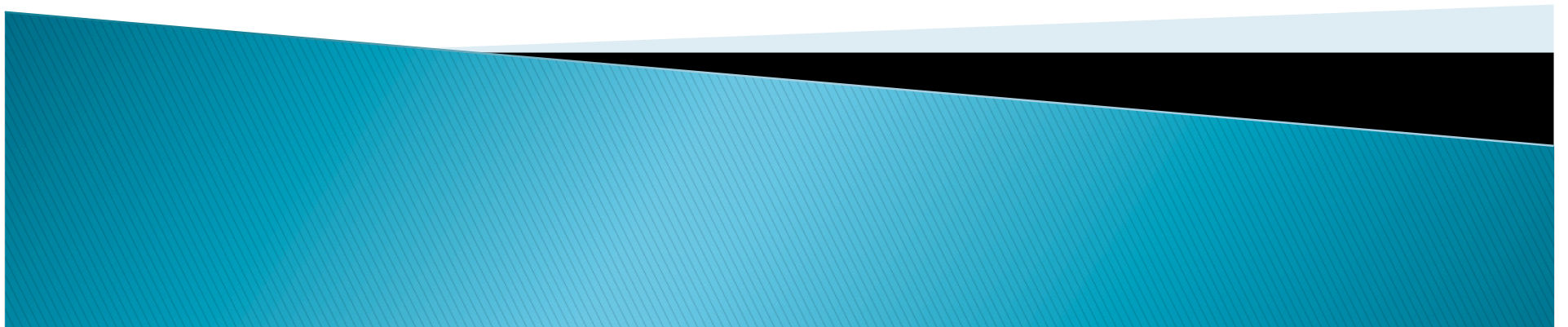


Training Strategy Development

Charles Seaton

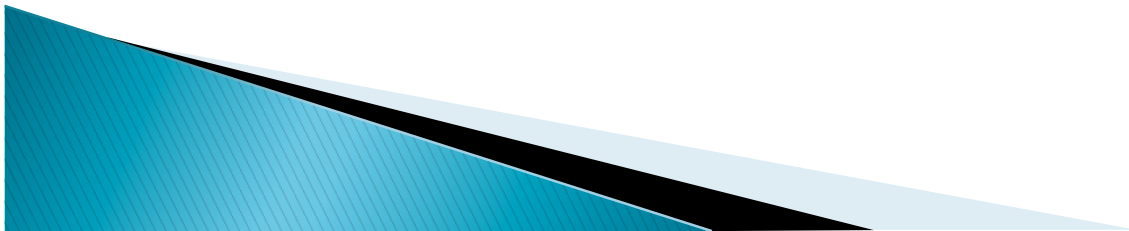
Edmonds Community College

April 2009



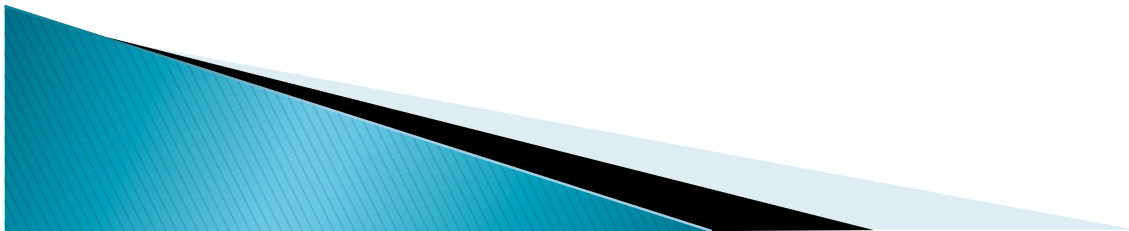
Training Strategy Development Outcomes

- ▶ Develop lesson plan (focus on safety)
 - Awareness and skill building
 - Delivery options
 - Student audience needs
 - FAA
 - Delegations
 - Industry practitioners
- ▶ Establish process for identifying JAMS institutions for teaching specific topics
- ▶ White paper



