

Design and Development BS -
Assessment Plan Summary

Design and Development BS

Develop Knowledge And Skills

Goal Description:

Students will develop knowledge and skills relevant to Design and Development.

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Development Of Students’ Knowledge And Skill

Learning Objective Description:

Students will demonstrate competency in key areas of Design and Development.

RELATED ITEM LEVEL 2

ETDD 4339 Design And Development Course Rubric

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 score the assignments using a scale of 1 - 5 with 3 "meets expectations," 4 "exceeds expectations," and 5 "far exceeds expectations."

Criterion Description:

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

Findings Description:

The five randomly selected students performed at an acceptable level with scores range from 3.25 to 4.4. Among these students four (80%) scored higher than the 3.5 minimum level expected. The one student scored 3.25 based on the assessment rubric.

Advanced Computer Aided Design Rubric

ITEC 4339

Individual Student Term Project (Product Design)

Overall Report for 5 Students

	1	2	3	4	5	Score
Identify the Need – Assessing the Problem	Insufficient	Somewhat Sufficient	Acceptable	Good	Knowledgeable with Depth of Understanding	4
Concept Design Brainstorming Solutions – Literature Research	Poor	Minimum Acceptable/Passing Score	Understand Concepts	Knowledgeable	Excellent	3.4
Knowledge of Free Hand Sketching – Communicating with Others	Beginning/Little Understanding	Minimum Acceptable/Passing Score	Satisfactory	Good	Proficient	3.2
Understanding of Design Process	Needs Work	Below Expectation/Average	Intermediate	Good	Very Concise	4.3
Computer Aided Design Application	Lack of Knowledge	Adequate	Acceptable	Competent	Exemplary	4.6
Working Drawing Development	Needs Work	Average	Meet Expectations	Concise	Excellent	4.2
Prototyping	Poor	Somewhat sufficient	Acceptable	Functional	Fully Functional	4
Test and Redesign	Needs Work	Tolerable	Satisfactory	Good	Advanced	4.2
Project Presentation	Poor	Below Average	Satisfactory	Well Organized	Well Prepared/Fluent	4.2
Final Report/Design Journal	Insufficient	Somewhat sufficient	Acceptable	Well Organized	Excellent	4.1
Total Score/Average for 5 Students:						4.02

Goal

In this advance design course, the individual term projects are assessed. On average of 70% of the assessed projects with score 3.5 or higher are considered success of the projects.

Identify Problem - Areas of Improvement

- Students scored low on the section of “Knowledge of Free Hand Sketching and Communication with Others”.
- Brainstorming skills and literature review should be studied more deeply.

Potential Solutions to Improve the Low Scored Sections

- Instructor will work with the instructors who teach freshman and sophomore level engineering graphics, product design and development, basic drafting to develop freehand sketching and brainstorming skills of the students prior taking this advance level course.

- Course instructor will come up with a form summarizing skillset needed for this course targeting transfer students who take the entry level design courses at the junior colleges. Instructor will work with those students who has low skillset on especially product design steps and sharing project ideas through hand-sketching.
- Instructor will spend more time on dimensioning and prototyping.
- Students will be provided more example projects accomplished by others.

RELATED ITEM LEVEL 3

Development of Students' Knowledge and Skill

Action Description:

Four out of the five randomly selected students for assessment performed at higher than the 3.5 minimum level expected. The one student failing to meet the assessment rubric at a score of 3.25. It is expected that future students will achieve at a similar level that is 80% of students enrolled in this course will score a 3.5 or higher score based on the assessment rubric.

Develop Professional Skills

Goal Description:

Students will learn the skills necessary to compete in the professional marketplace.

RELATED ITEMS/ELEMENTS -----

RELATED ITEM LEVEL 1

Demonstrate Professional Skills

Learning Objective Description:

Students completing the BS in Design and Development (D&D) will demonstrate skills necessary to compete in the professional marketplace through an internship.

RELATED ITEM LEVEL 2

ETEC 4391 Internship Evaluation

Indicator Description:

All students enrolled in the program must complete ETEC 4391 in their final year of enrollment. ETEC 4391 addresses key concepts and skills relevant to the field of design. Each semester interns will be evaluated by their internship supervisor and by their faculty supervisor on a faculty-developed rating scale.

