Computer aided instruction

Technology, Computer

Their structure and implementation are described, and feedback and statistics from the first semester of use at the university of Michigan are shown. We also describe our efforts at disseminating information on the tutorials to increase their use. It's concludes with a discussion of future work planned for the tutorials and potential future applications of the concept of Web-based tutorials. Engineering education (as well as the engineering profession in general) has become increasingly reliant on ever-more-powerful software tools to assist in solving ever-more-complex problems.

Computations which once took pages of algebra now require only a press of the return key. Instead of presenting computational techniques in the classroom, it is now possible for the professor to focus on both fundamental and advanced concepts and let the software packages do the computation. A Case Study in Software Instruction over the World Wide Web: The Michigan-UCM Control Tutorials for Mental. Teaching students to effectively use these new software tools can be problematic, however.

Software is best learned by playing with it, but the user interfaces many powerful tools are cryptic at best. The manuals are often written for advanced users and can be difficult for beginning engineering students to follow. The professor often will bring a computer into the classroom to demonstrate the software, but it can be difficult to take notes on the commands that are used. We present a new methodology for teaching software tools We have developed a set of tutorials for teaching students to use Mental, a popular computational software package, in the context of Automatic Control. Student users are expected to run Mental in one window of their computer and a Web browser (such as Netscape) In another. The

tutorials contain Mental code along with explanatory text to describe the objective of the commands along with the Mental output (text or graphics). The students are encouraged to copy the commands from the browser window Into Mental (using copy and paste with the mouse), run the code, and compare the output they get with that given in the tutorials. In this way, they are able to quickly use the Information presented to them.

Because the tutorials are on the World Wide Web, they are immediately available to students whenever they are at a computer with a network connection. Throughout the tutorials, we assume that the users are object matter is cursory; the emphasis is on how to use a software tool (Mental) to analyze and design control systems Control Tutorials for Mental. With this design, the tutorials can not only be easily integrated into an existing undergraduate controls curriculum, but they can also be used by community colleges, industry, and individuals for continuing education.

With these tutorials, it is easy for engineers in academia and industry with access to the WWW, who know some classical control theory, to learn how to use Mental to apply their knowledge and to improve their skills and understanding. In fact, our current statistics show that approximately one-fourth of the US users are from companies. The application here differs somewhat from other uses of the WWW that we have found. Other educators have built Web sites for illustrating concepts and techniques of dynamic systems and controls.

Still others have used the Web as a distribution method for reading material. The tutorials described in this paper are used to teach a skill in using a

particular software package. The tutorials begin with Mental Basics. " As the title implies, this page introduces the Mental format for vectors and matrices, some tankard functions, as well as plotting. Since in controls, transfer functions are often represented as rational polynomials, we show how Mental uses vectors to represent polynomials.

Addition, multiplication, and division of polynomials is also covered. The modeling tutorial is included for completeness. Foreign Studies Computer technology in general and the Internet in particular have facilitated as well as motivated the development of Web-based tutorials (Mackinac & Williams, 2006). The current research study describes a pedagogical approach that exploits the use Assessing the effectiveness of web based tutorials using pre and post measurements. F self-paced, Web-based tutorials for assisting students with reviewing grammar and mechanics in a business communications course. The adopted tutorial consists of (1) grammatical and mechanical rules, (2) sentence reinforcement exercises, and (3) interactive diagnostic testing, all with immediate feedback and explanations. The purpose of the study was to determine if the use of Web-based tutorials significantly improved student performance using pre- and post- test measurements. A quasi-experimental design was used to compare learning outcomes.

The results indicate that the use of Web-based tutorials to review grammar and mechanics significantly impacted students' scores from pre-test to final post-test. The effectiveness of traditional teaching methods has been questioned as educators search for alternative ways of presenting material,

engaging students, and improving academic performance. As a result of such enquiry, the use of computers and the Internet have become integral parts of student learning in today's classroom. Eased tutorials for student learning and assessment across various disciplines (Mackinac & Williams, 2006). Belies (2005) defines Web-based tutorials as " computerized demonstrations that are used for active learning exercises. The use of Web-based tutorials has become acceptable as a complement to lectures as it improves students' level of understanding of materials and allows learners to control the sequence and pace of the instructional materials.

During the development stages of Web based tutorials, Dawson (1998) argued. That, " while the lectures provide content to make learning possible, tutorials are the major measurements. Avenue to activate the learning process through preparatory reading ND Effectiveness of Web-Based Tutorials Despite considerable research on the outcomes of various teaching approaches at the tertiary level, there have been few investigations assessing student performance using Web-based tutorials.

The current study addresses this deficit. The current research study describes a pedagogical approach that exploits the use of self-paced, Web-based tutorials for assisting students with reviewing grammar and mechanics in a business communications course. The purpose of this study is to determine if the use of Web- based tutorials are beneficial to student learning. Specifically, the research examines the use of Web-based tutorials using pre- and post-test measurements.

Experts in the field of performance assessment are actively debating whether students using Web based tutorials perform equal to or better than students using more traditional methods of instruction. A review of literature reports on a number of primary research studies that have provided comparable data on student performance as well as student perception of Web-based tutorials. Despite the fact that the use of Web-based tutorials has gained momentum in recent years, a discussion examining he relationship between learning styles and instructional methods is warranted.

The relationship between learning styles and web based system Clark (1983) argued that the media (e. G. , video, computer, or oral tradition) are merely vehicles that deliver instruction but do not influence student learning. Additionally, Alexander (1995) suggests that we focus on the way in which students learn using the technology rather than the media. Assessing the effectiveness of web based tutorials using pre and post measurements. Definition of Terms Computer - A programmable usually electronic device that can store, retrieve and recess data.

Mental - A popular computational software package Tutorial - A Web tutorial is a method of transferring knowledge and may be used as a part of a learning process. Software - Software is a generic term for organized collections of computer data and instructions, often broken into two major categories: system software that provides the basic non-task-specific functions of the computer, and application software which is used by users to accomplish specific tasks. Software Packages - A special method of

distributing and installing software to carry out a specific activity, perform a

duty, or solve a problem.