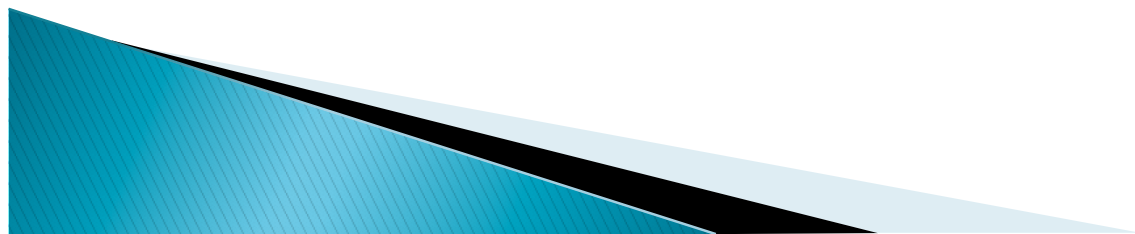
Training Strategy Development Resources

- ▶ Prior course developments, facilitated/
sponsored by FAA
- ▶ JAMS institutions (12 colleges/universities)
- ▶ Industry feedback
 - DER seminars
 - Workshops/discussion boards



Training Strategy Development Justification

| | |
|----------------------------|--|
| Industry | Skill development via on-the-job training |
| FAA | Difficulties in recruiting staff with required skills |
| Education gaps | Talent pool versus identified institutions to address subject matter regarded as important in composites |
| Education delivery options | Classroom, laboratory, distance (on-line) |
| Educators | Availability of training expertise |



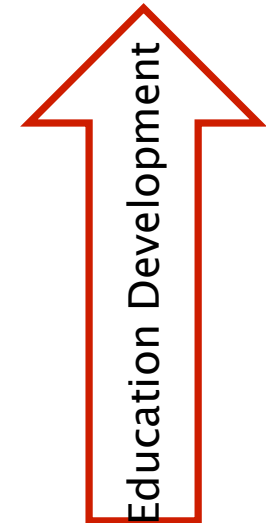
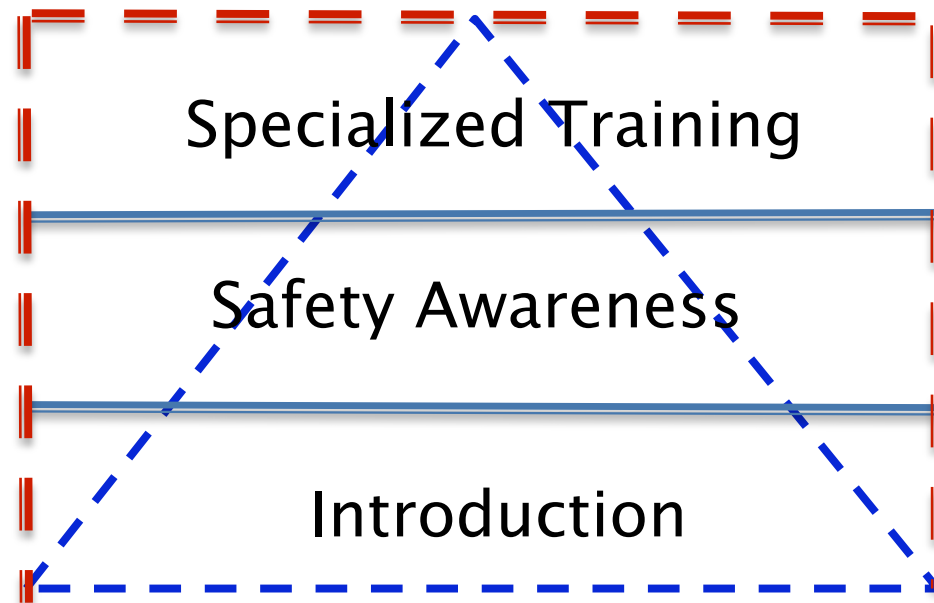
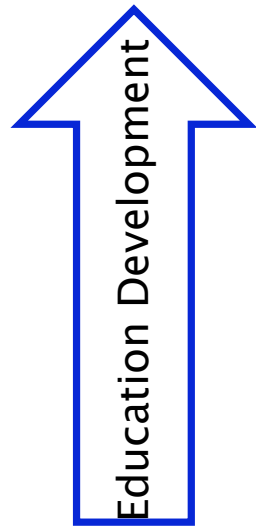
Training Strategy Development Strategies

| | | |
|---|---|---|
| Specialized Training | → | <ol style="list-style-type: none">1. Skill building in specific areas2. Institutions responsible for training which have subject matter expertise |
| Safety Awareness (40 - 60 hour classroom equivalent) | → | <ol style="list-style-type: none">1. Safety issues2. Hands-on laboratory3. FAA guidance and policy |
| Introduction to Composites (8 - 16 hour classroom equivalent) | → | <ol style="list-style-type: none">1. Basics of composites' technology2. Roles & responsibilities (engineers, technicians, inspectors)3. Composite certification basis |

