



Discussion Points

Curriculum Development

- ✦ Development Overview
- ✦ Role of Workshops – Organization of objectives and content for this workshop
- ✦ Customizing course design by using a Story Board (one technique)
- ✦ Testimonials and Safety Messages
- ✦ Workshop Process



Curriculum Development *Overview*

- ☀ **Concept: Incorporate latest teaching methods with the following attributes**

- Introductory course, will provide platform for advanced study
- Edmonds CC will offer as combination web-based + laboratory
- 5 day course equivalent, 3 college credits, 50% hands-on lab
- Audience: Engineers, Technicians, Inspectors

- ☀ **Perspective on Learning**

- Meaning before detail (e.g. 2 minute testimonials)
- Learn by doing (e.g. If lecture is 10% effective, laboratory experience is 90% effective; case studies)
- Learn in 'small doses' (e.g. break course into smaller modules)

Curriculum Development

Collaboration of Industry & Academia & Government

• Workshops during curriculum development

- FAA/Industry/Academia Workshop in Seattle, WA (November/December 2004) *Establish course framework by identifying terminal course objectives (TCOs)*
- Tele-conference (April 2005) - ~10 participants
- FAA Workshop (Chicago - Sept 2005) *Evaluate content relative to course framework as defined by TCOs*

• Results

- 2004 workshop – 450 skills identified; 60+ TCOs; 11 major areas ('modules')
- Workshop report posted on AMTAS web-site for review: Jan 05
- Workshop attendees invited to evaluate progress and provide suggestions via tele-conference: April 28, 2005
- Increase in scope, resulting in prerequisite course plus additional content detail and tools
- Major Achievement: Consensus on course expectations
- **MODULES (11): ALLOWS US TO FOCUS ON WHAT'S IMPORTANT**

Curriculum Development

2005 Chicago Workshop

- **Modules: Grouped into Key Subject areas and provided to small teams for preliminary assessment before workshop**
 - Published on website for participant viewing
 - Focus: Define issues based on content
- **Objective: 2005/2006: Publish course content and other teaching tools in 'public domain'**
 - Terminal Course Objectives (TCOs), categorized by modules
 - Written content, corresponding to TCOs
 - Testimonials and Videos
 - Laboratory instructions

Modules and TCO List

TCO A Module - Understand Basics of Composite Materials Technology

TCO B Module - Understand the Basics of Composite Materials Maintenance and Repair

TCO J Module - Understand other Critical Elements of Composite Maintenance and Repair

TCO C Module – Understand Roles and Responsibilities

TCO D Module – Recognize Composite Damage Types and Sources

TCO E Module – Identify and Describe Information Contained in Documentation

TCO F Module – Describe Composite Laminate Fabrication and Bonded Repair Methods

TCO G Module – Perform a Bonded Composite Repair

TCO H Module – Describe Composite Damage and Repair Inspection Procedures


















TCO I Module – Describe Composite Laminate Bolted Assembly and Repair Methods, and Perform and Inspect a Bolted Composite Repair

TCO K [LAB #6] Module – Case Team Studies

Elements of Curriculum

Relationship to Course Design

Elements (published)	Technique	Custom Curriculum
TCOs & Content		Learning techniques
Flight Safety Messages	STORY BOARD	Modified mix of elements
Testimonials		Teaching format
Videos		Target audience characteristics

Tuesday			Intro to Composite Maintenance & Repair Timeline		
Morning  8:00 to 9:50	Primary Mode[s]:  Lecture Supplemental Mode[s]:  P. Pt Presentation  Testimonial from Practitioner	Topics: TCO [E] Identify & describe information contained in documentations E1: Describe requirements in material & process specifications and structural repair manuals E2: Demonstrate use of source documents E3: Identify & demonstrate use of regulatory documents E4: Understand the requirements and engineering approvals necessary for valid sources of technical information & maintenance instructions Fight Safety Message #3  Total Time: 1hr 50min			
Morning  9:10 to 10:10	 Intermission  Total Time: 20 min				
Morning  10:10 to 12:00	Primary Mode[s]:  Lecture Supplemental Mode[s]:  P. Pt Presentation  Video  Testimonial from Practitioner	Topics: TCO [F] Describe composite laminate fabrication & bonded repair methods F1: Understand the basics of composite laminate fabrication F2: Understand the basics of composite bonded repair F3: Describe the detailed processing steps necessary for laminate fabrication [factory], bonded repair [field], and Material Review Board (OEM) F4: Describe key characteristics and processing parameters for laminate fabrication F5: Identify typical processing defects which occur in composite laminate fabrication & bonded repair. Fight Safety Message #4  Total Time: 1hr 50min			
Afternoon  12:00 to 1:00	 Lunch  Total Time: 1 hr				



Safety Messages

- 1: Interlinked aspects of composite repair
- 2: Repair disposition
- 3: **Repair documentation**
- 4: Correct processing
- 5: In-service inspections
- 6: Procedures and post-repair of bonded repairs
- 7: Post-repair inspections
- 8: Bolted repairs
- 9: Importance of teamwork

