

In-Cor-E: The use of java supported web browser format for interactive education in vapor-compression refrigeration cycle with real-time/online assignment grading module

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Abstract

In recent years, many educational institutions have started to employ computer, network and web based technologies in their lectures. Computer Assisted Instruction, Computer Managed Instruction, Computer Mediated Communication and Computer-Based Multimedia can be classified in such implementations. With these techniques, distance education is widened and in consequence, gained more importance.

In this study, a distance education and teaching courseware for refrigeration, namely Interactive Vapor-Compression Refrigeration Cycle Education (In-CoR-E) has been developed using Hyper Text Marked Language (HTML). In order to provide interaction, which has an important role in education, object-oriented programming language Java has been used. Since HTML and Java are platform-free languages, this program can be used in every kind of computer, which has a standard Internet browser.

In In-CoR-E, the course text has been written in HTML. The equations and figures are prepared in suitable graphic format. The links, and various information, and example problems in Java and in text format have been also supplied. In example problems in Java, parameters can be changed by the user within certain limits and in such a way, various results can be collected to analyze the affects of each parameter used. In addition to problems prepared, programs for unit conversion, thermophysical property calculation for water and air are also presented in Java. Furthermore, a supplemental program is written to handle a part of Thermodynamic course's assignments. With this program, it is possible to deliver and grade the assignments online through internet. Each student has maximum five attempt to solve the problem where every wrong attempt decrease its grade point by 20%. With this module, more assignments can be given without any grading manpower while the student can get more practice with self-correction ability.