Teaching efficacy of Web-based teaching methods in an undergraduate thermodynamics course

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ABSTRACT: An online version of a physical steam turbine experiment was developed for use in an undergraduate thermodynamics course in the Mechanical and Aerospace Engineering Department at San José State University, San José, USA. The online simulation was motivated by the need to illustrate theory-based lecture content with real-world applications and the need to efficiently serve a large class, among other factors. The implementation was accomplished with JavaScript and HTML, as well as other commercially available software for Web-based applications. The Web-based assignment was shown to be more effective than a traditional problem set at teaching the thermodynamic concepts discussed in lecture without a significant increase in time required of the instructor for administration and grading.