ROS Training Fallenbrunnen

4-day course:

Day 1			Introduction	
Time			Agenda	
Start	End	Duration	Topic	Description
08:30	09:00	00:30	Arrival	Get together and introduction
09:00	10:45	01:45	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 Introduction to Git	
15:00	15:15	00:15	Coffee Break	
15:15	17:00	01:45	Python Basics	

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 tools à rqt, RViz, Gazebo, Terminal, etc.
15:00	15:15	00:15	Coffee Break	
15:15	17:30	02:15	Workshop	1. Creating new package 2. More ROS commands 3. Running “Talker” and “Listener”.

Day 3			Robot Manipulation	
09:00	10:00	01:00	Robot description and transforms	1. Introduction to URDF and Xacro 2. Introduction to ROS tf and tf2
10:00	10:15	00:15	Coffee Break	
10:15	12:00	01:45	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	14:00	01:00	Robot manipulation with MoveIt!	1. Introduction to robot manipulation 2. Introduction to MoveIt!
14:00	14:15	00:15	Coffee Break	
14:15	16:30	01:45	Workshop	1. Introduction to MoveIt! Setup Assistance 2. Create MoveIt configuration package. 3. Develop simple robot task. 4. Simulation with Gazebo.
16:30	17:00	00:30	Hands with real robot	1. Deploy the developed task

Day 4			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	1. Load developed Map 2. Simple go to goal using RViz 3. Tune AMCL 4. Write simple patrol. 5. Simulation with Gazebo.