Testimonials – Tied to Safety Messages

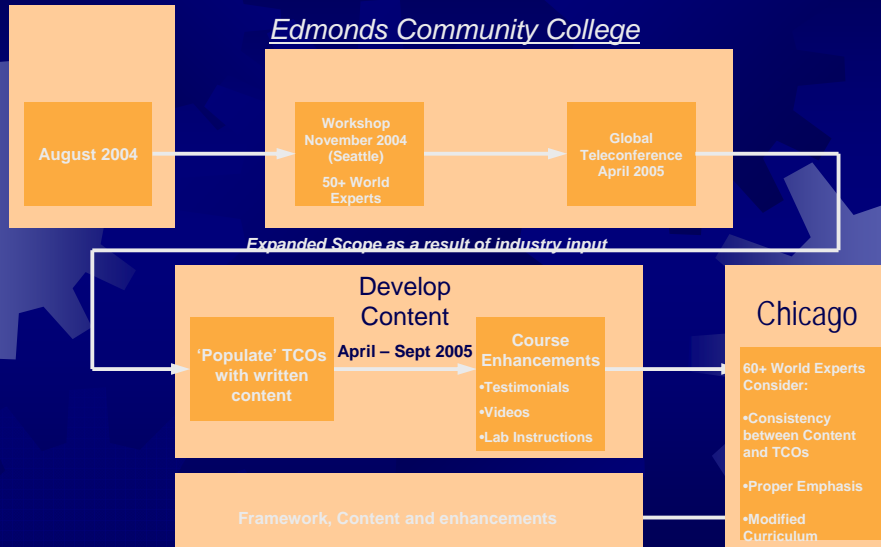
Questions to Ponder:

- Does the testimonial provide 'meaning before content'?
- What Module and Safety Message does each best fit?
- Do any of you wish to be a 'star' in a testimonial?
- WE NEED MORE TESTOMONIALS!

- Mike Hoke
- Dave Berg
- Carlos Blohm
- Keith Armstrong
- Bill Cole

Curriculum Development: Composite Materials Maintenance and Repair

Edmonds Community College



Workshop Process

Chicago (September 13 – 15, 2005)

Process Overview (Sessions 1 & 2)

FAA (Logistics, Agenda, Process, Introductions, Background)

Edmonds Community College (Development Process)

Moderators for each Key Subject

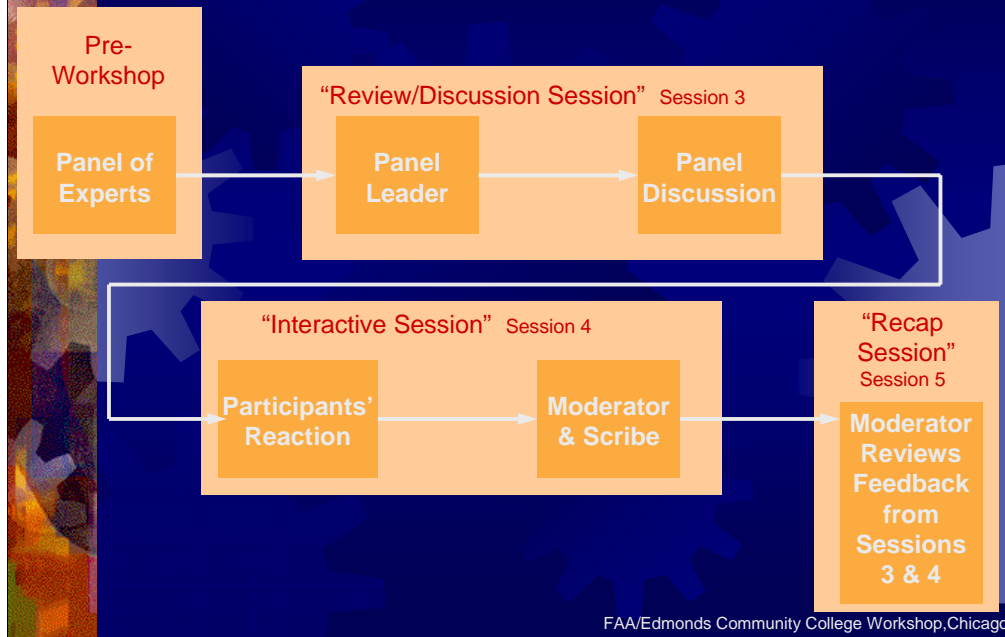
Feedback from Expert Reviews and Participants: Issues

Orientation (Sessions 3 through 5)

Integration into Curriculum Development (post workshop)

- Documented standards
- Modules and TCOs
- Safety messages and testimonials

Issues Feedback and Discussion



FAA/Edmonds Community College Workshop, Chicago

Issues Feedback and Discussion: Pre-Workshop

Key Subject (Base Knowledge)

Experts → Feedback → Panel Leader

Key Subject (Teamwork/Disposition)

Experts → Feedback → Panel Leader

Key Subject (Damage Detection/Characterization)

Experts → Feedback → Panel Leader

Key Subject (Repair Process)

Experts → Feedback → Panel Leader

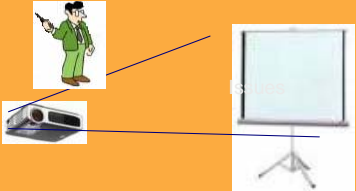
Summarize comments into principal issues (Panel Leaders)

