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Course Development: Critical Composite Maintenance and Repair Issues

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This summary documents the results of a Federal Aviation Administration cooperative agreement with Edmonds Community College to develop a standard for teaching an introductory course on Critical Composite Maintenance and Repair Issues. This course will provide to students an awareness of safety issues regarding the maintenance and repair of composite materials utilized in aerospace. The audience for this course includes engineers, technicians, inspectors, and other functional areas interfacing with composite materials technology.

A principal objective is to provide an industry standard for a course in composite materials safety awareness, which reflects the content and balance of the knowledge of a worldwide body of experts in the field. The standard was achieved by developing the course primarily through collaborative workshops and other forums in order to involve industry, academia and government regulatory agencies. The 'science' of composites technology lacks standard practices, and these practices vary among manufacturers and maintenance and repair organizations (MROs); this cooperative agreement promotes the development of a standard awareness of composite technology and its safety implications in industry.

The awareness course development has produced a course framework with safety messages, assessments for course developers and teaching resources.

Terminal course objectives (TCOs) form the course framework. The TCOs have been summarized into 13 major group modules. These TCOs represent the consensus of industry experts on the expectations of the course. If a course meets the intent of the TCOs, it will achieve compliance with the input of these experts and the course standard. The TCOs have been further categorized into four critical areas: Base Knowledge, Teamwork and Disposition, Damage Detection and Characterization, and Repair Processes.

The first three development phases have been completed, and are being published in the FAA Technical Center Report. The final phase of the agreement, to be completed in 2007, will demonstrate that the developed training and delivery methods effectively fulfill the intent of the TCOs while utilizing latest learning theories to enhance student retention.