Instructional Technology Tools: Exploring What's New

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Abstract – The pursuit for technology resources in teaching is rising in academic institutions. Technology tools used are useful in the instruction of lectures, preparation of presentation, and organization of class needs. This paper attempts to describe the main technologies used at The University of Tennessee at Martin. The concept and usefulness of the technology and examples of applications are also presented. The instructional technologies implemented on campus are classified as In-classroom tools and On-line tools. The technologies implemented and promoted over the UT Martin campus are employed as equipment, software, or a combination of both. Adaptations of the technologies vary widely amongst the faculty where some prefer the traditional overheads, others show interest in the use of more modern technology, and some use all the up-to-date instructions tools in all their classes. Exposure to new instruction technologies is beneficial to many instructors who may find solutions and ideas for many of their classes needs.
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INTRODUCTION

The teaching or (instruction) development techniques progressed through the years in the diversity of methods. The current era of instructional methods carry more weight on the use of technology as a teaching and learning tool. Exposure to new instruction technologies is beneficial to many instructors who may find solutions and ideas for many of their classroom needs. The goal of this paper is to present some of the main instructional technology tools used at The University of Tennessee at Martin.

The paper describes the various technologies used at two different levels: Inside the classroom and On-line tools. Figure 1 shows a flowchart of the various main instructional technologies provided and promoted on campus. The University of Tennessee at Martin has an Instruction Technology Center (ITC) that is responsible for providing facility and access to the tools listed in figure 1. Resources of the ITC include a computer lab with up-to-date hardware and software, plus hands- on training classes offered throughout the year. The adaptations of the technologies vary widely amongst the faculty where some prefer the traditional overhead projectors, others show interest in the use of some modern technology, and some use all the up-to-date instructional tools in all their classes. The instructional technologies implemented and promoted over the UT Martin campus are used as equipment, software, or a combination of both. The following sections are explanations of the flowchart and the usefulness of each tool along with some actual examples.

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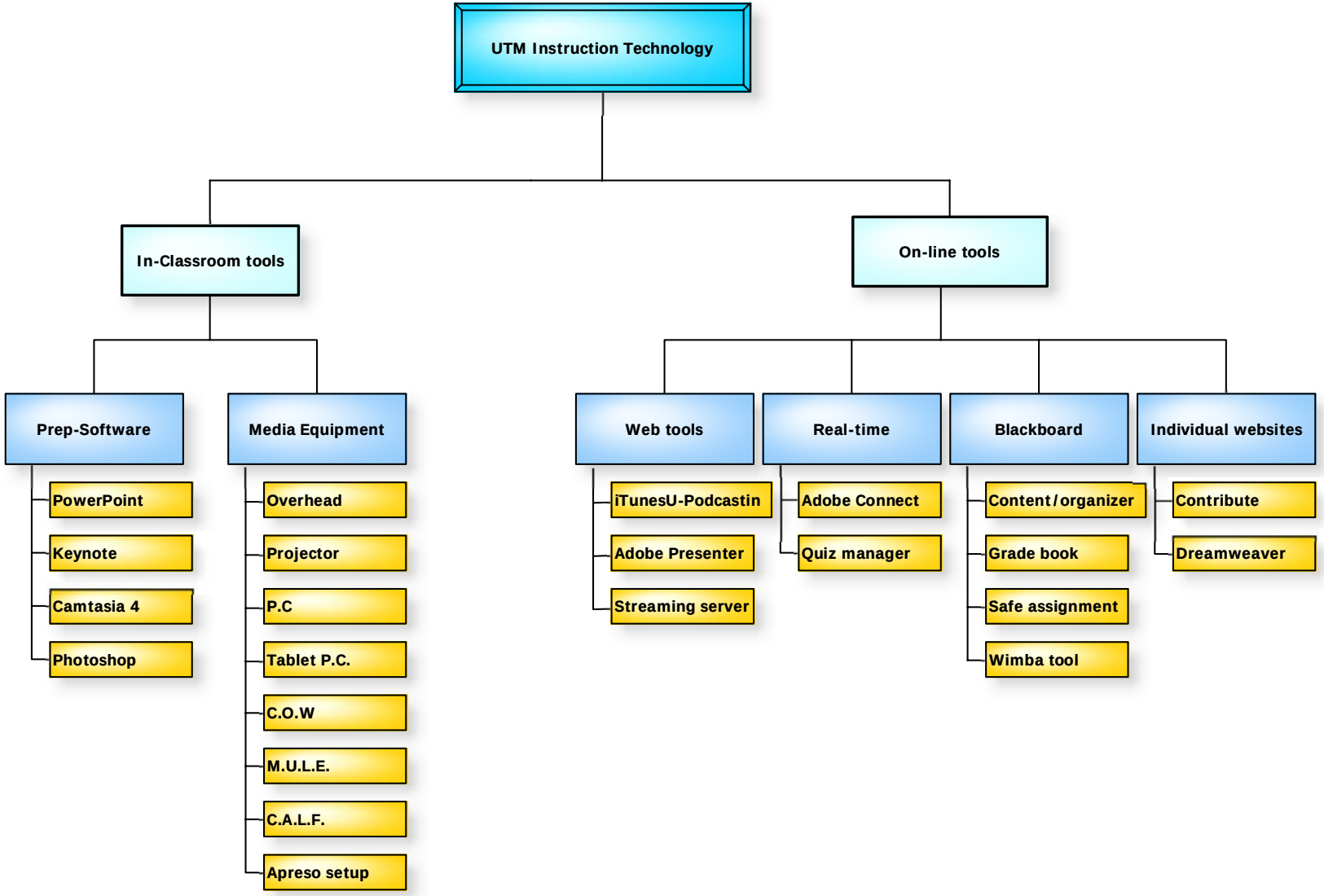

