

EAS203 Fundamentals of Corrosion and Fracture Mechanics

Level: 2

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

The course aims to provide you with a fundamental understanding of the material degradation such as corrosion, fatigue and creep deformation on the aircraft metal alloys. The students will be presented with the working knowledge on the common types of aircraft corrosion, the corrosion prevention and control measures that can be adopted during aircraft design and operations, the metal fatigue crack growth and creep deformation that can occur during operations, as well as methodologies to perform fatigue life prediction and crack growth analysis on aircraft structures.

Topics:

- Study Unit 1 - Fundamentals of Corrosion
- Study Unit 2 - Types of Corrosion
- Study Unit 3 - Corrosion Control and Prevention
- Study Unit 4 - Introduction to Metal Fatigue
- Study Unit 5 - Introduction to Fracture Mechanics and Creep Deformation
- Study Unit 6 - Fatigue Life Prediction and Crack Growth Analysis

Textbooks:

EAS203 Laboratory Manual
ISBN-13: OT-1675

EAS203 Study Guide
ISBN-13: SG-0386

Learning Outcome:

- Differentiate between wet and dry corrosions.
- Describe the fundamentals of fracture mechanics.
- Explain the principles of fracture mechanics and its applications.
- Apply learnt techniques for fracture mechanics application.
- Explain the major results and criteria underpinning modern fracture mechanics.
- Employ instruments to carry out corrosion experiments.
- Apply fault diagnosis and trouble-shooting in common engineering application.
- Analyse mechanical fracture and trouble-shooting in common engineering application.

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	QUIZ 1	10
	LAB REPORT 1	12
	TUTOR-MARKED ASSIGNMENT 1	8
Overall Examinable Components	Written Exam	70
Total		100

*The information listed is subject to review and change.