Web-based Secure Real-Time Communication and Collaboration

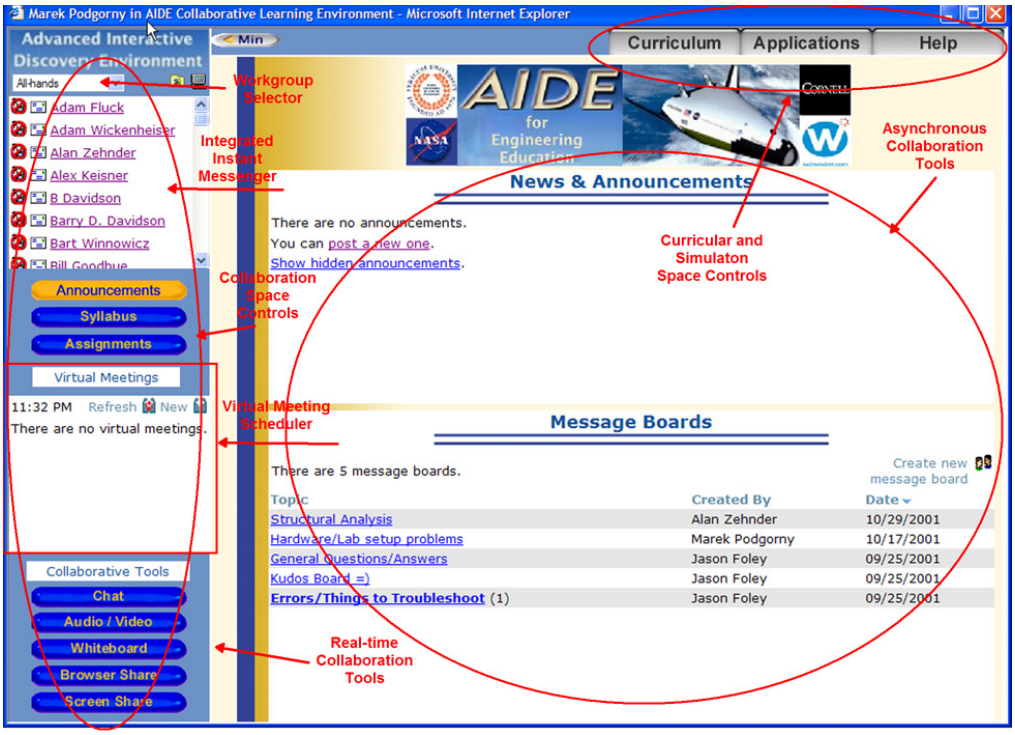
CollabWorx for Distance Learning

Collaborative Learning Environments: NASA AIDE

The Advanced Interactive Discovery Environment (AIDE) was a NASA funded research project in collaborative distance design. The AIDE project portal and distance learning infrastructure has been developed using the CollabWorx SRTC Platform and customized to meet guidelines developed by NASA, Cornell and Syracuse University Schools of Engineering.

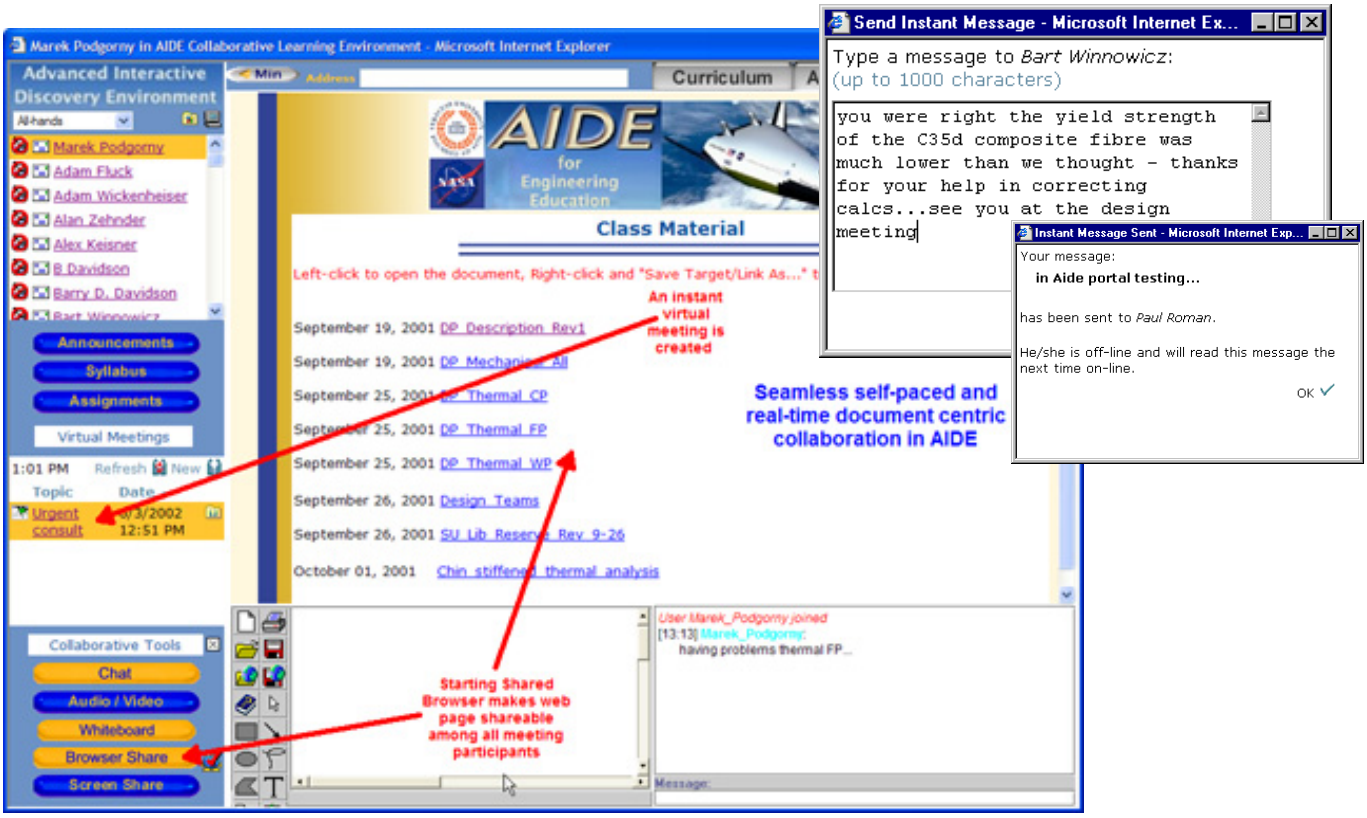
The AIDE infrastructure has been deployed at Cornell and Syracuse University schools of engineering in 2001. The AIDE system allows engineers at NASA and engineering students at Cornell and Syracuse Universities to work together virtually, in real time on solving design problems posed by NASA engineers. The design task set by NASA engineers for the first semester (started October 2001) was; "*the preliminary design and analysis of thermo-structural systems for a 2nd generation reusable launch vehicle using collaborative, multidisciplinary design projects. Emphasis is on vehicle and component configurations, thermal/structural concepts, material selection, and failure analysis with potential for investigation of selected aerodynamic and aero-thermal issues.*"