Training Strategy Development Roles and Involvement

FAA Facilitator

Industry Sponsor



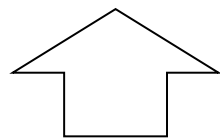
FAA Sponsor

← Degree of Involvement And Investment = → Industry Support

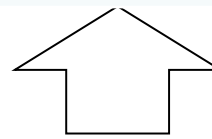


Training Strategy Development Resources

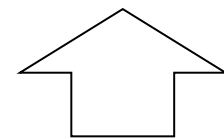
| | | | |
|----------------------------|---|---|---|
| Source Documentation | | | △ |
| Allowables Development | | △ | |
| NDI | △ | | △ |
| Fatigue & Damage Tolerance | | △ | |
| M&P Spec's | △ | △ | △ |



Manufacturing



Structural Design



Maintenance

Introduction and Safety Awareness Courses form the foundation for specialized training (3 tracks)

Training Strategy Development

Subject Matter Emphasis: Preliminary

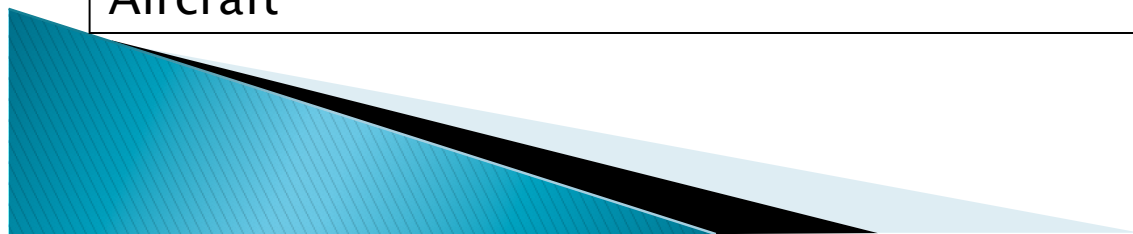
| | |
|---|--|
| Crash dynamics and energy absorption of composite airframe structures | Composite Structural Analysis & Test Protocol |
| Safety risk management | Tooling |
| Emerging material forms and processes (e.g., VARTM, RTM, Chopped Fiber, etc.) | Flammability and composite high temperature performance issues |
| Damage Types and Sources | Lamination Processes |
| Source Documentation | Resin Transfer Molding |
| Regulatory Requirements | Mechanical Assembly |
| Conformity Guidelines | Static Strength Substantiation |
| Bonded Composite Repair | Fatigue and Damage Tolerance |
| Inspection Procedures | Material Qualification |
| Laminate Bolted Assembly and Repair | Allowables and Design Value Development |
| Structural Bonding (composite and metal) | Material and Process Specifications |
| Environmental protection incl. lightning strike | Manufacturing Automation |

Training Strategy Development Resources

| | Conceptual | Developing | Mature |
|------------------|--------------------|--|--|
| Specialized | Subject Matter TBD | | |
| Safety Awareness | | CMT Classroom (Safety Issues) Regional laboratory site identification | CMT Online (Safety Issues) w/Laboratory (Abaris, Wichita Area Technical College) |
| Introduction | | | CMH17 Tutorial CMT (Prerequisite) |

CMT: Composite Maintenance Technology: Prerequisite, Safety Issues Main Course and Laboratory

