Miami Dade College

Course Description

ETI2832C | Aerospace Technician Capstone | 3.00 credits

This course provides information in aerospace applications of non-metallic materials. The use of adhesives, coatings, sealing, and issues with delamination, and faulty bonds are covered. Prerequisite: ETI1830C

Course Competencies

Competency 1: The student will describe the characteristics of non-metallic materials by:

1. Identifying the processes for composite material selection and design
2. Analyzing material specifications and standards
3. Outlining the processes of chemical bonding
4. Identifying the mechanical properties of materials, such as stress and strain
5. Identifying the physical and chemical properties of materials, including thermal and electrical characteristics

Competency 2: The student will identify non-metallic materials and commodities used in the aerospace industry by:

1. Identifying materials unique to the space industry
2. Determining the applications of specific materials in the aerospace sector
3. Recognizing hazardous materials used in the aerospace industry

Competency 3: The student will explain foundational composite materials concepts by:

1. Comparing the properties and applications of non-metallic materials
2. Comparing the characteristics and uses of adhesives
3. Understanding the properties and functionalities of fibers and fiber fabrics
4. Detailing the processes and effects of heat treatment and curing
5. Understanding the properties and functionalities of coatings
6. Detailing the processes and effects of sealing

Competency 4: The student will identify and analyze materials for compatibility and incompatibility by:

1. Explaining the causes and effects of delamination
2. Explaining the causes and effects of faulty bonds
3. Identifying the various environments that affect non-metallic materials
4. Differentiating between inspection, monitoring, and testing techniques

Competency 5: The student will explain the methods used for testing composite materials by:

1. Explaining common non-destructive testing processes
2. Explaining common destructive testing processes

Learning Outcomes:

- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information