Figure 1. Flowchart of the instructional technology tools used on UT Martin campus

INSTRUCTIONAL TECHNOLOGY TOOLS

The teaching or (instruction) techniques used mainly on UT Martin campus vary upon the user. The following are the main tools provided and promoted by UT Martin.

In-Classroom Tools

The tools used in the classrooms are divided into two parts: lecture presentation preparation tools that are mainly the software to develop quality slides and presentations; these include PowerPoint, Keynote, Photoshop, and Camtasia 4. The latter is a program that is used to capture screen and create dynamic recording.
The second part is the use of equipment inside the classroom. The equipment could be as traditional as an overhead projector to an up-to-date Apreso classroom setup (described in a later section). A summary of the most widely used equipment is described below:

Tablet P.C.

A tablet PC is a notebook that has a touch screen technology that allows the instructor to operate the computer with a stylus, or digital pen, or a fingertip, instead of a keyboard or mouse. The use of a tablet P.C. can be helpful in presentation and explanations of various procedures, solutions of problems, and drawing sketches. Figure 2 below show the use of colors and fonts to clarify the solution of a mechanics problem. Real time writing is shown on the screen projector for the work done on the tablet such as writing on a regular board. Also the material written can be saved as different types of files to be used by students as references or as lecture notes. The use of a docking station is convenient if the instructor frequently uses the tablet in and outside the office. The docking station has one cable from one side (that is attached to the tablet) and the other end has different types of ports for a printer, internet cable, power supply, USB ports for mouse, keyboard, scanner and the monitor's VGA.

UT Martin faculty members who use the tablet PC have realized numerous benefits. First and foremost, using the tablet PC enables the faculty member to take the computer from their office directly to a classroom and use the tablet to deliver course instruction. The unique features of the tablet PC mentioned in the previous paragraph are valuable tools that can be used to not only deliver the instruction in the classroom, but save the instructional content to electronically deliver to the students after class. This model of teaching has been replicated at many other universities.

