This introductory course is designed for a wide range of audiences including technicians, engineers, analysts, and inspectors to gain hands-on experience in advanced composite material manufacturing, adhesive bonding, damage surveys, non-destructive inspection techniques, repair techniques, and mechanical testing.

HANDS-ON COMPOSITE TRAINING COURSE

OCTOBER 30 - NOVEMBER 2, 2018

START: 8:00 a.m.  
Tuesday, October 2, 2018

END: Noon  
Friday, November 2, 2018

LAB LOCATIONS:
National Center for Aviation Training (NCAT)
4004 N. Webb Rd
Wichita, KS 67226

National Institute for Aviation Research (NIAR)
1845 Fairmount Street
Wichita, KS 67260

FEE: $2,000 per person

DEADLINE: Friday, October 5, 2018

TO REGISTER: Contact Upul Palliyaguru at upul@niar.wichita.edu or 316-978-6267 to reserve your seat

Cancellations and Refunds: All cancellations must be made in writing. A 15% administrative fee will be accessed on all cancellations (this includes purchase orders). There will be no refunds after October 22, 2018. WSU reserves the right to cancel the program due to lack of enrollment. In that event, WSU will refund any pre-paid course fees, but not be responsible for any incidental or consequential damages.
Objective of this course is to expose the attendees to various aspects of composite manufacturing, inspections, repair and testing. Course content includes fabrication of monolithic and sandwich panels, joining composites with adhesive bonding, inspection of composites with various non-destructive techniques, machining and hole drilling, repair of composite structures (monolithic and honeycomb), instrumentation of composite test articles, and various aspects of mechanical testing of composite structures. This course is designed as a supplemental course for composite theory classes, thus class time is maximized so that the attendees get hands-on experience.

**DAY 1: FABRICATION OF MONOLITHIC AND SANDWICH PARTS**
- Attendees are exposed to fabrication essentials including tool preparation, ply cutting, material handling, different material forms and orientations, how to create a balanced and symmetric laminates (by the book) and exposed to consequences of violating standard practices during design/layup.
- Vacuum bagging and troubleshooting leaky bags, exposure to various equipment including automated ply cutters, and computer controlled ovens/autoclaves are part of the experience.
- Hands-on experience with impact surveys conducted on composite materials.
- Post impact inspections using various non-destructive inspection techniques

**DAY 2: COMPOSITE REPAIR**
- Inspecting a damaged structure
- Core restoration of a damaged sandwich structure
- Scarf sanding of a representative composite structure
- Surface preparation and wet layup repair

**DAY 3: JOINING OF COMPOSITE STRUCTURES**
- Hole drilling of composites and hybrid structures
- Adhesive bonding
- Determination of constituent contents and ply separation for postmortem
- Fundamentals of thermal analyses
- Strain gage installation and exposure to various methods of strain monitoring techniques (digital image correlation and swept wave interferometry of fiber optics)

**DAY 4: MECHANICAL TESTING AND FAILURE ANALYSIS**
- Testing composites for material qualification and design allowable generation
- Damage tolerance and bearing testing
- Introduction to statistical analysis of composite materials
- Failure analysis