CMH-17 Tutorial - Certification and Compliance Basis for Composite Aircraft



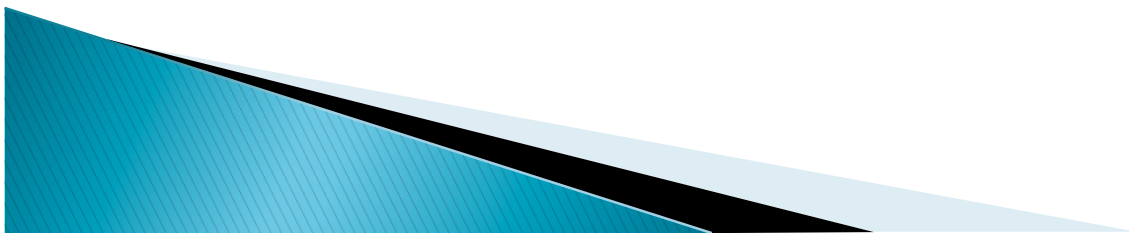
Training Strategy Development Delivery Options

Classroom:

- ▶ Traditional format which provides face-to-face interaction
- ▶ Expensive, limited availability of experienced practitioners

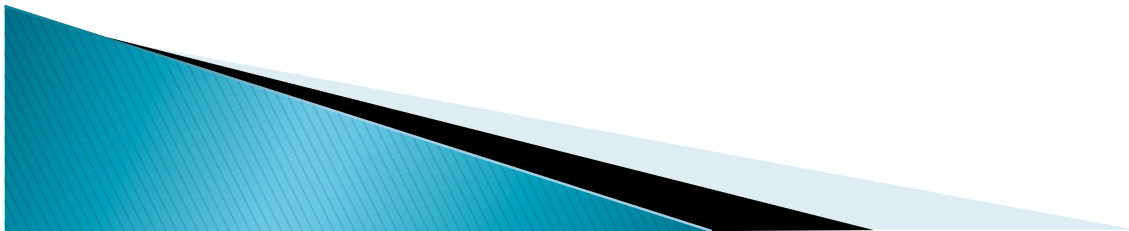
Laboratory:

- ▶ Learning reinforcement of classroom/on-line teaching points
- ▶ Expensive, compressed time-frame for awareness-level training (CMT)



**Training Strategy Development
DER Feedback (One Seminar: March 2009)
Degree of Importance for Courses (5 is highest)**

| | |
|-------------------------------|-----|
| Composites Structural Design | 4.1 |
| CMH 17 Certification Tutorial | 4.0 |
| Composites Maintenance | 3.8 |
| Composites Manufacturing | 3.2 |



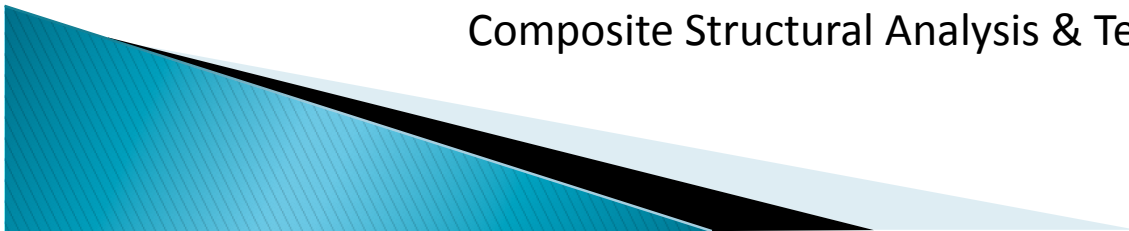
Training Strategy Development
DER Feedback (One Seminar: March 2009)
Preferred Course Format (percentage of respondents
listing one or more)

| | |
|------------------------|------------|
| Online Teaching | 88% |
| Laboratory | 31% |
| Classroom | 38% |



Training Strategy Development DER Feedback (One Seminar: March 2009) Top Ten Subjects of Interest (% Respondents)

| | |
|---|-----|
| Static Strength Substantiation | 57% |
| Fatigue and Damage Tolerance | 50% |
| Bonded Composite Repair | 48% |
| Regulatory Requirements | 45% |
| Allowables and Design Value Development | 39% |
| Laminate Bolted Assembly and Repair | 34% |
| Structural Bonding (composite and metal) | 32% |
| Damage Types and Sources | 25% |
| Material Qualification | 25% |
| Composite Structural Analysis & Test Protocol | 23% |



Training Strategy Development Discussion

- ▶ Comments on topics /subject matter
- ▶ Preliminary DER feedback results
- ▶ Comments on process for identifying JAMS' institutional interests and areas of expertise

