Instructional Design
Project 3
Ed Tech 503, Spring Semester

Computer Technicians In-Service on Replacing a Dell Dimension System Board.
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Synthesis Reflection Paper

The instructional design process is very much like a guide book you would use to take a trip or journey. The guide book, much like the instructional design process, enables a person taking a journey to get them to their final destination. The guide book doesn't physically take them there; it offers a guide on how to get there. Instructional design is very similar, instructional designers don’t necessarily translate their specifications into an actual product; they offer their plans as a guide to help people learn in different situations. Different guide books must be created for all different circumstances, i.e. destinations, persons, weather, funds, etc... This correlates to how instruction is designed to meet all the different needs of individuals and how they learn. When it comes to guide books or instructional design, “one size fits all” does not hold true for either.

Throughout this semester, after completing different assignments and the ID Projects 1, 2, and 3, I have learned that the instructional design process is a systematic process and not an incidental, haphazard activity. I’ve learned that instructional design has a problem solving orientation and how important precise learning goals and objectives are to attaining your desired outcome. The third thing that I really feel expanded my knowledge of the instructional design process is the significance of the formative and summative evaluations. Smith & Ragan state, “Trying out materials with learners can help instructional developers determine where revisions are necessary”. They go on to say that materials that have been tried out with only one or two students and then revised based on the information gained are much more valuable than the original instruction (Smith & Ragan, 2000 p.327). This importance of this was made evident to me in Project 3. By taking part in the different parts of the formative evaluation (expert review, one-on-one, small group, and filed trial) I realized what an impact it has on the design process and the final product.

The design principles learned through this course will be an extremely valuable tool in my career as a technology specialist in education. As a technology specialist, I am required to create many learning materials for training programs on new software that the district is planning to implement. In the past I would just gather up what I thought to be the important aspects of a training program and piece them together to make a lesson. Now with my newly acquired skills that I have learned about the design process I will approach the whole process in a more systematic way. I now realize the importance of focusing on the learners and customizing instruction to meet their needs (needs assessment). Another step I plan to incorporate is the use of formative evaluations. Typically when I am creating a lesson I don’t use any learners to evaluate what I have done, the only evaluation comes after the lesson is already implemented. I have learned that by doing it this way any weaknesses in the instruction cannot really be revised, unless, I was giving the lesson to another group of people. If I implement a more formative evaluation with a couple of the learners before the actual training session, any revisions can be made beforehand and the original lesson can be more beneficial. In closing, I truly feel with the knowledge I gathered throughout this semester, my colleagues are going to benefit by receiving more valuable and refined training materials.
Reference

Part 1: Topic

Part 1a. Learning Goal

Learners will be able to remove and replace a system board on a Dell Dimension computer.

Part 1b. Description of the Audience

The learners for this instructional design project are a group of ten computer technicians that work for a computer consulting company called Mega-Byte Computer Service Group, located in Princeton, NJ.

Part 1c. Rationale

Mega-Byte Computer Service Group has determined that there is a need for training their computer technicians on diagnosing, removing, and replacing the system boards on Dell’s new line of Dimension computers. Mega-Byte Computer Service Group has received a contract to support the state of NJ which has 1000 of these units. There has been a number of service calls already regarding problems with the system boards on these units and the technicians, having not been trained on troubleshooting and repairing them, have ran into significant problems and delays which is costing the company money.

The overall strategy for this project is going to be a combination of approximately 40% supplantive and 60% generative. The first part of instruction will be instructor led and conducted in a classroom setting using a supplantive approach. This approach was chosen to help facilitate the learners by providing the overall objective/goal, monitoring their understanding, and to help bring the few learners that had less prior knowledge up to speed. The second part of the instruction will be the hands-on part which will be using a generative strategy. It was determined thru our survey that 80% of the learners have been technicians for more than 3 years; this information told us that many had high levels of prior knowledge. Generative success puts a lot of focus on prior knowledge. In this part the learners will be installing a new system board into a computer. This will allow them to provide much of the events of instruction themselves along with having the opportunity to apply their own understanding to the procedure.

The major instructional strategy under which the goal is classified is procedural. It is classified as procedural because learners will be following an assigned set of tasks to complete the project. Learners will be given a situation, a Dell Dimension computer that is none functioning; from there they will have to determine, thru concept recognition, if they have a situation that calls for a procedure. Once it is determined that a procedure is needed they will have to recall and complete the steps in the procedure. Some procedures may be simple, some may be complex and require learners to determine whether a set of certain circumstances exist and proceed down an alternative path to a decision. They will also have to analyze each step to determine if they have correctly applied their procedure.
Part 2: Analysis Report

Part 2a. Description of the Need

Mega-Byte Computer Service Group has received a contract to support all the government agencies for the state of New Jersey. The state currently has 1000 new Dell Dimension computer workstations. Mega-Byte Computer Service Group has 25 technicians that will be responsible for the servicing of these workstations. These technicians will need instruction on how to repair and replace the system boards in this new line of Dell Dimension workstations.

