The Establishment and Operation of an Integrated E-Learning Hanger to Improve the Aviation Technology Education in an Academic-Industry Alliance

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ABSTRACT

Aviation technology involves highly integrated technical systems. The well-trained professionals are vital to the development of aviation industry. Nevertheless, the training of qualified professionals (pilots, engineers, mechanics, and administrators) is very costly. Under the support of a government-funded academic-industry alliance, an e-learning hanger was established at Aeronautical Engineering Department at Huwei University of Technology, one of the major allied universities, to promote the efficiency of aviation technology education at Taiwan.

The application of information technology is a technical trend in aviation industry. Hence, the core parts of the program are the computerization of hanger management, including the construction of wireless intranet connecting all laboratories in the hanger, the integration of individual laboratory information into an integrated departmental information support system. The department incorporates many technology-based features developed to build an more efficient learning environment, including real-time distance courses, wireless electronic manuals, video on demand/multimedia on demand (VOD/MOD) system, on-line curriculum, tools and store management system, interactive maintenance training/laboratory system, student performance evaluation and management system and faculty development and retraining program. All curriculum developed by faculty are deployed on-line and many are given in multimedia form to quarantine easy-absorption and easy-access for all students. The curriculum covers wide range of aviation technology including airframe, powerplant, avionics and maintenance management program. Since, students have the opportunities to virtually operate instrument or conduct maintenance procedures by interactive simulation program, they will be more prepared after the e-learning process before actually conducting any hand-on practices and experiments that are indispensable but expensive. The operation cost and instrument damage rate are both apparently reduced. Many real-time distant courses have been given to students at different schools and institute. The education cost has been reduced by the resources-sharing policies. The e-learning system also provides

students with precise and real-time instructions and advices from faculty and industrial experts through internet. The studying platform is accessible to on-campus students as well as off-campus students and those from allied schools. The results also show that, besides hardware construction, the participation of academic-industry activities and faculty-involvement through the e-learning system will improve the motivation and efficiency of student study. This paper presents the hardware construction scheme of the e-learning hanger, new-developed curriculum, reorganized teaching plans, and the academic-industry activities designed to achieve the maximum benefits from the operation of the hanger.

Keywords: Aviation technology, E-learning, Academic-industry alliance, Information management