CollabWorx developed an end-to-end infrastructure for asynchronous and synchronous distance learning, distance design and real-time, multi-party project collaboration featuring chat, multiparty voice and video communications, co-browsing, whiteboarding, and application sharing (for sharing of any application including standard office tools and specialized engineering oriented tools like ACAD). Asynchronous tools such as system-wide announcements and message boards were provided as well. The system provides support for an unlimited number of student teams, instructor and teaching assistants communities, and technical support communities. Each and every group can operate in a separate context and have access to the context specific information as well as to system-wide content. In addition, the system provides capability to record, index, synchronize media streams, publish, and archive all classes and students' presentations.

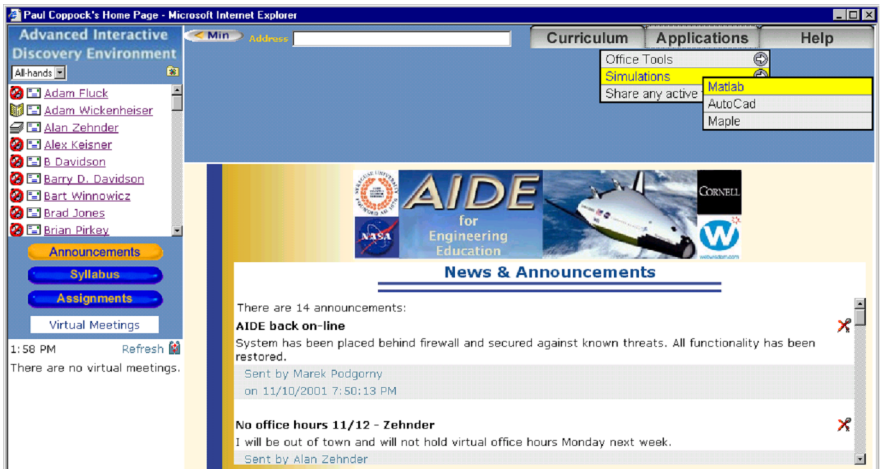


CollabWorx installed Virtual Classroom software to facilitate broadcast of lectures to remote students such that each could fully participate in lectures that were presented remotely. Additionally, CollabWorx provided workstation software and consulting for equipping students' and presenter workstations. Lecture theatres were instrumented with presentation equipment, cameras and audio equipment for lecture recording and presentation.

The critical design parameter for the system was the notion of a *collaborative learning environment*. The system has been designed to support several educational processes. The traditional "instructor to student" path has been of course fully supported, as was the functionality needed for individual consultations and tutoring by the members of instructors' teams. The truly innovative component of the AIDE was support for on-line collaboration by students' teams. The class curriculum required extensive design work by teams of students. In case of AIDE, the teams were required to have members from both Universities involved in the project and had to use AIDE as the only vehicle for project work. In effect, AIDE served as a collaborative learning environment for the class.



As a whole, AIDE software provided seamless integration of synchronous and asynchronous learning models with additional functionality Three years after initial deployment AIDE still represents a cutting-edge technological achievement, which has not been fully duplicated by commercial products or research projects. The underlying technology is currently being used by similar projects sponsored by NASA at Old Dominion University.



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