

Cloud Computing and Asynchronous Distance Learning in the Instruction of Fluid Power Courses

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Cleveland Community College is a midsize community college located in the foothills of western North Carolina. As with all of the 58 community colleges in North Carolina, vocational education and retraining and industrial skills improvement has been a foundation of our institution. The College has a long history of teaching fluid power as part of the Industrial Systems Technology and the Pre-Engineering curriculums.

Recently Cleveland Community College has been selected to become one of eight active partners in the North Carolina Cloud Computing Initiative. The cloud computing development will take place in the Vocational Engineering Division and will allow students to remotely take control of specially-designed training equipment. This training equipment will be available to the student on an unscheduled 24hr/day 7day/week basis to carry out remote experimentation and troubleshooting exercises. One of the statewide selected programs to follow this model is the College's fluid power program.

This abstract will cover the general development of the proposed online equipment, its automation and execution on the World Wide Web. The following will be the significant milestones:

- 1) Identification and integration of course goals into an overall program definition.
- 2) Development of a design document covering the proposed online equipment.
- 3) Design of the supervisory automation hardware including selection of appropriate automation software.
- 4) Selection of the global SCADA system to actively manage the integration of the equipment level automation to the World Wide Web.
- 5) Equipment construction and implementation.
- 6) Integration of the total scheme into the North Carolina Cloud Computing initiative.

The benefits of this program to students and industry are many. This program will allow an average 16-week college course to be taught online with only four days of campus time required. Students from around the region and the world will be able to use high-level training facilities remotely and on their schedule to develop the necessary skills in fluid power to succeed in the world market place.