Key Takeaways

Model-Based Design and Model-Based Systems Engineering enable:

1. **Fast development and realization** of system and software architecture and design

2. **Early testing** to detect errors in designs and their realization

3. **Fast and efficient iterations**

Develop **high quality products** following an **efficient Automotive SPICE® compliant process**
Automotive SPICE® – Reference Model

**ID:** SYS.5

**Name:** System Qualification Test

**Purpose:**

**Outcomes:**

**Base Practices:**

**Output Work Products:**
SYS.2 System Requirements Analysis

External Documents

Import / Export

Specify / Structure

Requirements Management Tools

SYS.1 Requirements Elicitation

SYS.2 System Requirements Analysis

SYS.3 System Architectural Design

SYS.4 System Integration/Integration Test

SYS.5 System Qualification Test
Organize, Specify and Customize Requirements with Requirements Toolbox

Organize

Specify

Customize
SYS.2 System Requirements Analysis
SYS.2 System Requirements Analysis
Analyze Logical Requirements with the Requirements Table
SYS.2 System Requirements Analysis
SYS.2 System Requirements Analysis
Use Traceability Diagrams and Matrixes to Check for Consistency and Completeness

Traceability Diagrams

Traceability Matrix
SYS.2 System Requirements Analysis
SYS.3 System Architectural Design
Develop Architectural Design Models with System Composer
SYS.3 System Architectural Design
SYS.3 System Architectural Design
Analyze Architectural Design Models with System Composer
SYS.3 System Architectural Design
SYS.3 System Architectural Design
Ensure Consistency with Tool Support for Bidirectional Traceability

Requirements ↔ Architecture

Architecture ↔ Architecture
SYS.3 System Architectural Design

External Documents
Requirements Managements Tools

Design / View
Specify / Allocate
Analyze
Trace / Check

Output Work Products
System architecture
Interfaces
Traceability

Requirements Elicitation
System Requirements Analysis
System Qualification Test
System Integration/Integration Test

SYS.1
SYS.2
SYS.5
SYS.4
SYS.3

Specify / Allocate
Design / View
Analyze
Trace / Check

SYS.2 System Requirements Analysis
SYS.3 System Architectural Design
SYS.4 System Integration/Integration Test
SYS.5 System Qualification Test
SWE.2 Software Architectural Design

External Documents

Requirements Managements Tools

Design

Define
Develop Software Architectural Design
SWE.2 Software Architectural Design
SWE.2 Software Architectural Design

External Documents

Requirements Management Tools

Design

Define

Describe

SWE.1 Software Requirements Analysis

SWE.2 Software Architectural Design

SWE.3 SW Detailed Design and Unit Construction

SWE.4 Software Unit Verification

SWE.5 Software Qualification Test

SWE.6 Software Integration and Integration Test
Describe Dynamic Behavior
SWE.2 Software Architectural Design

- Define
- Describe

External Documents

Requirements Management Tools
SWE.2 Software Architectural Design

- **External Documents**
- **Requirements Management Tools**

**Design**

**Define**

**Describe**

**Evaluate**

- SWE.1 Software Requirements Analysis
- SWE.2 Software Architectural Design
- SWE.3 SW Detailed Design and Unit Construction
- SWE.4 Software Unit Verification
- SWE.5 Software Integration and Integration Test
- SWE.6 Software Qualification Test
SWE.2 Software Architectural Design

**Requirements Management Tools**

**External Documents**

**Design**

- Define
- Describe
- Evaluate

**Output Work Products**
- Software architecture
- Interfaces
- Traceability

**System Work Products**

- Software Requirements Analysis
- Software Architectural Design
- SW Detailed Design and Unit Construction
- Software Unit Verification
- Software Qualification Test
- Software Integration and Integration Test
SWE.3 SW Detailed Design and Unit Construction
Develop Software Detailed Design
Develop Software Detailed Design
SWE.3 SW Detailed Design and Unit Construction
SWE.3 SW Detailed Design and Unit Construction
Evaluate Software Detailed Design
SWE.3 SW Detailed Design and Unit Construction
SWE.3 SW Detailed Design and Unit Construction

External Documents

Design

Define

Evaluate

Develop

Requirements

Managements

Tools
Develop Software Units
SWE.3 SW Detailed Design and Unit Construction
Concluding Remarks
Key Takeaways

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IEC Certification Kit – MBD Process for A-SPICE®