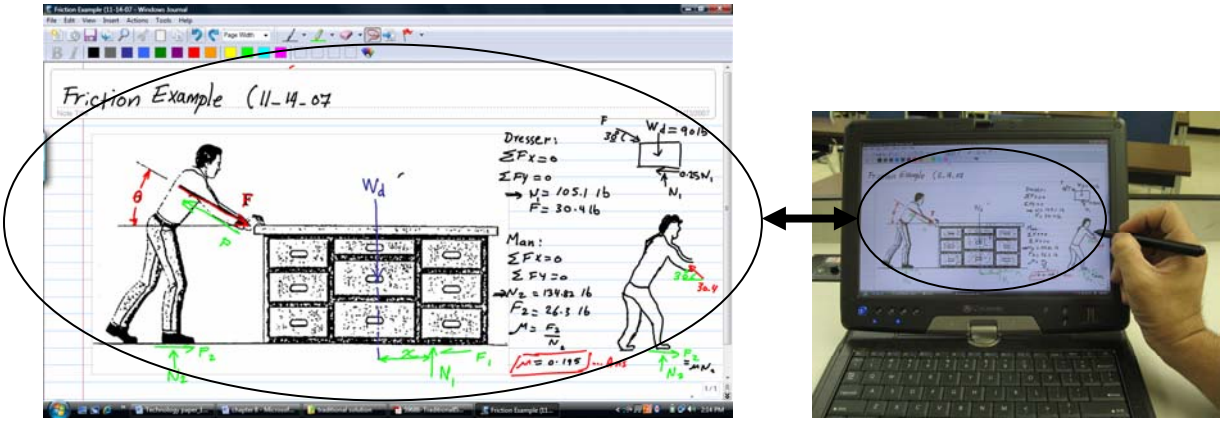

Figure 2. Use of Tablet P.C. to explain the solution of a mechanics problem

C.O.W, M.UL.E and C.A.L.F.

Portable carts loaded with many media tools have names based on the acronyms that describe the different carried equipment C.O.W. is Computer On wheels. The main tools are: A computer, a DVD, a VCR, speakers, a video visualizer camera, a projector, and cables to be hooked up to a laptop. The trend now is to have these carts stationary in each classroom on campus to provide all the media needs. Figure 3 shows a picture of a stationary

podium where most of the media devices are concealed, but the user can switch to the necessary media by pressing the proper button as explained by the figure.

