

Master Syllabus

OPT 2225 - Design & Process Failure Mode & Effects Analyses

Division: Science, Mathematics and Engineering

Department: Operations Technology

Credit Hour Total: 1.0

Lab Hrs: 2.0

Prerequisite(s): OPT 1101

Date Revised: December 2012

Course Description:

Course will prepare students to apply reliability prediction techniques including fault tree, Failure Mode and Effects Analyses (FMEA) and reliability block diagrams. Two lab hours per week.

General Education Outcomes:

- ❑ Oral Communication Competency
- ❑ Written Communication Competency
- ❑ Critical Thinking/Problem Solving Competency
- ❑ Values/Citizenship/Community Competency
- ❑ Computer Literacy Competency
- ❑ Information Literacy Competency

Course Outcomes:

Failure Mode & Effects Analysis

Develop a Failure Mode and Effects Analysis for the Product and Process specified by the instructor.

Assessment Method: Simulations

Performance Criteria: 70% of students score 70% on FMEA evaluation.

Develop Fault Trees

Develop Fault Trees for a prescribed loss of product or process function.

Assessment Method: Locally developed exams

Performance Criteria: 70% of students correctly answer at least 70% of applicable exam questions.

Assessment Method: Performance appraisals

Performance Criteria: 70% of students score at least a "70" on rubric

Reliability Block Diagrams

Demonstrate the ability to simplify complex series and parallel reliability block diagrams.

Assessment Method: Locally developed exams

Performance Criteria: 70% of students correctly answer at least 70% of applicable exam questions.

Outline:

Failure Mode and Effects Analysis
Fault Trees
Reliability Block Diagrams
Team Roles
Design Analysis
Continuous Improvement
Design Review Presentations