ROSin Academy Content

5-day course:

Day 1	Introduction				
Time			**Agenda**		
Start	**End**	**Duration**	**Topic**		**Description**
08:30	09:00	00:30	Arrival		
09:00	10:45	00:45	Welcome and System Setup		
10:45	10:00	00:15	Coffee Break		
10:45	12:00	01:15	Introduction to Linux		
12:00	13:00	01:00	Lunch Break		
13:00	15:00	02:00	Shell Basic and Python Scripting		
15:00	15:15	00:15	Coffee Break		
15:15	17:30	01:45	Introduction to Git		
17:00			End of Course		

Day 2	Introduction to ROS			
09:00	10:45	01:45	Introduction and Basic concept of ROS	1. Introduction to ROS community 2. ROS File system 3. Catkin workplace
10:45	11:00	00:15	Coffee Break	
11:00	12:00	01:00	Workshop	1. Guided workshop 2. ROS Basic commands 3. Create Workplace
12:00	13:00	01:00	Lunch Break	
13:00	15:00	02:00	ROS programming and tools	1. Introduction to computational graph 2. ROS toolsà rqt, RViz, Gazebo, Terminal, etc.
15:00	15:15	00:15	Coffee Break	
15:15	17:00	01:45	Workshop	1. Creating new package 2. More ROS commands 3. Running "talker" and "Listener".
17:00			End of Course	

Day 3	Navigation			
09:00	10:00	01:00	Navigation	1. Introduction to Mobile Robotics 2. Introduction to Mapping techniques (SLAM) 3. Theory Localization
10:00	10:15	00:15	Coffee Break	
10:15	12:00	01:45	Path Planning	1. Theory AMCL 2. Theory Path Planning 3. Introduction to move_base
12:00	13:00	01:00	Lunch break	
13:00	14:30	01:30	Workshop	1. Simulation mobile robot with Gazebo 2. Mobile robot tele Control 3. Develop map of a simulated environment 4. Develop map of a real world
14:30	14:45	00:15	Coffee Break	
14:45	17:00	02:15	Workshop and Hands on with real hardware	1. Load developed Map 2. Simple go to goal using RViz 3. Tune AMCL 4. Write simple patrol
17:00			End of course	

Day 4			**Manipulation**		
09:00	09:45	00:45	Robot description and transforms	1. Introduction to URDF and Xacro 2. Introduction to ROS tf and tf2	
09:45	10:00	00:15	Coffee Break		
10:00	12:00	02:00	Workshop	1. Guided workshop 2. Creating an URDF file 3. Creating simple structure with kinematics 4. Xacro macro usage 5. Writing simple tf broadcaster 6. Writing simple tf listener	
12:00	13:00	01:00	Lunch Break		
13:00	14:15	01:15	Robot manipulation with MoveIt!	1. Introduction to robot manipulation 2. Introduction to MoveIt!	
14:15	14:30	00:15	Coffee Break		
14:30	17:00	02:30	Workshop and Hands with real robot.	1. Introduction to MoveIt! Setup Assistance 2. Create MoveIt configuration package 3. Simulation with Gazebo 4. Program simple task 5. Deploy the developed task	
17:00			End of course		

Day 5			**Introduction to ROS 2**		
09:00	10:45	01:45	Introduction and Basic concept of ROS 2	1. ROS 2 File system 2. COLCON workspace	
10:45	11:00	00:15	Coffee Break		
11:00	12:00	01:00	Workshop	1. ROS 2 Basic commands 2. Create Workplace 3. Introduction to turtlesim and rqt	
12:00	13:00	01:00	Lunch Break		
13:00	15:00	02:00	ROS 2 Understanding Computational graph		
15:00	15:15	00:15	Coffee Break		
15:15	17:00	01:45	Workshop	1. Creating new package 2. More ROS 2 commands 3. Creating and Running "talker" and "Listener"	
17:00			End of Course		

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