Part 2a.1

To help get a better understanding of the background skills of the technicians, a survey will be sent out to all of them. The survey can be found online at: http://tinyurl.com/yjgxorg

Part 2b. Description of the Learning Context

Part 2b.1 Learning Context

The workshop for the learners will be conducted on-site at Mega-Byte Computer Service Group corporate headquarters in Princeton, NJ. The first part of the workshop will be held in their instructional training center. The training center has 25 desks, a white board, teaching station (podium) at the front of the room, VCR/DVD player, LCD projector, and 25 computers running Windows XP. All computers have internet access and all are reported as operational.

The second part of the workshop, the hands-on instruction, will take place in the corporate, state of the art repair center. The repair center consists of 25 bench repair stations. At each station will be a 60 piece computer repair toolkit, a static protection mat, and an Electrostatic discharge (ESD) strap. Each technician will also be supplied with a Dell Dimension workstation at their station along with user-oriented documentation, and training manuals. The workstations will be used diagnose and replace the actual system boards and to reinforce what they learned in the classroom training thru hands-on instruction.
Parts 2b.2 Transfer Context

The technicians will be able to immediately apply the skills learned in the workshop to their work in the field. The only difference being that in training the technicians performed their work on state of the art repair benches; this will most likely not be the case when they go on site to repair a system. In the field technicians may encounter different situations in which they may have to perform their technical work. For example, the workstation may be in a small office or even a garage. In either case the technician will have to find a well suited place to perform the repair work. When finding a place to work a couple things should be considered, is there enough light, make sure it is a static free environment, and make sure you have enough room to lay out all your tools parts. Although their environment in the field may be dissimilar to training, the actually technical aspect will be unchanged so the technician should be confident in the skills they learned in training and be able to transfer them to their filed work without a problem.

Part 2c. Description of the Learners

The learners in the workshop are made up of 22 men and 3 women. Two of the technicians are African American, one is Chinese and the rest are white. Eighty percent of them have been computer technicians for more than 3 years and have various levels of skills working with computer hardware. All are comfortable working with common repair technician’s tools and apparatuses.

Ethnicity Breakdown

- White 70%
- African American 20%
- Chinese 10%
Part 3. Planning

Part 3a. Learning Objectives

1.0 Learners will be able to diagnose a non-functioning computer and determine that it has a bad system board.

   1.1 The learner should be able to read L.E.D diagnostics codes and be able to determine thru the codes that a possible system board failure has occurred.

   1.2 The learner should be able to test a system board with a volt-meter to determine if the system board has ultimately failed.

2.0 Once it has been determined that a system board will need to be replaced, the learner will be able to prepare his surroundings for a safe removal of the system board.

   2.1 The learner will be able to hook up a static protection mat and an Electrostatic discharge (ESD) strap.

   2.2 The learner will be able to disconnect all power sources to the computer.
3.0 Learners will be able to take all the components out of the computer to prepare for the system board replacement.

3.1 Learners will have the ability to remove the power supply from the computer.
3.2 Learners will be able to remove the floppy drive, CD/DVD drive and hard drive from the computer.
3.3 Learners will be able to remove the memory from the computer and place it in an anti-static bag to keep it safe from ESD.
3.4 Learners will be able to remove the CPU, heat sink and processor fan from the computer.
3.5 All learners will be able to remove the system board from the computer.

4.0 Learners will be able to install a new system board and reinstall all the computers components so the computer is operational again.

4.1 Learners will be able to install and secure a new system board to the computers chassis.
4.2 Learners will be able to reinstall the floppy drive, CD/DVD drive and hard drive from the computer.
4.3 Learners will be able to reinstall the memory in the computer
4.4 Learners will be able to reinstall the CPU, heat sink and processor fan from the computer.
4.5 Learners will be able to update the bios and prepare the machine to be operational.
4.6 Learners will be able to start the computer and determine that the computer is repaired and operational.
### Part 3b. Objectives Matrix

<table>
<thead>
<tr>
<th>Objective Number (1)</th>
<th>Bloom's Taxonomy Classification (2)</th>
<th>Strategy to be employed to teach the objective (3)</th>
<th>Type of Learning (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Evaluation</td>
<td>Generative*</td>
<td>Conceptual/Higher Order Problem Solving</td>
</tr>
<tr>
<td></td>
<td>Analyze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Evaluation</td>
<td>Generative*</td>
<td>Conceptual/Higher Order Problem Solving</td>
</tr>
<tr>
<td></td>
<td>Analyze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Evaluation</td>
<td>Generative*</td>
<td>Conceptual/Higher Order Problem Solving</td>
</tr>
<tr>
<td></td>
<td>Analyze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>2.1</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
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<td>2.2</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.0</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.1</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.2</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.3</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.4</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>3.5</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
<tr>
<td>4.0</td>
<td>Application</td>
<td>Generative*</td>
<td>Procedural</td>
</tr>
</tbody>
</table>
4.1 | Application | Generative* | Procedural
4.2 | Application | Generative* | Procedural
4.3 | Application | Generative* | Procedural
4.4 | Application | Generative* | Procedural
4.5 | Application | Generative* | Procedural
4.6 | Evaluation | Generative* | Procedural and Conceptual/Higher Order Problem Solving

* Although each strategy is listed as generative, each objective will be taught using a supplantive strategy in the first half of the workshop.