Criterion Description:

There is a general consensus among ETEC faculty members who review internship assessments that at least 80% of the students enrolled in ETEC 4391 demonstrated an above average level of performance on the rating scales.

Findings Description:

There were five students pursuing the BS in Engineering Technology enrolled in ETEC 4391 in Spring 2017, the semester of assessment. The students completed the assigned weekly reports with a score of 5 on a 5 points scale.

RELATED ITEM LEVEL 3

Development of Professional Skill

Action Description:

There were 5 student pursuing the BS in Engineering Technology enrolled in ETEC 4391 during this assessment circle, and earned a score of 5 on a 5 points scale. We will continue monitoring student performance on an annual basis and be diligent in continuous assessment of this learning objective to ensure that our students are prepared to meet the demands of a dynamic marketplace. We consider the current criterion description of 85% of Construction Management students enrolled in the course scoring a 4 or higher appropriate, and will continue the effort to meet and exceed it.

Update to Previous Cycle's Plan for Continuous Improvement

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

We must be diligent in continuous assessment of the learning objective, "Development of Professional Skills", particularly latest tools for design and development of product, to ensure that our students are well prepared for the dynamic marketplace. We will continue our efforts to meet and exceed the criterion description of 80% students scoring 3.5 or higher.

The five randomly selected students for assessment performed at an acceptable level with 80% (4 out of 5) scored higher than the 3.5 minimum level expected. The one student failing to meet the standard scored a 3.25 on the assessment rubric. It is expected that future students will achieve at a similar level. We may consider moving the criterion description of 80% of students enrolled in this course scoring a four or higher on the assessment rubric.

Update of Progress to the Previous Cycle's PCI:

We will continue to assess of the learning objective, "Development of Professional Skills" to ensure that our students are well prepared for the dynamic demands of the marketplace. We will continue to meet and exceed the standard description of 80% students scoring above average standard (four or higher).

Four of the five randomly assessed students enrolled in the ETDD 4339 (Computer-Aided Drafting Product) met the criterion description of 80% scored 3.5 or higher based on a series of course assessment tools with one student scored 3.25. It is expected that future students will achieve at a similar level. We will continue to maintain the criterion description of 80% of students enrolled in this course scoring 3.5 or higher on the assessment rubric.

To actively monitor the demands of the market, we plan to outreach and seek feedback from alumni, current and potential future employers. As a first attempt, we will start the process of forming an industrial advisory committee and organizing the first advisory committee meeting in the coming academic year. This effort also prepares the program for the ABET accreditation in the long term.

Giving the nature of extremely fast pace development of computer-aided design tools, it's essential for the courses to align with industrial trend and demand. We will evaluate the tools we are using and consider alternative or additional tools that will work better with the newly acquired prototyping and manufacturing equipment.

Monitoring market place, skills, and content knowledge

Closing Summary:

The Engineering Technology (ET) faculty started the process of curriculum mapping as well as development of flow chart and course offering rotation plan for the SHSU Design and Development program. One major topic is to develop a capstone design project course and incorporate it into the existing curriculum. To achieve this goal, name, prerequisites, course description, and content of all the courses in the current curriculum will be visited and adjustment is necessary to accommodate the additional course hours of the capstone design project course. We plan to solicit input from as many source as possible, particularly industry partner and alumni.

One major issue the program facing is low enrollment which could partially due to the program name. With a plan to introduce a new Mechanical Engineering Technology program that could include mechanical design, manufacturing, and mechatronics areas, the ET faculty will discuss possible overlapping among these programs and visit the current curriculum.

We will continue to assess the learning objectives of development and demonstration of professional skills to ensure that our students are well prepared for the dynamic demands of the marketplace. We will continue to meet and exceed the standard description of 80% students scoring above average standard (four or higher) for the internship course. We also plan to maintain the criterion description of 80% of students enrolled in the computer-aided design and production course scoring a 3.5 or higher on the assessment rubric.