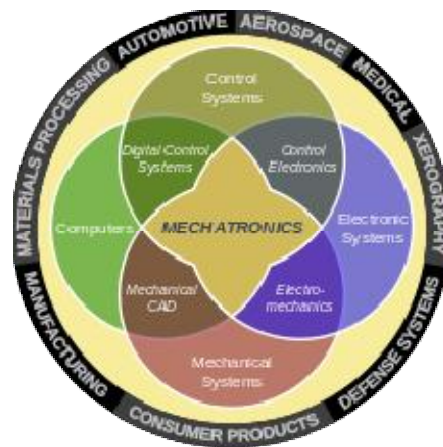


Elective Course Robotics

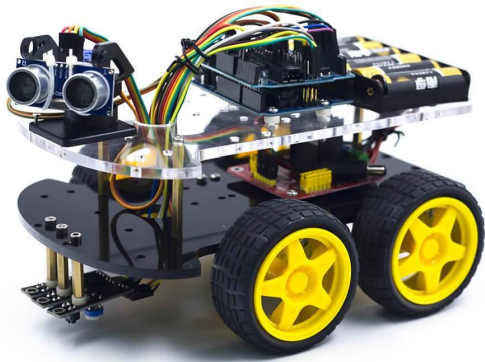
Prof Ahmed Ali Abouelsoud
2020/21

This course studies robotics in terms of **classification, types, motion description and planning**

Robotics is part of mechatronics which is a merge between **mechanics, control electronics, and computer**



The type of robot is determined by the application



Vehicle



Homidoid



Snake



Spider



Quad rotor

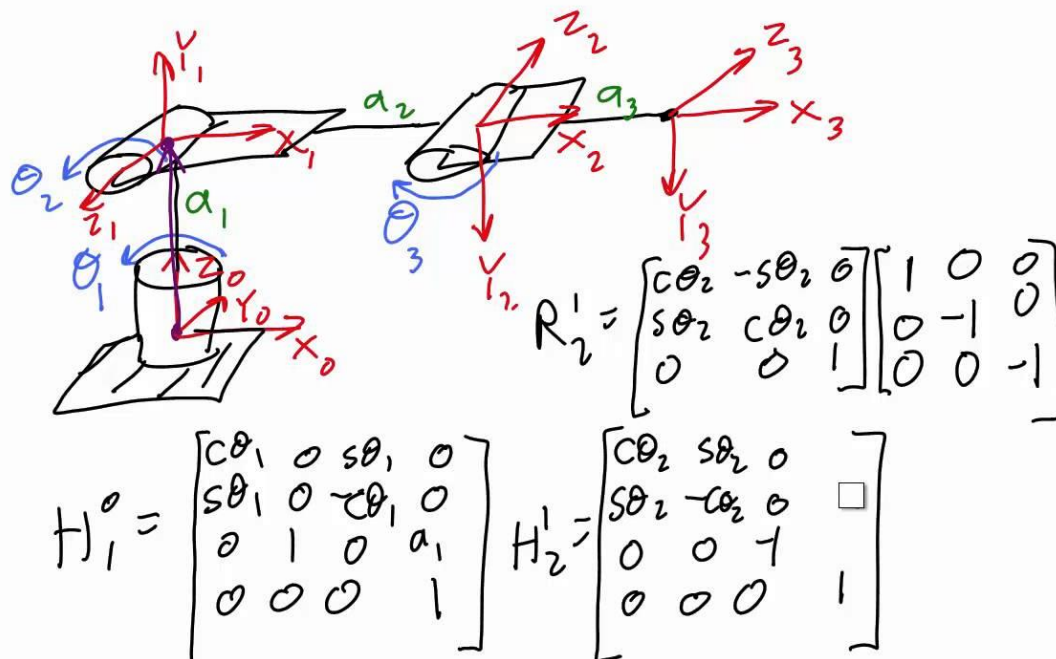


Serial arm

The course concentrates on serial robot arm (manipulator) and describes its **motion, control** and **trajectory planning**.

Robot motion is studied through **kinematics** (**position, orientation, velocity, acceleration**) and **dynamics** (**force and torque**).

Robot arm is essentially rigid multi-body system of links joined by rotary or prismatic joints and actuated by electric motors. To systematize the method of determining the **position, orientation**, etc... we use **matrices** and in particular **homogenous transformation**.



Thank You

