LANHT 034ABC COMPUTER-ASSISTED LANDSCAPE DESIGN

Outcome: Create and produce presentation prints of basic illustrative or conceptual landscape plans.

PLAN:

Description of Assessment Method:

Final Project Requirements:

1. Develop complete conceptual landscape plan with complete annotations including title blocks.
2. Present plan using viewport/sheet layer method; turn in electronic and printed versions.
3. Prepare separate sheet of quantity takeoffs for landscape materials.

OPTIONAL Final Project Items (not typically undertaken except by students with previous CAD experience): Cover Sheet with Table of Contents, Demolition Plan, Schematic Layout Plan, Planting Plan, and Planting Notes/Schedule.

Criteria for Success:

For drawings produced:

1. Clear communication of functional design intent (graphical clarity & readability; appropriate object stacking; appropriate annotations).
2. Communication of aesthetic design intent (using color/transparency, shading, texture, etc.).
3. Correct construction of graphic objects (2D rather than 1D objects); elements orthogonal and/or snapped when appropriate; design footprint created without gaps or overlaps.
4. "Economical" construction of graphic objects (fewer rather than greater numbers of objects; facilitates potential changes later in the design process).
5. Dimensionally accurate construction of graphic objects (based on stated requirements).
6. Accurate takeoffs of materials quantities based based on graphic objects.

Timeline for Implementation: Assigned on April 7, 2014; due May 12, 2014; feedback by May 19, 2014.

RESULTS:

Summary of Results:

The emphasis in LH34A is on learning to proficiently navigate a complex software package and on laying a firm foundation of drafting skills, drawing organization, and basic customizations so that continuing students can advance to more sophisticated uses of the software, such as reporting and analysis, automation of repetitive tasks, and/or 3D modeling.

To evaluate students' results, I require that they submit their CAD files, which allows me to literally rip apart their work to examine how it was constructed. This exploration reveals significant information about each student's skill level. Except for one student

who did not turn in the assignment, all Spring 2014 students achieved results ranging from acceptable to outstanding. One student (taking the class for personal enrichment, not for professional skills) struggled mightily, but everyone else was quite successful.

Results: Acceptable Criteria for Success Achievement: Met

Reflection/Analysis of Results:

Please see Actions to Improve Learning section for a more complete discussion of the ***Flipped Classroom*** instructional delivery method referred to below.

Using a ***Flipped Classroom*** technique with online video demonstrations / tutorials allowed the Spring 2014 class to master basic CAD drafting skills with greater ease than in past semesters. I've used this final project for several years because it's challenging yet "doable" for most students. This semester, nearly all students expressed satisfaction with their own results.

After a single semester, most students are typically still struggling with the aesthetic communication of the design intent. Given a rich set of possibilities for graphic representation, coupled with the difficulty of predicting what will emerge from any given physical printer, it can take years to develop a satisfactory personal graphic style. Students with a background in art or graphics arts are able to make this leap more quickly than others. I'm not certain that there's a way, in a single semester, to grapple with this particular problem.

ACTION:

Action details and description:

For many years, the biggest stumbling blocks for this class have been:

ISSUE 1: HARDWARE: If lab computers are not current-technology, they generally cannot adequately run the software. The bigger the disconnect between the current release of the software and the hardware on which it's running, the more the students struggle.

The computer hardware in D178 was at long last upgraded in Fall 2013, and was therefore available for our use in Spring 2014. This upgrade meant that students could use lab time productively instead of experiencing continual system crashes and intense frustration. Huge difference!!! Ideally, the lab computers should be kept much more current. Attempting to run 2014 software on 2003 hardware would have been a complete and utter waste of time.

Also, some students do not own the hardware necessary to successfully run this large and complex application. Those students must rely solely on the computer lab for practicing and doing their homework, which was nearly impossible between 2009 and this semester. In contrast, in Spring 2014, one student used the computer lab exclusively and produced impeccable work.

