Model Based Design Training

COURSE CONTENT:

1. Introduction to MATLAB/Simulink

a. History and Introduction

b. Applications in different domains

c. Overall Architecture and System Requirements

Simulink:

Configuration setting:

- Solver

Basic Blocks:

Saturation block

Deadzone block

Relay/hysterias

Detect change/detect increase/decrease

Wrap to zero

Edge detection /rising/falling/either/function call

Rate Limiter

Mux/demux

Bus creater/bus selector

Multiport switch

On delay/off delay

Lookup Tables & etc.

Simulink.parameter

Simulink.signal

Mpt.parameter and Mpt.signal

Subsytems:

Atomic/non automic

Conditionally executed Subsystem (enable ,triggered ,enable triggered)

Variant subsystem

Stateflow:

Truth table

Temporal logic

Decomposition

History junction

Stateflow junction

Connective junction

Decision patterns

Model Advisor (MAAB , MISRA , ISO 26262)

Code Generation: Embedded Codder

2. User Interface and Basics

a. MATLAB UI

b. Basic Commands and usage

c. Simulink UI

d. Basic Simulink Usage

e. State Flow and other toolbox. (Real time example assignment's)

3. MATLAB Variables

4. MATLAB and Sequences

5. User Defined Functions and Operators

6. Basic Plotting with MATLAB

7. Vectors and Matrices using MATLAB

8. Debugging with MATLAB

9. Block diagrams of Signal and Systems

11. Problem Solving with Applications using

MATLAB/Simulink/StateFlow :

i. Engineering Domain **(Automotive + Control Systems + Electronics + Electrical Engg + Computer Science Engineering)**

ii. Financial Domain

iii. Data Analysis and applications

12. Introduction to Embedded Systems and MATLAB/Simulink.

13. Fixed point Datatype / Flotting type Datatype

14. Testing:

a.MIL/SIL

b.SLDV(Simulink Design Verifier)

c. Coverages (execution, Decision, Condition, MCDC)

15. Basics of Autosar.

16. Polyspace.

17. Basics of communication protocols.