



**(An Autonomous Institution** - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

**S.P.G.Chidambara Nadar - C.Nagammal Campus**

**S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).**

## **Value Added Course on Robot Operating System (ROS)**

### **Syllabus**

#### **Introduction to ROS Framework and Prerequisites (7)**

Installation, Setting up the system and validation - Importance of ROS - Why ROS - Understanding communication in ROS (Final system level and Graph level)

#### **ROS Ecosystem (7)**

Getting started with ROS Programming, communication - ROS nodes, topics, messages - ROS Services

#### **ROS Tools and Utilities (Mobile robot) (7)**

URDF - Build robot using URDF and Visualize in RViz - Basic motions in ROS  
ROS Tools and Utilities (Manipulator) - Modelling and visualizing robots (Practical) - Solidworks to URDF

#### **Robot Modelling (7)**

Students will model their own mobile robot, Modelling the environment, Students will make their own custom environment and make it ready for the robot simulation

#### **Robot Tele-Operation (7)**

ROS Gazebo full simulation

### **Outcome**

This program enables the students to learn basics of ROS and to create, build and run ROS program for various robot applications