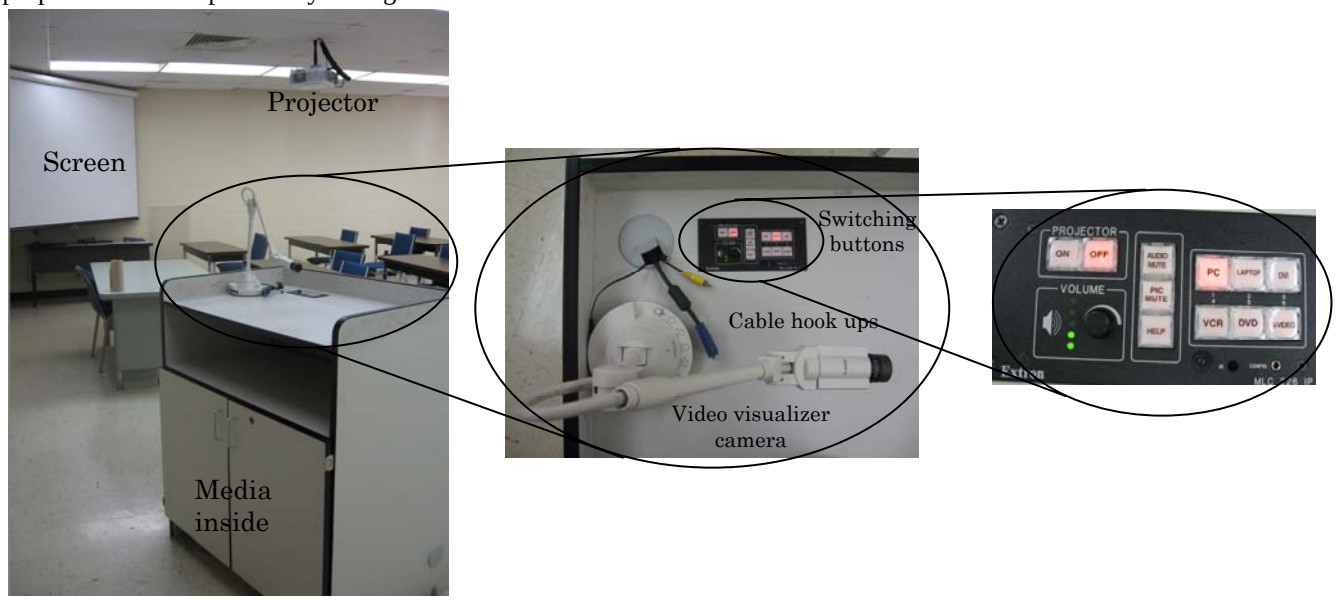

Figure 3. In-classroom equipment

Apreso classroom setup [1]

Apreso classrooms are set up with special recording equipment that creates a video of each classroom session that is scheduled to be recorded. The session can be automatically recorded and uploaded to the internet. So 5-10 minutes after the class is over, a recording of the class session is available for viewing on the internet in whatever location (web page, Blackboard course, etc) that the instructor would like. Currently, there are four classrooms on UT Martin campus that are called "Apreso Classrooms".

The recordings that are generated from the Apreso classrooms have several immediate benefits. For UT Martin students who are enrolled in a class that is taught in an Apreso classroom, the recordings are available online shortly after the class has concluded. This provides a great resource for students who missed the lecture and want to find out what was covered and discussed in class. It also provides a wonderful resource for studying because the students can watch the recordings twenty four hours a day.

UT Martin has also leveraged the value of these recordings by delivering them in dual-credit offerings. Local high-school students around West Tennessee are gaining college credit at UT Martin by participating in dual-credit courses that use the Apreso recordings to deliver college-level instruction.

On-Line Tools

On line tools are very useful for communication, organization, testing materials, and many more. Having On-line communication and organization for courses is effective for faculty and it increases the comprehension of students. The main On-line tools used on UT Martin campus can be categorized into web tools, real time conference and data sessions, Blackboard academic platform, and individual faculty websites.

WEB TOOLS

iTunesU podcasting [2]

iTunesU allows instructors to provide audio and video course content to the students, who can then download the files to their computers and/or their iPod music players. They will then be able to take course content with them as they travel in their car, walk across campus, exercise in the fitness center, walk on the walking trail, etc. They can also 'subscribe' to course/instructor content, therefore making the instructor's content a true 'podcast'.

There are also numerous other benefits of using iTunesU to deliver audio and video content at UT Martin. Part of UT Martin's iTunesU site is freely available and open to the general public. Inside iTunesU are not only course content by UT Martin faculty members, but other UT Martin departments are posting audio and video content. UT Martin Athletics is posting recordings of Athletics activities and games. The UT Martin Paul Meek Library has posted hundreds of self-help recordings, book reviews, interviews, etc., that the general public could take advantage of. And the Honors Program at UT Martin has for years invited guest speakers to come to campus and speak. Recordings of numerous speakers from the past 5 years have also been placed inside the UT Martin iTunesU public site and are freely available to the public. An illustration of the concept of iTunesU is seen in figure 4.

Figure 4. iTunesU web tool methodology

Adobe Presenter (Breeze Presenter) [3]
Adobe presenter is a program that allows the instructor to add his/her voice to Microsoft PowerPoint presentations. The instructor can save the presentation as a video file and place it on the internet so that the students can view the presentation twenty-four hours a day. This product is great for providing course content outside of class, or perhaps when instructors can't meet in person with students.

