

## 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

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#### 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