# Certified Software Testing Engineer (CSTE)

1. Foundation
    - Course Objectives
    - What is Systems Engineering
    - What is Software Systems Engineering?
    - Why Should We Use Standards?
    - Basic Principles for Standards
    - ISO Compared to IEEE
    - How Standards are Developed
    - Organization of the SESC Standards
    - Clauses
    - Normative vs. Informative
    - What Is in a Standard?
    - What Is Not in a Standard?
    - Where Standards Can Be Obtained?
    - How to Tailor and Apply Standards
    - Final Thoughts
    - Other Resources

2. Applying Standard IEEE/EIA 12207 for Software Lifecycle Processes
    - Introduction to IEEE/EIA 12207
    - Application of the IEEE/EIA 12207
    - Applying the IEEE/EIA 12207 to Organizations and Projects
    - 12207 Life Cycle Processes and Roles
    - IEEE/EIA 12207 Processes and Their Interactions
    - Tailoring the Processes
    - The Structure of Life Cycle Processes
    - The Influence of Total Quality Management
    - The Relationship Between Systems and Software
    - The Relationship Between Organizations and Parties
    - Responding to Technology Evolution
    - Events and Milestones
    - Documenting Outputs
    - The Role of Software Metrics
    - Certification and Compliance
    - Other Related Standards and Their Relationship

3. IEEE 12207 Project Life Cycles
    - Overview of Project Lifecycle

- Types of Prototypes
- Applying Prototyping to Life Cycle Models
- Risks of Prototyping
- Commercial Items (COTS) and Reuse
- Selecting a Software Lifecycle Model
- Which Development Strategy to Pick?
- Using Risk Analysis to Determine the Right Development Strategy
- SLCM Selection Criteria
- Steps in Creating Life Cycle Processes
- SLCM Plans
- SLCM Plan Contents
- Considerations in Implementing and Maintaining the Software
- Establishing Life Cycle Processes
- Monitoring Life Cycle Processes
- Evaluating the Impact of Changes on Life Cycle Processes

4. Applying IEEE Standard 12207.1 for Life Cycle Data
    - Overview and Objectives of the Standard
    - What is Life Cycle Data?
    - Purpose of Life Cycle Data
    - Operations on Life Cycle Data
    - What Should Life Cycle Data Be?
    - Types of Life Cycle Data
    - Presentation Form of Life Cycle Data
    - Life Cycle Data Formats
    - Content Guidelines
    - Specific Information Item Content Guidelines

5. Applying IEEE/EIA Standard 12207
    - Overview and Objectives of IEEE/EIA Standard 12207.2
    - Using IEEE/EIA 12207.2 as a Guide for Implementing IEEE/EIA 12207.0
    - How to Interpret and Apply the Guidance Comments
    - IEEE/EIA 12207.0 on Software Reuse
    - Joint Management Reviews
    - Candidate Reviews
    - The Role of Software Metrics
    - The Scope of Measurement Categories
    - Software Measurement Categories
    - Tailoring Software Metrics
    - Managing Project Risks with Metrics
    - Data Collection to Support Project Metrics
    - Example Project Dashboard
    - The Goal/Question/Metric Method
    - Development and Build Planning

- Problem Categories
- Problem Severity Levels
- Software Product Evaluations
- Evaluation Criteria

6. What is Risk Management?
    - Risk Planning
    - Risk Identification
    - Risk Analysis
    - Risk Mitigation
    - Risk Tracking and Control
    - Related Standards to IEEE/EIA 12207