System Engineering Design & (Tradeoff) Analysis for Complex, Adaptive Systems (SYST 490/495)

Context Analysis

Stakeholder Analysis

Gap and Forces (based on statistics)

“Gap” Analysis

Problem Statement to Close Gap (includes quantifiable targets)
Need Statement to Win-Win)

“Win-Win” Analysis

Con-Ops/Mission Requirements/Functional Analysis

Design/Function Allocation to Technologies

Design Requirements/Architecture

Social/Economic System Preventing Change

Value Hierarchy

Design Simulation or Model

Build/Test/Run Simulation or Model

Sensitivity Analysis

Utility/Cost

Tradeoff Analysis (Con-Ops/Technologies)

Policy Analysis

How Well Does Solution Close the Gap?

How Well Does Solution Create Win-Win

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Vague Problem Statement

1. Gap and Forces (based on statistics)

2. Social/Economic System Preventing Change

Need Statement to Close “Gap”

Need Statement to make “Win-Win”

Value Hierarchy

Need Statement to Close Gap/Win-Win (includes quantifiable target)

Mission Requirements/Functional Design

Value Hierarchy

Design Requirements/Architecture

How Well Does Solution Close the Gap?

How Well Does Solution Create Win-Win

Tradeoff Analysis (Con-Ops/Technologies)

Policy Analysis

Design Simulation or Model

Build/Test/Run Simulation or Model

Design of Experiments

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