Introduction to the Lecture

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2025.SS

MCI

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Introduction

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Introduction

- Warning: This is the content only covered by me as this lecture is shared by Prof. Can Dede and Benjamin Massow, M.Sc.
- The goal of this lecture is to give you a better view of how to control robots using different programming methods.
- This lecture you will use ROS, a versatile software capable of doing pathfinding and localisation, a perfect fit for use in mobile robotics.
- This lecture is a total of 1 SWS with a total of fifteen (15) UE.
- A unit (UE) is defined as 45 min lecture.

Introduction

- Lecture materials and all possible supplements will be present in its Github Repo.
  - You can easily access the link to the web-page from here.

> Github is chosen for easy access to material management and CI/CD capabilities and allowing hosting websites.

- In the lecture content is also distributed as a WebBook which can be accessed from the Repo website.

Introduction

- The student should be comfortable with working with either Python and/or C++ and should have an beginner level knowledge of the Linux environment and the command line interface

Requirements	Taught Lecture	Code	Degree	Outcome
C/C++ Programming	Programming II	PRO2	B.Sc	ROS 2 Programming
Python Programming	Software Design	SWD	B.Sc	Linux Experience
Working with IoT	Internet of Things	IOT	B.Sc	Programming
-	-	-	-	-
-	-	-	-	-

Table 1: Distribution of materials across the semester.

Introduction

Description	Value
Official Name	Robotik
Lecture Code	ROB
Module Code	MECH-M-2-ROB-ROB-ILV
Lecture Name	Robotics
Semester	2
Season	SS
Lecturer(s)	Daniel T. McGuiness Ph.D, Prof. Can Dede, Benjamin Massow, M.Sc
Module Responsible	BnM
Software	Linux, Python, C++, ROS 2
SWS Total	1
UE Total	15
ECTS	4
Working Language	English

Introduction

- The lecture will have one personal assignment which will be based on ROS and programming applications related to it.

Assignment Type	Value
Personal Assignment	100
Sum	100

Title
A very informal journey through ROS 2
A Concise Introduction to Robot Programming with ROS2
Programming Principles and Practice using C++

Table 2: Lecture sources which can be useful during the course of the lecture. For more information on sources, please consult the repo.

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Topic	Units	Self Study
Mobile Robot Localisation	4	6
The GNU/Linux Operating System	4	6
ROS 2 Introduction and Concepts	4	6
Programming with Client Libraries	4	6
Simulations and TF Trees	4	6
SUM	15	30