

Human Factors Training Course

Course Instructor

Dr. Kenneth P. LaSala is the Director of KPL Systems, a consulting firm that specializes in reliability, maintainability, systems engineering, human factors, and elements of information technology. He has held systems engineering, reliability and maintainability (R&M), and product assurance management positions with the National Oceanic and Atmospheric Administration, U.S. Air Force, the U.S. Navy, the U.S. Army, and the U.S. Defense Mapping Agency. Also, he has served as the U.S. representative to NATO AC/250, Subgroup IX (Reliability and Maintainability). Dr. LaSala received the 1989 Society of Logistics Engineers (SOLE) Field Award for Reliability and Maintainability. He has been the President of the IEEE Reliability Society and is the chairman of the IEEE Reliability Society Human Interface Technology Committee. His publications include several papers on R&M, systems requirements analysis, and other engineering topics, a chapter on human-machine reliability in the McGraw-Hill Handbook of Reliability Engineering and Management, an IEEE video tutorial on human performance reliability, a MIL-HDBK-338 section on the same topic, and the Reliability Analysis Center publication "A Practical Guide to Developing Reliable Human-Machine Systems and Processes." His research interests include techniques for designing human-machine systems and progressive system engineering approaches. He received the B.S. degree in Physics from Rensselaer Polytechnic Institute, the M.S. in Physics from Brown University, and the Ph.D. in Reliability Engineering from the University of Maryland

Course Contents

Course Overview and Learning Objectives

The Need to Consider the Human in System Design, Operation, and Support

Human Performance

1. Factors that Affect Human Performance
2. Reliable Human Performance
3. Modeling the Human for Reliability Evaluation Purposes

Human Reliability Requirements and Activities

1. Evaluating the Customer Need
2. The Overall Human Function Design Process
3. Elements of a Human Engineering Design Process
4. Interfaces Between the Human Engineering Program and the Reliability and Maintainability Program

Human Engineering Analysis

1. Qualitative and Quantitative Allocation of Functions to Human-Machine Systems and Processes
2. Human Engineering Analysis Methods
3. Task Analysis
4. Operational Sequence Diagrams and Other Flow Methods
5. Workload Analysis
6. Fault Tree Analysis and Similar Techniques
7. Human Engineering Design Guidelines
8. Computer-Aided Design Tools for Human Engineering
9. Human Interface Simulators

Metrics

1. Quantitative Metrics for Human-Machine Systems and Processes
2. Quantitative Analysis Methods

Human Engineering Design Guidelines

1. Displays and Communications
2. Controls and Tools
3. Work Space Design
4. Environment
5. Time

Testing Considerations

Standard Data Sources

Special Topics

1. Information Technology-Based Processes
2. Manufacturing, Assembly, Maintenance, and Testing Processes
3. Remote Handling Equipment
4. Some Notes on Human-Computer Interfaces
5. Evaluation of Technical Manuals