82.15	0	100	A
1.11	0	0	0	0	2.85	10	2.85	F

Table ETDD 1 provides a comprehensive breakdown of term scores for the Spring 2024 semester. The table encompasses various assessment components such as Attendance (Att), Group Project (Grp Project), Midterm (MT), Quiz, Final, Average, Extra Credit (EC), Final Grade, and Letter Grade.

Each row corresponds to a student's performance across these categories. Notably, out of the 12 registered students, 4 individuals received failing grades, evident from the 'Letter Grade' column where the grade is denoted as 'F'. These students, who attended classes only for the initial three weeks of the semester and subsequently ceased attending or dropping the course, are represented by the rows with failing grades.

The passing student percentage, calculated as 66.6%, indicates that the majority of students received passing grades for the term. Considering all 4 dropped the course mid semester, the passing grade is still 100% for the course.

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.

1. 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.

2.Minimum grade of “C” or higher in ENG 1301 and 1302 or equivalent.

3.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.

4.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 2023 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 (5/29/2023-6/2/2023) → By Midnight, 6/3/2023 (Sunday)
Summary of Syllabus	TBD
Resume	TBD
LinkedIn	TBD
ONLINE Video Review and Summary (1 Video)	TBD

EMAIL Communication Skills	No due date. (Based on your email communication between a student and an instructor)
FINAL SUMMARY PAPER	TBD
FINAL SUMMARY PRESENTATION	TBD
Supervisor's Evaluation	TBD
Supervisor's working hour verification letter	TBD

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 below table.

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 a Field Management, a Construction Management, a 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 A or B from their internship supervisor at their internship employers. Only one student out of 68 students could not receive 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 with Summer 2022.

RELATED ITEM LEVEL 3

ETEC 4391 Internship Evaluation

Action Description:

To improve of this course, a course instructor considers student's 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 feedbacks 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 program faculty will continue to address the observations regarding the needs of an additional dedicated course addressing construction law and recruitment. Additional full-time faculty with the increasing number of students entering the program. Newly hired faculty for ETEC that teach ETDD 1361 will collaborate with other program faculty and will attend the bimonthly meetings to observe and monitor the consistency of ETDD 1361.

Update of Progress to the Previous Cycle's PCI:

The BS in Engineering Design technology has hired a new lecturer to support ETDD 1361 courses in the fall 2024 semester. Additionally, the newly hired professor of practice has also been teaching ETDD 1361 courses every semester. She (newly hired ETEC faculty) has been attending bimonthly meetings as well as the program retreat meetings with her inputs regarding the program's overall functions and course contents.

New and existing faculty will follow a standard syllabus so that all of the sections are standardized. The topics are listed below

New Plan for Continuous Improvement Item

Closing Summary:

The BS in Engineering Design Technology uses BS in Construction Management's internship course that 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. The design program will continue using the internship course.