

# ETIC - ENGINEER TECH-INDUS LECTURE/LAB

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## ETIC 1830 Materials and Processes 1

**Credit Hours:** 3

**Lab Fee:** Yes

This course covers the physical properties and characteristics of common materials and commodities used in the aerospace industry. Materials compatibility, basic metallurgy, and treatment processes are also covered.

## ETIC 1832 Materials and Processes 2

**Credit Hours:** 3

**Lab Fee:** Yes

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

## ETIC 1850 Aerospace Systems

**Credit Hours:** 4

**Prerequisites:** MAC 1105 with a grade of "C" or higher

This course provides an introduction to expendable and reusable spacecraft systems including hydraulic, pneumatic, electrical, propulsion, mechanical, HVAC, and ECLSS (Environmental Control and Life Support Systems). How systems interact with computer and data acquisition systems is also covered.

## ETIC 1852 Aerospace Test and Measurements

**Credit Hours:** 4

This course covers electrical and mechanical testing procedures (primarily non-destructive testing), equipment, measurements, and instrumentation involved in aerospace systems. Verification of tool and equipment calibration is also covered.

## ETIC 1853 Aerospace Safety and Quality

**Credit Hours:** 3

This course covers identification of hazards, personal protective equipment, safe practices, and protection of personnel, property, and equipment in the aerospace environment. Safety procedures, including OSHA regulations and hazardous materials handling, are also covered. Basic principles of quality assurance engineering relating to work processes will be discussed. The use of computer based tools for analysis and reporting will be covered.

## ETIC 1855 Aerospace Structural Fabrication 1

**Credit Hours:** 3

**Prerequisites:** ETIC 1830 and ETIC 2851 - both courses with a grade of "C" or higher

**Lab Fee:** Yes

This course provides an introduction to basic machining and fabrication skills, including mathematical computations and measurements as they apply to metal fabrication.

## ETIC 2001 Applied Manufacturing Mechanics

**Credit Hours:** 3

**Lab Fee:** Yes

This course takes a hands-on approach to the identification, use, care of tools, equipment, blueprint reading, geometric dimensioning, and tolerances used in all aspects of operations and manufacturing.

## ETIC 2121 Non-Destructive and Destructive Testing

**Credit Hours:** 3

**Prerequisites:** EET 1084 with a grade of "C" or higher or consent of instructor

**Lab Fee:** Yes

This course covers the history, the advantages and disadvantages of non-destructive testing (NDT), the applications of NDT, and the new developments in nondestructive evaluation (NDE). Topics include detecting discontinuities in components during material processing, introduction to destructive testing, and the use of equipment, such as hardness testers and other testing equipment to perform the methods used in NDT.

## ETIC 2411 Technical Task Analysis/Implementation

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

This is a capstone course in the Aerospace Technology Program. This course applies the knowledge and skills acquired in previous classes through project completion. Tools, equipment, supplies, processes, and materials are selected and used as required for a given task.

## ETIC 2460 Composites Fundamentals

**Credit Hours:** 3

**Prerequisites:** ETIC 2001 with a grade of "C" or higher

**Lab Fee:** Yes

This course introduces the student to the theory, materials, and basic manufacturing processes of composites. This course focuses on basic composite theory, including fiber reinforcements, matrix systems, fabrication techniques, and safety.

## ETIC 2464 Advanced Composites

**Credit Hours:** 3

**Prerequisites:** ETIC 2460 with a grade of "C" or higher

**Lab Fee:** Yes

This course introduces the student to common core materials that are used in composites manufacturing, and to the inspection and repair of composites structures. This course focuses on basic inspection and repair theory, including damage detections and repair instructions.

## ETIC 2851 Applied Mechanics

**Credit Hours:** 4

**Lab Fee:** Yes

This course takes a hands-on approach to the identification, use and care of tools and equipment used in aerospace systems. Blueprint reading, geometric dimensioning, tolerancing, and English and metric measuring systems are included.

## ETIC 2856 Aerospace Structural Fabrication 2

**Credit Hours:** 3

**Prerequisites:** ETIC 1832 with a grade of "C" or higher

**Lab Fee:** Yes

This course is a continuation of ETIC 1855 Aerospace Structural Fabrication 1. Knowledge, techniques, and skills are refined and enhanced. Projects are completed using composite materials common to industry.