

Design for Reliability (DfR) Across the Product Lifecycle Course Objectives

Strategize for Business Impact:

- Contextualize Design for Reliability (DfR) not just as an engineering task, but as a critical business driver that supports organizational viability.

Predict and Model Performance:

- Forecast failure rates and optimize system architectures using industry standards, Physics-of-Failure concepts, and Monte Carlo simulations.

Understand Risk Analysis:

- Systematically identify and mitigate failure modes using core tools such as FMEA, Fault Tree Analysis, Risk Priority Number, and Action Priority concepts.

Engineer Robust Designs:

Minimize product sensitivity to environmental noise and variation using Taguchi methods, Stress-Strength analysis, and Design of Experiments.

Accelerate Validation:

- Design effective testing programs, including Accelerated Life Testing, using Arrhenius and Inverse-Power Law models to predict field life in a fraction of the time.

Drive Decision-Making:

- Manage the product lifecycle from Test, Analyze, and Fix growth cycles through Production Readiness Review using quantitative dashboards.