Part 3c. Arcs Table

**ARCS Motivational Strategies Plan**

**Project Goal Statement:** Learners will be able to diagnose, remove, and replace a system board on a Dell Dimension computer.

**ATTENTION**

**A.1 Perceptual Arousal**

- The workshop will begin with a video showing a computer technician successfully fixing a Dell Dimension workstation for a customer.

- Next a step by step slide show will be show detailing how to diagnose, remove and install a new system board in the Dell Dimension workstation.

- Learners will be informed of the new tech support contract with the state and how a big part of their jobs will now entail the work that is being demonstrated.
## A2. Inquiry Arousal

- Learners will be encouraged to ask any questions they may have regarding the steps involved in the repair of the system board.

- Any learners that have had prior knowledge working on system boards will be encouraged to share experiences with the rest of the class.

- Learners will be asked to brainstorm any possible scenarios that may encounter while out in the field.

## A3. Variability

- Videos, slideshows, instruction manuals, and hands-on work will all be used throughout the workshop.

- Learners will be working around with their peers observing different diagnostic techniques that will be demonstrated.

- Discussions will be held regarding the similarities between the system boards in other workstations they have worked on.

## RELEVANCE

### R1. Goal orientation

- Explain the skills that will be taught and how useful they will be on the job.
- Explain the benefits of becoming proficient with the skills acquired as well as the benefits it provides for clients.

### R2. Motive matching
Learners will be able to apply their own prior knowledge and new skills learned immediately into their field work.

The new skills will lower technicians call ticket times by increasing the proficiency in which they can repair workstations.

**R3. Familiarity**

- Common troubleshooting problems and known issues will be demonstrated during the class.
- The instructor will demonstrate the step by step procedures that must be taken in order to successfully complete a system board replacement.

**CONFIDENCE**

**C1. Learning requirements**

- Learners will be guided by an instructor along each step of the workshop to reassure them of the skills they have learned.
- Checklists will be provided so learners can check off each step they complete.

**C2. Success opportunities**

- Positive reinforcement and feedback will be provided throughout the workshop.
- We will play a game to see who can diagnose, remove, and replace a system board the quickest. Awards will be provided to the winner.

**C3. Personal control**

- A rubric will be provided so learners can gauge their success.
- Learners will be encouraged to explore some advanced troubleshooting skills.
Learners will be encouraged to experiment with finding their own troubleshooting techniques using their prior knowledge.

**SATISFACTION**

**S1. Natural consequences**

- Learners will have time to practice the skills they acquired on test workstations.
- Learners will be put into groups and given a non-functional workstation where upon they must bring it back to working order.

**S2. Positive consequences**

- Explain how the learners can reflect on their skills when out doing their field work.
- Provide positive feedback to and suggestions to learners to build on their abilities.

**S3. Equity**

- All learners will be held to high standards.
- Reinforce how valuable the skills are going to be for them when they are on the job. Increases productivity, confidence, professionalism, and salary. You are now more valuable to the company due to the new skills you have acquired.

Part 4. Instructor Guide

Introduction

Gain Attention

1. Learners will be asked to be seated and give you their full attention.
2. Learners will be informed of the new tech support contract with the state and how a big part of their jobs will now entail the work that is being demonstrated.
3. The workshop will begin with a video showing a computer technician successfully fixing a Dell Dimension workstation for a customer.
4. Next a step by step slide show will be show detailing how to diagnose, remove and install a new system board in the Dell Dimension workstation.

Inform Learners of Purpose

1. Inform the learners of the overall purpose of the workshop, which is to learn the proper procedure to diagnose, remove, and replace a system board in a Dell Dimension workstation.

Stimulate Learners’ Attention and Motivation

1. Explain to the learners that after their instruction they will have the skills, understanding, and knowledge to replace a system board.

2. Reinforce how valuable the skills are going to be for them when they are on the job. Increases productivity, confidence, professionalism, and salary. You are now more valuable to the company due to the new skills you have acquired.

Provide Overview

1. Explain the following steps in involved in completing the workshop.
2. The first part of the workshop will consist of a video and slide show demonstrating the proper procedures involved in replacing a system board.
3. The second part of the workshop will be an instructor led demonstration on replacing a system board.
4. The last part of the workshop will be a hands-on lesson where by all learners will demonstrate what they have learned by removing and installing a new system board on test workstations.
Recall Relevant Prior Knowledge

1. To recall prior knowledge an informal group discussion will take place in which learners will share their past experiences in working on system boards.
2. The learners will discuss the tools needed to replace a system board.
3. The learners will discuss any other past workshops, certifications, or instruction they have had on the installation of system boards.

Present Information and Examples

1. A video will be shown and used as an example to demonstrate the procedure in the removal of the system board.
2. A step by step instruction manual will be handed out some examples of every step that must be taken to successfully diagnose, remove, and replace a system board in the Dell Dimension workstation.