Streaming Media Servers [4]
Certain media need to be seen by only by students. UT Martin has a Windows Media Streaming Server and a Quicktime Streaming Server that enable a faculty member to deliver protected video files to their students.

REAL TIME TOOLS

Adobe Acrobat Connect (Breeze Live) [5]
Connect Live is a product that enables the professor to meet synchronously (real-time) with students. While inside the Acrobat Connect classroom (using a web browser) the instructor can do many things such as the use of webcams and microphones to see each other and talk to each other, share files, take quick surveys/quizzes, text chat with each other, collaborate on a white-board, remotely-control student computers, share one screen, and present classroom lectures using Powerpoint slides.

BLACKBOARD SYSTEM [6]
Blackboard is an educational On-line management system that has numerous capabilities and features. Main features include developing course content, assignments, gradebook, and more. Figure 5 shows a snapshot of an engineering mechanics course managed through Blackboard. Below are a few of features that are widely used on Blackboard at UT Martin.

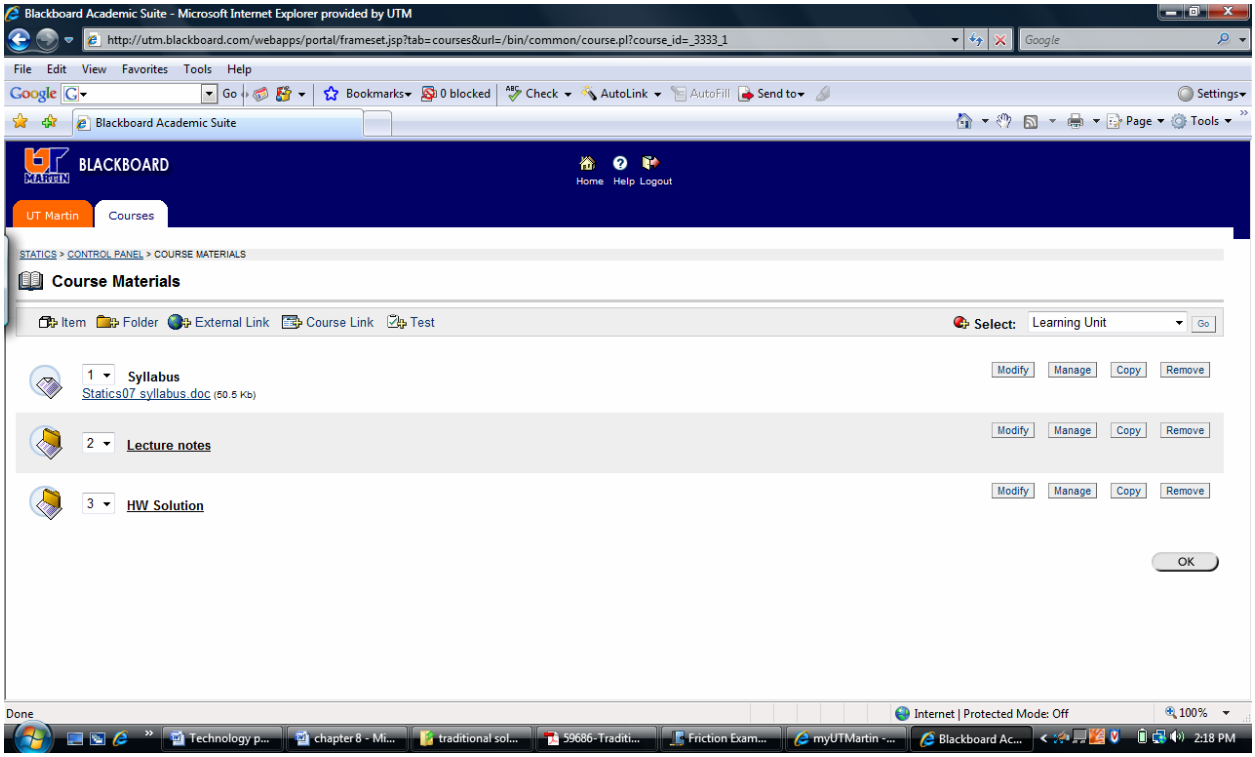

Figure 5. Blackboard course content snapshot

Assignment Tool

The Assignment feature is an assignment management tool for instructors and students. Students are required to submit all assignments in an electronic form using Blackboard assignment tool. The assignment tool keeps assignments organized by automatically generating an item in the online gradebook. From the Online gradebook instructors can review, grade, download, and delete students' assignments. This tool can be a great tool to assist in the ABET evaluation preparations where samples of students' work at different levels are to be presented.

Safe Assignment

Safe Assignment is a feature that can help detect plagiarism in papers that students submit via Blackboard. Papers that students submit are compared to many large content databases on the internet. The instructor receives a report that shows what percentage of the paper was plagiarized. This tool does not only detect plagiarism, it also gives some tools to help the students learn about what plagiarism is and how to avoid it.

