Assessment report for DDSN 113.01 Technical Drafting

Course description

An introduction to the techniques and standard practices of communicating technical graphics through effective design. The class studies and practices drawing skills and learns the drawing standards that support the needs of the design team in advancing ideas. It also provides the foundation for successful drawing communication in the CAD environment. Topics covered include; drawing media and tools, hand drawing skills, perspectives, views, sketching, standard scales, geometric construction, sections, dimensioning, and tolerances.

Course learning goals

Upon completion of DDSN 113 Technical Drafting, students will be able to:

1. Understand the role of graphics genres in the development of creative ideas and in the communication of information.
2. Demonstrate dexterity in the use of drawing instruments, templates etc. as reflected in neatness and accuracy while critiquing the work of others.
3. Produce accurate drawings according to recognized standards, conventions and illustration techniques.
4. Use graphical methods to solve basic descriptive geometry problems.
5. Learn to select appropriate methods of graphic representation in expressing spatial ideas and concepts.
6. Produce orthographic sketches and projections of original work with basic drawing instruments.
7. Understand and use basic sectioning techniques.
8. Understand and practice basic dimensioning standards and styles while critiquing the quality of their own work and that of others.
9. Understand the role and standards of tolerances in the drawing practice.
10. Apply technical Drafting principles to many engineering disciplines and how these have shaped the medium.

These course goals are in alignment with general education goals for expressive arts.

Method of assessment

Several national standards have been developed for assessing the quality of drawings: ANSI, ASTM, IEEE, etc. The rubric assesses the ten learning goals of the syllabus.
Understanding the role of graphics... (learning goal 1):

Assignment 1: Students work in small groups to convey visual information verbally. After direct observation of their creation, they immediately understand the importance of accurate drawing and iterative communication.

Guest Speaker: With working professionals visiting the classroom, students are exposed to the daily challenges and strategies that architects and engineers face as they communicate with their peers and customers. Students are then assessed through a quiz written by the speaker and assessed by the instructor.

Demonstration of Dexterity... (learning goal 2):

Assignments 5-11: Students work on drawings in class with technical drafting tools. Students also work at home if class time does not permit. The majority of these drawings leave little room for error. For example, if dimension lines are missing, hidden lines are missing, these are immediately pointed out to the student or he or she is given the opportunity to discover this on his or her own. Through additional practice dexterity and neatness are developed until the standard is met.

Understanding genres that have shaped the medium... (learning goal 10):

Assignments 5-11: Students read the textbook, Modern Graphics Communication. Throughout this text, the evolution of the genres that have shaped the visualization of artifacts is covered in great detail. Student learning and retention of this information is evaluated by online quizzes and in-class discussion.

Findings and assessment of findings

First Assessment of learning goal 1:

8/12 scored below the benchmark, 12/12 performed at a sufficient level before moving on to learning goal 2.

Second Assessment of learning goal 1:

This learning goal will also be assessed at the end of the course once the quiz from the guest speaker is given and graded.

First Assessment of learning goal 2:
5/12 scored below the benchmark. 10/12 reached it on the second try. There are still two students in the course who have yet to reach the benchmark. Their work has been handed back and is being improved upon.

**Second Assessment of learning goal 2:**

10/12 students reached the benchmark on the second assessment. There are two students who are working on reaching this bar.

**Assessment of learning goal 10:**

This has yet to be assessed, but students have been informed that they will be expected to complete this learning goal.

**Action steps**

This initial data is being used to measure future achievements in meeting the general education learning goals. Increasing the number of students performing at the introductory technical drafting level is critical if they are to move onto computer-aided drafting. Students taking DDSN 113 who are not seeking a computer-aided drafting certificate will complete the course with technical proficiency sufficient to allow them to express themselves in a technical manner sufficient to communicate with professionals in both technical fields and creative fields. In future courses, the benchmarks will be communicated to students at the outset of the course, and they will be told that their grades will reflect how well they meet those benchmarks. Additionally, this initial assessment will provide examples that illustrate what it takes to achieve certain benchmarks. In future courses, an example of performance at each benchmark will be provided to students. More clearly communicating expectations to students will likely increase the pace at which they attain adequate performance.