Focus Attention

1. Learner’s will continuously be reminded how important this workshop is to their daily job requirements and how learning the proper skills that are being taught will increase their productivity, confidence, professionalism, and salary.

Employ Learning Strategies

1. To help learning strategies, learners will work on their test machines along with a step by step instruction guide and go over all the steps involved in replacing a system board.

Guide Practice

1. The instructor will walk around and be available for questions, positive reinforcement, or feedback.
2. Learners will be encouraged to ask questions during their hands-on training so that all issues that may arise can be addressed immediately.
Evaluate Feedback

1. After learners successfully diagnose, remove, and replace the system board on their test machine, they will swap machines with another technician in the class. The other technician will check the machine and make sure it was properly put back together and is able to start back up and function. All machines that don't work will be evaluated to find where the technician did something wrong. Once it is determined where the mistake was made, feedback will be provided so the technician can learn from his mistake.

Conclusion

Summarize and Review

1. After each session (instructor led & hands-on) a 10 minute review process will take place. During this time all steps will be reviewed and all questions will be addressed.

Transfer Learning

1. After the instructor led workshop leaners will go to their assigned tech bench and perform the removal/installation of the system board on their test machine. The knowledge they learned in the instructor led workshop will then be transferred to the hands-on part of the workshop.

Remediation and Closure

1. At the end of the hands-on workshop, learners will be allowed to brainstorm different ideas and techniques that they may have come up with that will enhance their technical skills.
2. Advanced learners will be allowed to demonstrate their technique in front to the class.

Assess Learning

1. After learners successfully diagnose, remove, and replace the system board on their test machine, they will swap machines with another technician in the class. The other technician will check the machine and
make sure it was properly put back together and is able to start back up and function. All machines that don't work will be evaluated to find where the technician did something wrong. Once it is determined where the mistake was made, feedback will be provided so the technician can learn from his mistake.

2. The instructor will walk around and assess the peer evaluation and be available or questions and feedback.

**Provide Feedback and Remediation**

1. Learners will be provided feedback from their peers and instructor after the hands-on workshop.
2. After seeing their feedback learners will be given time to go back and make the necessary changes to their test machines in order to get all parts of them operational again.
Part 5. Learner Content

Part 5a. Learning Materials

The learners will use several materials during the workshop. Materials include a video presentation, a slideshow, and an instructional packet.

<table>
<thead>
<tr>
<th>Learning Material</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructional Guide</td>
<td>This guide will be used to help students follow step by step procedure in removing and installation a new system board.</td>
</tr>
<tr>
<td><a href="http://tinyurl.com/y7dodh4">http://tinyurl.com/y7dodh4</a></td>
<td></td>
</tr>
<tr>
<td>Slideshow Presentation</td>
<td>This slideshow will help illustrate the process of removing a system board.</td>
</tr>
<tr>
<td>See Appendix A – Slideshow Flowchart</td>
<td></td>
</tr>
<tr>
<td>Video</td>
<td>This video will provide a demonstration on the removal of a Dell system board.</td>
</tr>
<tr>
<td><a href="http://tinyurl.com/yctgyz2">http://tinyurl.com/yctgyz2</a></td>
<td></td>
</tr>
</tbody>
</table>

Part 5b. Formative and Summative Assessment Materials

<table>
<thead>
<tr>
<th>Assessment Material</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worksheet Completion Checklist</td>
<td>This checklist will be used by students and instructors to determine if all the steps in the test build are completed</td>
</tr>
<tr>
<td>See Appendix B</td>
<td></td>
</tr>
<tr>
<td>Student &amp; Teacher Rubric</td>
<td>This rubric will be used by student and instructors for a final reflection of the completed project.</td>
</tr>
<tr>
<td>See Appendix C</td>
<td></td>
</tr>
</tbody>
</table>

Along with the summative assessments above, formative assessment will be ongoing throughout the workshop. The instructor will be walking around and checking learners work and will help in evaluating certain aspects of the learning process. These evaluations and adjustments will help to ensure students achieve targeted standards-based learning goals within the set time frame.
Part 5c. Technology Tool Justification

The following technology tools will be used to support the learning project:

<table>
<thead>
<tr>
<th>Technology Tools</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Repair center lab consisting of 15 bench repair stations</strong></td>
<td>This lab will provide the proper environment for the hands-on part of the workshop. The state-of-art bench repair stations are designed for working specifically on computers.</td>
</tr>
<tr>
<td><strong>LCD Projector</strong></td>
<td>This will be used to show the slide show in the first part of the workshop. It is essential to the demonstration part of the lesson.</td>
</tr>
<tr>
<td><strong>60 piece computer repair toolkit</strong></td>
<td>This toolkit will provide learners with all the necessary tools to remove and install their new systems boards in their test workstations.</td>
</tr>
<tr>
<td><strong>Dell Dimension test workstation</strong></td>
<td>These test workstations will allow learners to work on the actually same machines that they had instruction on in the first half of the workshop</td>
</tr>
<tr>
<td><strong>Instruction Manual -downloadable PDF</strong>&lt;br&gt;<a href="http://tinyurl.com/y7dodh4">http://tinyurl.com/y7dodh4</a></td>
<td>This manual is a step by step guide supplied by Dell with instructions on how to remove and replace a system board. This will be an essential tool and guide to help learners follow along to complete the learning objectives.</td>
</tr>
</tbody>
</table>
Part 6. Formative Evaluation Plan