- TCO | Content Consistency
- Content Balance (Proper emphasis of topics)

Issues Feedback: Workshop


Session 3 (Wednesday Morning): For Each key Subject (Presentation Session)

Panel Leader Presents Issues to Workshop



Objective: Panel Leader Summarizes Issues

Panel Leader Leads Panel of Experts Discussion w/discussions notes inserted by recorder

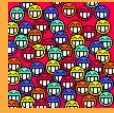


Objective: Panel of Experts Discuss Issues with Workshop Participants

Issues Feedback: Workshop

Session 4 (Wednesday Afternoon): Each Participant Reviews Each Key Subject

“Interactive Session”



Work Shop Participants

Feedback to
Session 3

Verbal
Written



Moderator, w/
assistance from
scribe

Methodology: Each Key Subject moderator rotates to 4 groups of participants

Themes

TCO/Content Consistency

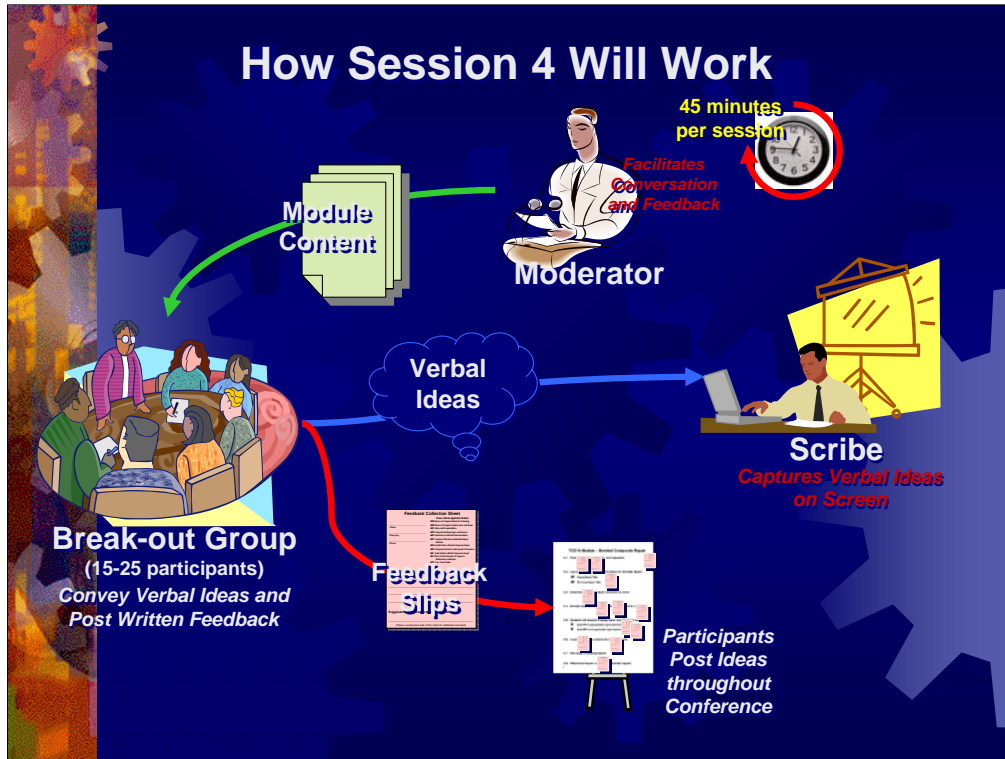
Content Balance

Primary Emphasis on Issues of Safety Concern

Objective: Participant feedback to Summarized Issues

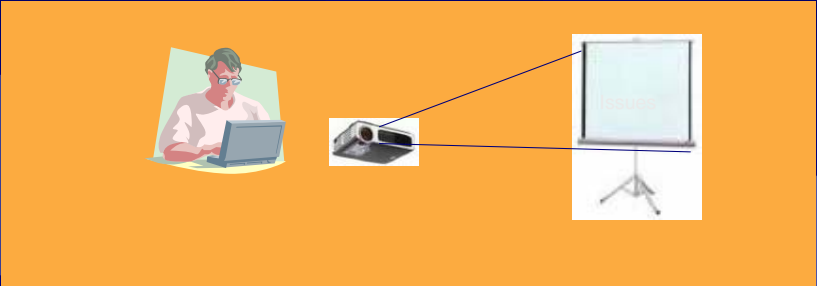
FAA/Edmonds Community College Workshop.Chicago

How Session 4 Will Work



Issues Feedback: Workshop

Session 5 (Thursday Morning): Scribe Reviews Section 3 & 4 Inputs



Themes

- TCO/Content Consistency
- Content Balance
- Primary Emphasis on Issues of Safety Concern
- Path to Complete Review and Update the Course Standard

The background of the slide is a dark blue field filled with various sizes of gear shapes in shades of blue and grey. On the left side, there is a vertical strip showing a colorful, abstract cityscape or industrial scene with warm tones of orange, yellow, and red.

Posting of Results

www.mpdc.biz