

Teaching EM Theory with RF Applications

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The advent of on-line degree programs has proved to be both a rewarding and challenging environment for graduate studies. In particular, teaching applied electromagnetic theory is a complex undertaking when the in-class interaction is removed. This presentation will outline some techniques used by the author to teach EM theory and applied EM theory applied to antennas. An overview of the Blackboard tool will be presented as will the structure of the classes.

The presentation will focus on the work needed to transition notes from an in-person class to the on-line environment. In particular, the importance of the preparation for the first offering of the class will be detailed. Various educational software aids utilized in the courses will be shown such as Camtasia and EM software simulation codes. The importance of short videos pertaining to the classes will be shown as a method of connecting the student to the subject matter. Other topics will be the importance of discussion questions and on-line (synchronous) office hours. The difficulty of including measurement in such classes will be discussed as will be methods of addressing this problem.

While the development of on-line teaching is here to stay and will only become more prevalent in the future, challenges remain in developing the interpersonal student/teacher relationships that existed in the past. Some suggestions from experience will be offered.