Part 6a. Expert Review

The Subject Matter Expert who agreed to evaluate the Instructional Design for the Computer Technicians In-Service on Replacing a Dell Dimension System Board project is Peg Viola. Mrs. Viola is a middle school technology teacher at Manchester Twp. Middle School and holds a Masters degree in Computer Science along with numerous computer industry hardware and software certifications. Mrs. Viola will review all the learning materials and then answer a questionnaire.

Link to the survey: http://tinyurl.com/y76e5ty

Part 6b: One-to-one Evaluation

The one-to-one evaluation will be done with two or three technicians that will be attending the actual workshop. The technicians will be asked to view the slideshow, watch the video, and look over the instruction manual that will be used in the workshop. After reviewing all the materials, each technician will be asked separately, how well they understood the material. They will be asked if the instruction manual was clear? Was there any vocabulary that they didn’t understand? Is the intent of the videos and slideshow clear? Finally, the technicians will be asked if the materials provided will help them in completing the project and if there is anything they would change or add to the student materials. Responses would be recorded on the draft materials. Any problems that were encountered will be looked at and possible solutions to those problems will be addressed. Materials would be revised or added by the designer accordingly.
Part 6c: Small Group Evaluation

A group of 5 to 8 technicians will be used for the small group evaluation. The technicians will be using all the learning materials that were updated based upon the one-on-one evaluation. During this phase the designer will sit back and observe the teacher and technicians during the different stages of the workshop and try to pick up on any nonverbal cues about the effectiveness, interest level, and or any problems that may arise. The designer would be looking for how well the technicians understand and use the materials to remove a system board and install a new system board in their test workstation. The results from the procedure will be evaluated based on the rubric. Afterward, the technicians will be asked if the materials provided were adequate to complete the project. Based on their responses, adjustments will be made to the learning materials.

Part 6d: Field Trial

The field trial will take place with 10 technicians. The revised materials from the one-on-one evaluation and the small group evaluation will be used. The technicians will go thru and complete the entire workshop including the hands-on section where they will remove and replace the system board in their test machines. Upon completion of the workshop, the evaluation data will be examined and any necessary changes to the video, slideshow, or instructional manual will be made. Technicians will also be asked how useful, effective, and valuable the workshop was to them.

Part 7: Formative Evaluation Report

The following materials will be reviewed by the expert reviewer:

- Slideshow Presentation
- Instructional Guide
- Video Presentation

After reviewing the learning materials above, the expert reviewer will complete a survey which can be found here:

Link: [http://tinyurl.com/y76e5ty](http://tinyurl.com/y76e5ty)
Part 7b: Report of Expert Reviewer

The results of the survey were as follows:

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the materials accurate and up-to-date?</td>
<td>Yes right on target</td>
</tr>
<tr>
<td>Are the goals and objectives stated clearly?</td>
<td>Yes</td>
</tr>
<tr>
<td>Will the learning materials allow students to complete the project?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is there sufficient examples, hands-on exercises and demonstrations so that learners can get a clear understanding of what is expected of them?</td>
<td>Yes</td>
</tr>
<tr>
<td>Are there any punctuation or grammatical errors?</td>
<td>No</td>
</tr>
<tr>
<td>Is the video and slideshow clear and relevant to the objectives and goals?</td>
<td>Somewhat relevant</td>
</tr>
<tr>
<td>Is what is expected of the learners clearly stated?</td>
<td>Very clear</td>
</tr>
<tr>
<td>Is the rubric clear and a good assessment of what is expected of the learners?</td>
<td>Yes</td>
</tr>
<tr>
<td>Of all the learning materials which did you find the most valuable?</td>
<td>Instructional manual because it took you step-by-step thru what was expected. It had very clear illustrations of each procedure that had to be done.</td>
</tr>
<tr>
<td>Is there sufficient access to the instructor for questions and feedback?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the instruction manual in a logical order, clear, and concise?</td>
<td>Yes</td>
</tr>
<tr>
<td>Are the hands-on exercises appropriate for the learner’s skill-level?</td>
<td>Yes very appropriate</td>
</tr>
<tr>
<td>Are there any other issues, comments, or suggestions you wish to make about the materials used?</td>
<td>I thought the instructional manual with the hands-on section of the workshop was the most valuable section of the workshop. What better way to learn a technical skill then by doing it hands on. I did feel the video, although a good visual display, was hard to understand and seemed to skip some steps or assumed the learner knew what he was doing and passed right over some steps.</td>
</tr>
</tbody>
</table>

The expert reviewer felt all the materials together would help the students meet their learning objectives and allow them to complete the workshop and the final project. The expert reviewer felt that the instructional manual and hands-one section of the workshop was by far the most valuable. The expert felt that the video presentation was hard to understand and seemed to skip steps that were outlined in the instructional manual. She felt the video assumed that the learners have done this before and because of this may confuse some of the learners when it comes to removing and reinstalling a new system board.
Part 7c. Comments on suggested changes

Based on the expert’s recommendations I am going to try and find a better video to play during the workshop. If a better video cannot be located, I may change up the order of how the materials will be presented at the workshop. Instead of showing this video in the beginning and risk the possibility of confusing any of the technicians, I may show it later in the workshop as more of a general how-to video. I will be sure to point out that some steps are overlooked in the video this way the technicians are aware of it. Other then that I believe the learning materials will create a valuable learning experience and help the technicians become more productive in their daily work.

