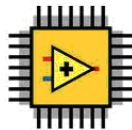




**VIT<sup>®</sup>**  
**Vellore Institute of Technology**  
(Deemed to be University under section 3 of UGC Act, 1956)

**Value Added Program on**  
**LabVIEW for Embedded & Robotic Applications**

**Commences from 6<sup>th</sup> January 2020**



Organized by

**TIFAC - CORE in AUTOMOTIVE INFOTRONICS**  
(Sponsored by Department of Science and Technology, Govt. of India)

Co - ordinators

**Dr. K. Ganesan, Director, TIFAC CORE & Senior Professor, SITE**  
**Mr. R. Silambarasan, Development Engineer, TIFAC CORE**

## TIFAC-CORE IN AUTOMOTIVE INFOTRONICS @VIT

- The centre is conducting need based training programs on cutting edge technologies for students, faculties and industry participants.
- Offering consultancy services for the industries and carrying out research works through the research grants received from funding agencies.
- The Centre has so far conducted 362 Training programs
- The centre has completed nearly 26 consultancy projects with many leading Automotive, Biomedical, Telecom and consumer electronics industries.
- The centre has filed 24 patents (includes US patents).

### Objective

- The purpose of the proposed program is to gain knowledge and hands-on experience in Model Based Design using LabVIEW focus on Real Time Applications. The training program addresses how the hardware and software modules interface with Sensors to acquire real world signals, to analyze them and present them in an intelligent manner.
- Today, Model Based Design has reached mainstream acceptance and is used in thousands of applications in industries from automotive, to consumer electronics
- LabVIEW is a powerful graphical development environment for signal acquisition, measurement analysis, data logging and data presentation, giving the flexibility in programming. It is an Enabling industry leading software tool

### General Requirements

- Students pursuing B. E / B. Tech / M. E / M.Tech degree / MS (SE) in any engineering discipline may apply for this LabVIEW for Embedded & Robotic Applications Training Program.

## Topics Covered

### Introduction to Model Based design (NI LabVIEW)

- Introduction to LabVIEW
- Programming fundamentals
- Exploring LabVIEW
- Front panel & Block diagram

### Modular Programming

- Creating and using Sub VIs
- Debugging VIs

### Loops and Structures

- Structural Programming
- For loop, While loop
- Case Structures
- Sequence Programming -
- Flat Sequence,
- Stacked Sequence
- Formula and Math script Node

### Arrays, Graph and Clusters

- Array Types and its Functions
- Cluster and its Functions
- Multiplot Graphs and Charts

### Strings, Charts and File I/O

- String and its Functions
- File input and output function
- Data logging application
- Error handling techniques

### Data Management Techniques

- Multiple loop design
- Using variables
- Local, Global
- Shared Variable
- Race condition

### Controlling the User Interface

- Property Node & Invoke Node
- Control Reference
- Programming Architectures

### Creating and distributing application

- project management
- preparing and building stand alone executables/ applications

### Data acquisition

- Hardware Introduction
- NI cDAQ, C series Modules
- MAX Configuration
- Data Acquisition
- Increasing Measurement quality
- Analog Input
- Scanning Multiple Analog Input
- Analog Output
- Digital Input and Output
- Signal Express

### Communication Protocols

- Serial /Parallel Communication
- Transmission Control Protocol
- User Datagram Protocol
- Data Socket

### Wireless Communication Interfacing

- Bluetooth
- GPS/GSM/RFID Interfacing

### Embedded Module for ARM & Arduino Microcontroller

### Sensors & Signal Conditioning

Relays and Actuators

Types of Motors

DC Motor/ Stepper & Servo Motors

Drivers and Isolators

Transistor and Mosfet based Drivers

H – Bridge (Dual Direction Control)

Opto Couplers and Opto Isolators

### Introduction to LabVIEW Robotics

Robotics Module Exploration

Line Follower

Collision Avoidance

Pick and Place Robot

Remote Operated Robot

### Introduction to myRIO FPGA Programming

## Target Participants include:

- Students of any Discipline
- Research Scholars / Faculty
- Industry Participants

## Course fees and duration

- **Rs. 8,500/-** (for Students)
- **Rs. 10,000/-** (for Faculty and Research Scholars)
- **Rs. 15,000/-** (for Industry Participants )
- Weekly three days (6.30 pm to 8.30 pm) or (Saturday & Sunday from 9.00 am to 6.00 pm)
- Course material includes program contents in soft copy.
- Training Certificate will be issued.

Payment through DD drawn in favor of “**Vellore Institute of Technology**”, Payable at Vellore.

Registration charges include Hand-outs, Lunch & Snacks. The number of participants is limited to **20** based on first come first serve.

## Venue:

Room No.: 701, Technology Tower  
7<sup>th</sup> Floor, VIT

## Date / Time:

<b>On Week Days</b>	<b>6.30pm to 8.30pm</b>
Saturdays & Sundays	09.00 – 18.00 Hours
<b>(Date will be informed)</b>	

**Registration confirmation through mail / phone is compulsory before arriving VIT.**

Format for Registration Confirmation

Value Added Program on  
LabVIEW for Embedded & Robotic Applications

Name: -----

Designation: -----

Organization: -----

Address: -----

-----

-----

Phone: -----Mobile-----

Fax: -----E-mail: -----

DD Details: -----

*Signature of the Participant*

**For Further Details Please Contact:**

**Mr. R. Silambarasan**

Development Engineer

9952150511/04162202383

E-mail: [silambarasan.r@vit.ac.in](mailto:silambarasan.r@vit.ac.in)