After 4 semesters of use, UT Martin faculty members utilizing the Safe Assignment tool have seen a dramatic drop in plagiarism among their students. Students are not only writing better, but they are learning the value of good writing which will serve them well as they advance their college careers and subsequently move into the workforce.

Wimba Voice Tools

Wimba Voice Tools is an audio-based discussion board, so that with the use of a microphone attached to a computer, instructors can post discussion comments with their own voice instead of typing them on the keyboard. In this manner, instructors can add another dimension to their courses. Adding the instructor's voice and the voices of students brings a level of personal engagement that has never been possible before. For online classes especially, this tool is invaluable. Students only need a web browser and a microphone attached to the computer to use Wimba Voice. Also in addition to the audio discussion board just mentioned, Wimba Voice Tools also includes other tools inside Blackboard such as audio announcements and audio emails.

The UT Martin Department of Modern Foreign Languages (MFL) was in the forefront of the use of Wimba Voice Tools, and they immediately saw an increase in course quality as well as the quality of student-submitted work. Students were immediately provided with the tools to provide a greater amount of course participation and better quality of course participation by using the Wimba Voice Tools to demonstrate their knowledge of the language. Using Wimba Voice Tools has transformed the MFL Department's delivery of courses and enabled their faculty to spend more time teaching the language and less time managing course delivery issues.

INDIVIDUAL WEBSITES

Some instructors prefer to post and organize class materials on their own websites that they develop using the campus server. The main tools that the ITC provides and assist the faculty in designing a website are Dreamweaver and Contribute. An example of a developed website is shown in figure 6. This website is designed to provide information and content of courses offered for the transportation concentration in the department of engineering. It also has downloadable materials that are course specific. The website was designed during a faculty workshop supervised by the ITC where Dreamweaver software was the main tool used in the design process.