Part 8. AECT Standards Grid

Professional Standards Addressed (AECT)

The following standards, developed by the Association for Educational Communications and Technology (AECT), and used in the accreditation process established by the National Council for Accreditation of Teacher Education (NCATE), are addressed to some degree in this course. The numbers of the standards correspond to the numbers next to the course tasks show on the list of assignments. Not all standards are addressed explicitly through student work.

<table>
<thead>
<tr>
<th>Standard 1: DESIGN</th>
<th>Assignments meeting standard in whole or part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Instructional Systems Design (ISD)</td>
<td>X ID Projects 1 &amp; 2</td>
</tr>
<tr>
<td>1.1.1 Analyzing</td>
<td>X ID Projects 1</td>
</tr>
<tr>
<td>1.1.2 Designing</td>
<td>X ID Projects 1 &amp; 2</td>
</tr>
<tr>
<td>1.1.3 Developing</td>
<td>X ID Projects 1 &amp; 2</td>
</tr>
<tr>
<td>1.1.4 Implementing</td>
<td>X ID Project 2</td>
</tr>
<tr>
<td>1.1.5 Evaluating</td>
<td>X Selected Discussion Forums; ID Project 2</td>
</tr>
<tr>
<td>1.2 Message Design</td>
<td>X ID Project 2</td>
</tr>
<tr>
<td>1.3 Instructional Strategies</td>
<td>X ID Project 1</td>
</tr>
<tr>
<td>1.4 Learner Characteristics</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standard 2: DEVELOPMENT</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 (includes 2.0.1 to 2.0.8)</td>
<td>X ID Project 02</td>
</tr>
<tr>
<td>2.1 Print Technologies</td>
<td>X Reading Quiz; ID Projects 1 &amp; 2</td>
</tr>
<tr>
<td>2.2 Audiovisual Technologies</td>
<td></td>
</tr>
<tr>
<td>2.3 Computer-Based Technologies</td>
<td></td>
</tr>
<tr>
<td>2.4 Integrated Technologies</td>
<td>X (all assignments)</td>
</tr>
</tbody>
</table>
Standard 3: UTILIZATION
3.0 (includes 3.0.1 & 3.0.2)
3.1 Media Utilization X (all assignments)
3.2 Diffusion of Innovations
3.3 Implementation and Institutionalization X
3.4 Policies and Regulations

Standard 4: MANAGEMENT
4.0 (includes 4.0.1 & 4.0.3)
4.1 Project Management
4.2 Resource Management
4.3 Delivery System Management
4.4 Information Management

Standard 5: EVALUATION
5.1 Problem Analysis X
5.2 Criterion-Referenced Measurement X ID Project 2
5.3 Formative and Summative Evaluation X ID Project 2
5.4 Long-Range Planning

COURSE GOALS & OBJECTIVES
The overall goal for the course is for each student to consider and use the systematic process of instructional design to create an instructional product. To achieve this goal, students will engage in activities that promote reflective practice, emphasize realistic contexts, and employ a number of communications technologies. Following the course, students will be able to:

1. Discuss the historical development of the practice of instructional design with regard to factors that led to its development and the rationale for its use
2. Describe at least two reasons why instructional design models are useful
3. Identify at least six instructional design models and classify them according to their use
4. Compare and contrast the major elements of three theories of learning as they relate to instructional design
5. Define “instructional design.”
6. Define the word “systematic” as it relates to instructional design
7. Define “learning” and synthesize its definition with the practice of instructional design
8. Relate the design of instruction to the term “educational (or “instructional”) technology”

9. Describe the major components of the instructional design process and the functions of models in the design process

10. Provide a succinct summary of various learning contexts (declarative knowledge, conceptual, declarative, principle, problem-solving, cognitive, attitudinal, and psychomotor)

11. Build an instructional design product that integrates major aspects of the systematic process and make this available on the web.

   a. Describe the rationale for and processes associated with needs, learner, context, goal, and task analyses
      
      i. Create and conduct various aspects of a front-end analysis
      
      ii. Identify methods and materials for communicating subject matter that are contextually relevant

   b. Describe the rationale for and processes associated with creating design documents (objectives, motivation, etc.)
      
      i. Construct clear instructional goals and objectives
      
      ii. Develop a motivational design for a specific instructional task
      
      iii. Develop assessments that accurately measure performance objectives

   c. Select and implement instructional strategies for selected learning tasks
      
      i. Select appropriate media tools that support instructional design decisions

   d. Describe the rationale and processes associated with the formative evaluation of instructional products
      
      i. Create a plan for formative evaluation

12. Identify and use technology resources to enable and empower learners with diverse backgrounds, characteristics, and abilities.

