INTEGRATIVE CONSIDERATIONS AND TECHNIQUES FOR QUANTITATIVE DISTANCE LEARNING COURSES IN GRADUATE ENGINEERING MANAGEMENT EDUCATION

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Abstract - *This presentation details work-in-progress for the development of quantitative and IT related graduate courses for distance learning that are taught concurrently with the schedule of our traditional courses.*

Development and delivery of courses in a format suitable for a distance learning graduate management engineering program presents many unique challenges. All of our graduate courses require a high degree of class participation, student team interaction and presentations. Engineering graduate course materials must be revised frequently to maintain technical relevance. Some faculty have successfully relied on video recorded lectures to keep students on track with a course organized for distance learning. However, current video technology is not able to represent computer screen images that are recorded from overhead projectors or conventional white board drawings with sufficient detail to present quantitative materials in the same format that is suitable for an in-class room presentation. The need to rapidly and efficiently prepare, revise and capture lecture materials for delivery of highly technical and quantitative courses requires special consideration.

Many students work full time as practicing engineers, must travel extensively, and may even move before they can complete the graduate program. For these students, time is a premium. The materials they submit from remote sites for participation and presentation in the course need to also be integrated with the in-class student participation and presentations. This can present challenges similar to ones experienced by the faculty when developing a course for distance learning.

Many other opportunities and challenges are being addressed by this work. Some examples are: effective and efficient means for providing feedback and counseling; facilitating team interaction for effective group work; integrating assignment delivery with learning about Internet technologies; development and use of an experimental database for sharing course materials and registering student's work on assignments.

Current Status:

All materials are published on a secure class web site to ensure students have current course materials. This allows detail and application specific formatted materials to be available that would otherwise not present well from a VCR tape. Figure 1, a use case model with labeled spheres to represent teaching resources, illustrates the process for student presentation of assignments in a quantitative course designed to enable remote students to interact and become integrated participants with local students.

In this model the instructor creates the ***assignment repository*** on a secure web site with student pictures and links to their assignment results. Students learn how to publish assignments to the ***assignment repository.*** A conference phone is used to provide an ***conference phone session*** for remote student participation in the class. The instructor assists remote students by browsing and sequencing presentation materials on a computer driven video projector for the local students. Local students assume these roles when they present.

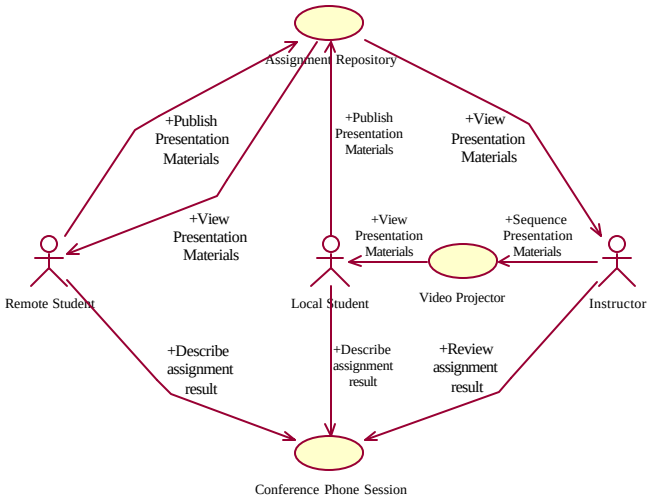

Figure 1 - Integrative DL Class Model

A database was developed to simplify the administration of the assignment repository for managing course materials, completed assignments, and collaboration with the instructor and other students.[1] Database work is underway to address security concerns and provide a discussion forum for collaboration between students and the instructor.

References:

1. Subramanian, Aarthi. 1999, "Online Course Content Management Application for EMGT810." MS Field Project, University of Kansas – Engineering Management Program, 1999.

[1] Engineering Management Program of the School of Engineering, Edwards Campus - University of Kansas, Overland Park, Kansas 66045-2476