ISSUE 2: PHYSICAL CLASSROOM: The room in which this class has been taught for several years has always been an impediment to learning. Students have always had to struggle (for a variety of reasons) to actually see/hear/track the software demonstrations

that are instrumental to their success in the class.

Discussion: The addition of Smart Classroom equipment ameliorated this problem to a small degree, but due to the nature of the software, attempting to watch/track demonstrations some distance away is still extremely difficult for students. In particular, tracking the cursor's location and behavior during complex drafting operations is critical to learning the software. But, watching something that's perhaps a half-inch across when projected on a screen that's 30 to 40 feet away is more than most individuals, even with the keenest of eyesight, can handle.

Although Issue 1 above is completely out of my personal control, I've endeavored to compensate for Issue 2.

PRIOR ACTIONS: My first attempt to overcome the deficiencies of the physical classroom took place in Spring 2013 when I experimented with screen-sharing software such that students could watch my demonstrations on the lab computer right in front of them. Students were happier with this method, but unfortunately what started as a free Internet service turned into a paid service mid-semester, and I was forced to purchase three months of service to finish the semester.

Additionally, the ambient noise in a room full of computers is quite high, so students were still struggling to hear me (and I'm not a quiet person!).

CURRENT ACTIONS: I have toyed with the idea of developing video demonstrations/tutorials for a number of years now. I've personally taken quite a number of software classes on Lynda.com and was aware of some of the benefits. The EDT3 class at Merritt (taken Fall 2013), although not entirely on target for what I needed, helped refine my thinking that a *Flipped Classroom* approach would be ideal for this class.

I purchased the necessary computer equipment and video recording/editing software in January 2014, and between then and late March was able to complete approximately 6.5 hours worth of demonstrations/tutorials, enough to cover basic material for the first half of the semester. These were stored on YouTube and then packaged/delivered via e-Books, which I developed within Merritt's Moodle system.

During the first half of the semester, the primary method of instruction was for students to use the materials delivered in Moodle. Class time was then devoted to clarifications, discussion, individual coaching, and hands-on exercises designed to insure competency in the topics delivered via video.

Implementation Plan (timeline): Approximately 6.5 hours of videos were produced from early January to late March 2014. I hope to complete more tutorials for Spring 2015.

Expected outcome of this action:

Because many students who take this class are already working in the field, they can't necessarily afford long and difficult hours to learn what is essentially a productivity tool. My expectation was that with the ***Flipped Classroom*** method, students would be able to successfully complete the class and meet the requirements of this SLO, perhaps not better but certainly much less painfully.

When asked for feedback, students universally loved the videos. The ability to watch and practice at the same time, the ability to work at one's own pace and timing, and especially the ability to rewind and rewatch tricky things were all considered superior aspects of this method. Since I was forced to fall back on classroom lecturing during the latter half of the semester, the contrast was even more dramatic.

Further, because the ***Flipped Classroom*** method allowed me to individually observe and coach each student far more than in the past, it was quickly evident that they were picking up the material faster, with better comprehension, and with significantly less struggle and frustration than in past semesters. In addition, difficult concepts and techniques that had historically eluded many students were mastered far more universally.

Finally, because students were mastering material more quickly, I was able to cover certain topics relating to the professional use of the software in more depth than in prior semesters.

Because the majority of the Spring 2014 final projects were of high caliber, my conclusion is that a ***Flipped Classroom*** approach has been highly successful for this class. When more videos can be completed, my further expectation is that beginning students will actually be able to master more material than has been realistic in the past.

Budget request amount: $5000.00**

Priority: High

NOTES: This is a GREAT example of assessment and the use of assessment results to effect changes in the classroom. It would have been better to have this plan outlined prior to implementing it so that an appropriate budget request could have been made for the instructor. This instructor spent their own time and money on this project; assessment data should be used to support such curricular enhancements. **The budget request amount was added by SLOAC to support this instructor and reflects only a portion of the amount that was spent on this project prior to the Fall 2014 semester.