13. Apply state and national content standards to the development of instructional products
14. Meet selected professional standards developed by the Association for Educational Communications and Technology

15. Use various technological tools for instructional and professional communication

AECT STANDARDS (Applicable to EDTECH 503)

1.0 Design

1.1 Instructional Systems Design
   1.1.a Utilize and implement design principles which specify optimal conditions for learning.
   1.1.b Identify a variety of instructional systems design models and apply at least one model.

1.1.1 Analyzing
   1.1.1.a Write appropriate objectives for specific content and outcome levels.
   1.1.1.b Analyze instructional tasks, content, and context.

1.1.2 Designing
   1.1.2.a Create a plan for a topic of a content area (e.g., a thematic unit, a text chapter, an interdisciplinary unit) to demonstrate application of the principles of macro-level design.
   1.1.2.b Create instructional plans (micro-level design) that address the needs of all learners, including appropriate accommodations for learners with special needs.
   1.1.2.d Incorporate contemporary instructional technology processes in the development of interactive lessons that promote student learning.

1.1.3 Developing
   1.1.3.a Produce instructional materials which require the use of multiple media (e.g., computers, video, projection).
   1.1.3.b Demonstrate personal skill development with at least one: computer authoring application, video tool, or electronic communication application.

1.1.4 Implementing
   1.1.4.a Use instructional plans and materials which they have produced in contextualized instructional settings (e.g., practical, field experiences, training) that address the needs of all learners, including appropriate accommodations for learners with special needs.

1.1.5 Evaluating
   1.1.5.a Utilize a variety of assessment measures to determine the adequacy of learning and instruction.
   1.1.5.b Demonstrate the use of formative and summative evaluation within practice and contextualized field experiences.
   1.1.5.c Demonstrate congruency among goals/objectives, instructional strategies, and assessment measures.

1.3 Instructional Strategies
1.3.a Select instructional strategies appropriate for a variety of learner characteristics and learning situations.

1.3.b Identify at least one instructional model and demonstrate appropriate contextualized application within practice and field experiences.

1.3.c Analyze their selection of instructional strategies and/or models as influenced by the learning situation, nature of the specific content, and type of learner objective.

1.3.d Select motivational strategies appropriate for the target learners, task, and learning situation.

1.4 Learner Characteristics

1.4.a Identify a broad range of observed and hypothetical learner characteristics for their particular area(s) of preparation.

1.4.b Describe and/or document specific learner characteristics which influence the selection of instructional strategies.

1.4.c Describe and/or document specific learner characteristics which influence the implementation of instructional strategies.

2.0 Development

2.0.1 Select appropriate media to produce effective learning environments using technology resources.

2.0.2 Use appropriate analog and digital productivity tools to develop instructional and professional products.

2.0.3 Apply instructional design principles to select appropriate technological tools for the development of instructional and professional products.

2.0.4 Apply appropriate learning and psychological theories to the selection of appropriate technological tools and to the development of instructional and professional products.

2.0.5 Apply appropriate evaluation strategies and techniques for assessing effectiveness of instructional and professional products.

2.0.6 Use the results of evaluation methods and techniques to revise and update instructional and professional products.

2.0.7 Contribute to a professional portfolio by developing and selecting a variety of productions for inclusion in the portfolio.

2.1 Print Technologies

2.1.3 Use presentation application software to produce presentations and supplementary materials for instructional and professional purposes.

2.1.4 Produce instructional and professional products using various aspects of integrated application programs.

2.3 Computer-Based Technologies

2.3.2 Design, produce, and use digital information with computer-based technologies.

3.0 Utilization

3.1 Media Utilization

3.1.1 Identify key factors in selecting and using technologies appropriate for learning situations specified in the instructional design process.
3.1.2 Use educational communications and instructional technology (SMETS) resources in a variety of learning contexts.

3.3 Implementation and Institutionalization

3.3.1 Use appropriate instructional materials and strategies in various learning contexts.
3.3.2 Identify and apply techniques for integrating SMETS innovations in various learning contexts.
3.3.3 Identify strategies to maintain use after initial adoption.

4.0 Management

*(none specifically addressed in 503)*

5.0 Evaluation

5.1 Problem Analysis

5.1.1 Identify and apply problem analysis skills in appropriate school media and educational technology (SMET) contexts (e.g., conduct needs assessments, identify and define problems, identify constraints, identify resources, define learner characteristics, define goals and objectives in instructional systems design, media development and utilization, program management, and evaluation).

