



Course 1: Robotics for Beginners

Chapter1 :Introduction to Robotics

1/ Fundamentals: What is a robot?

- A machine capable of performing tasks autonomously or semi-autonomously.
- **Types of robots:**
 - Industrial (assembly lines, welding).
 - Mobile (vacuum cleaners, drones).
 - Humanoid (service robots).
- **Core components:** Perception (sensors), decision (processors), action (motors, actuators).

2/ Applications:

- **Industry:** Assembly, packaging, welding.
- **Medicine:** Surgical robots, rehabilitation assistance.
- **Agriculture:** Precision planting, harvesting.

3/ Components of a Robot:

- **Hardware:** Microcontrollers (Arduino, Raspberry Pi), motors (DC, Servo), sensors (ultrasonic, IR).
- **Software:** Programming and control via IDEs like Arduino IDE or Python