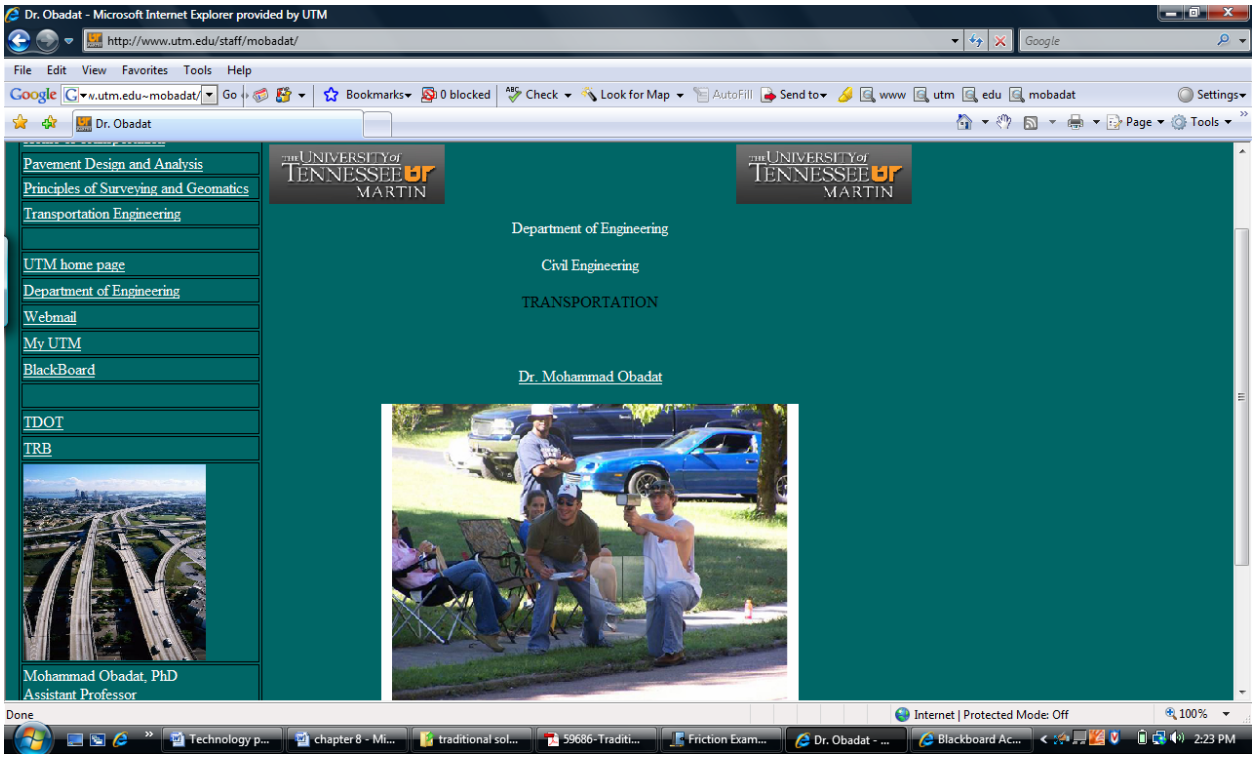

Figure 6. Individual website for Transportation concentration in the department of engineering

FUTURE ADDITIONAL TECHNOLOGY TOOLS

Future plans for the ITC is to have access to additional technological tools that are necessary for the educational process. Below is a list of immediate needs that can be added to the previous mentioned tools.

Respondus [7]

Respondus is an assessment-creation tool that enables instructors to create extensive assessments on their computers and then upload them to Blackboard. The existing assessment tool that comes with Blackboard is sufficient for most uses, but Respondus provides an abundance of tools to create the types of assessments that can't be created using the built-in Blackboard assessment tool.

Lockdown Browser [7]

Lockdown Browser is a product that students use to take tests using the computer. When the student opens up the Lockdown Browser product, the test opens on the screen and at the same time it completely locks down everything else on the computer. So the student is unable to use any applications, or use the browser to get on the internet.

Blogs and Wikis

There are numerous companies that provide Blog and Wiki tools to allow groups of students to collaborate on projects on the internet. They can share documents and resources, and jointly edit documents to provide a true collaborative atmosphere.

CONCLUSIONS

Instructional tools assist the teaching and learning process for both the faculty and students. The instructional technologies used on the UT Martin campus can be grouped into in-classroom tools and on-line tools. Both up to date technological equipment and software are jointly used to produce manageable and productive courses. Adaptations of the technologies vary widely amongst the faculty where some prefer the basic overheads, others show interest in the use of more modern technology, and some use all the up-to-date instructional tools in all their classes. Exposure to new instruction technologies is beneficial to many instructors who may find solutions and ideas for many of their classes. No doubt that there are many technologies used on many campuses that might be similar in concept but it is important to have dedicated facilitators who help promote and educate the faculty and staff about the available resources.

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