E1-22: Development of computer based interactive courseware using Virtual Reality Modelling Language and other web tools

N D Kodikara
(Dept of Statistics and Computer Science, University of Colombo Colombo 3)

The rapid emergence of the World Wide Web and its associated tools have provided educators with an opportunity to incorporate this technology in courseware preparation. The objective of this research is to explore the possibilities of using new web based technologies such as Virtual Reality Modeling Language(VRML) to develop teaching material which are more interactive, informative and comprehensive. VRML is a 3 dimensional graphics format which allows modelling of 3 dimensional subjects and their behaviour.

In this research work, courseware was developed for 3 dimensional Computer Graphics where 3-dimensional illustration of algorithms are needed. The main text of the courseware was developed using HTML with hypertext links to other HTML pages. VRML pages were linked which demonstrate 3D algorithms are also linked to HTML text. Students can examine these 3D graphics displays by navigating through the displays using VRML interfaces. The interaction features provided by VRML facilitate students to manipulate the objects in the display to gain understanding of the effect of these manipulations. Textual descriptions of the purpose and properties of the objects in the display can also be obtained by clicking the objects using HTML tags attached to them.

This type of teaching material would give students an additional understanding of the subject. One of the major advantages of such a system is the development and implementation cost. Only a PC and a VRML enabled web browser is sufficient, hence expensive hardware and graphics software are not needed. The courseware can be incorporated with the web so that the students in other educational institutions can access them.