5.2 Criterion-referenced Measurement

5.2.1 Develop and apply criterion-referenced measures in a variety of SMET contexts.

5.3 Formative and Summative Evaluation

5.3.1 Develop and apply formative and summative evaluation strategies in a variety of SMET contexts.

*SMET = School Media & Educational Technologies*
Appendix A

Slideshow Flowchart

1. During installation or removal of any hardware, always turn off the system and ensure all data is backed up properly.
2. Disconnect any telephone, network, and USB cables from the computer.
3. Disconnect the computer and all attached devices from their electrical outlets.
4. Remove the system cover. Remove the heat sink. Remove the memory.
5. Disconnect any internal USB cables from the system board.
6. Disconnect the I/O panel cable from the system board.
7. Disconnect the hard drive data cable from the system board.
8. Disconnect the optical drive data cable from the system board.
9. Disconnect the main power cable from the system board.
10. Disconnect the miniview assembly cable from the system board.
11. Disconnect the processor power cable from the system board.
12. Disconnect the processor fan power cable from the system board.
13. Disconnect the card fan power cable from the system board.
14. Unroute the bundle of power cables that run along the edge of the system board.
15. Unroute the ten screws that secure the system board.
16. Shift the system board towards the front of the system.
17. Remove the airflow shroud / heat sink hinge assembly from the system.
18. Complete
Appendix B

System Board Installation Start up Check List

After the system board is removed, and the new system board installed. Please follow the checklist before starting the machine to make sure all steps have been completed to ensure a successful start up of the workstation.

- Did you read the motherboard manual? Are all your jumpers set properly?
- Is the 115/230 Volt switch on the back of the power supply, set to 115 Volts?
- Is the system getting power? Do the fans start to spin when you press the power button? Is there a power-indicator on the motherboard that lights up as soon as the power supply is connected and the power supply switch is turned on?
- Are all of the power supply plugs inserted into the motherboard? Yes? Even that square one next to the processor socket?
- Is the RAM properly seated?
- Is it the correct speed RAM?
- Is the heat sink firmly attached? On Athlon processor based systems, the step in the bottom of the heat sink must align with the raised portion of the ZIF processor socket. Has the heat sink compound been properly applied?
- If your computer uses a separate video card, is it firmly seated in the appropriate PCI or AGP slot? Is there an external power connector on the video card and has it been connected to the power supply?
- If you are using a separate video card with a motherboard that already has Integrated video, and are you plugging your monitor into the correct socket? The one on the video card?
- Did you double-check the front panel switch connection to make sure that they connect to the correct pins on the motherboard?
If you have a reset switch, try removing this connection at the motherboard if there are separate connectors. Check for stuck reset or power buttons on the front of the case.


Did you skip installing the standoffs and screw the motherboard directly to the chassis pan?
### Appendix C  Rubric

<table>
<thead>
<tr>
<th>Category</th>
<th>4-Excellent</th>
<th>3-Well Done</th>
<th>2-Good</th>
<th>1-Needs Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>Student correctly determined the cause of the system malfunction with no instructor assistance.</td>
<td>Student determined the cause of the system malfunction with limited instructor assistance.</td>
<td>Student determined the cause of the system malfunction with extensive instructor assistance.</td>
<td>Student was unable to determine the cause of the system malfunction.</td>
</tr>
<tr>
<td>Tool Utilization</td>
<td>Used the correct tool in the proper manner at the appropriate time.</td>
<td>Used the correct tool in the proper manner at an inappropriate time.</td>
<td>Used the correct tool in an improper manner.</td>
<td>Used the incorrect tool in an improper manner</td>
</tr>
<tr>
<td>Time-management</td>
<td>Routinely uses time well throughout the project to ensure things get done on time. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination</td>
<td>Usually uses time well throughout the project, but may have procrastinated on one thing. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination</td>
<td>Tends to procrastinate, but always gets things done by the deadlines. Group does not have to adjust deadlines or work responsibilities because of this person's procrastination.</td>
<td>Rarely gets things done by the deadlines AND group has to adjust deadlines or work responsibilities because of this person's inadequate time management.</td>
</tr>
<tr>
<td>Use of Anti-</td>
<td>The anti-static</td>
<td>Anti-static wrist</td>
<td>Anti-static wrist</td>
<td>No anti-static wrist</td>
</tr>
<tr>
<td>Static Techniques</td>
<td>wrist strap and anti-static mat were used at all times. There was no damage to the computer components</td>
<td>strap and or mat were used at all times</td>
<td>strap and or mat were used but they were used incorrectly or alternative methods of grounding were used.</td>
<td>strap or mat are being used resulting in damage to the computer components</td>
</tr>
<tr>
<td>-------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cables and Screws</td>
<td>The components, cables and screws were all placed in their proper positions and nothing was lost or damaged. No &quot;Extra&quot; parts</td>
<td>Most cables, screws and parts were installed correctly. No parts were lost or misplaced</td>
<td>Few cables and screws were installed correctly. No parts were misplaced or lost.</td>
<td>Cables, components and or screws are misplaced or not installed at all.</td>
</tr>
<tr>
<td>System Function</td>
<td>Computer System functions extraordinarily well. There are no device or system board problems.</td>
<td>Computer system functions well. There are no device or system board problems.</td>
<td>Computer System functions pretty well. There are one or more system board issues.</td>
<td>Computer System does not function, several system board issues.</td>
</tr>
</tbody>
</table>