**Sensing & Perception**

1. Sensing to understand

Environment

1. Interpret the collected information
   1. Make a decision
   2. Controt & Planning
   3. Aigorithm
   4. Techiqes
   5. Human- Robot Interaction

The design and implementation of interfaces and interaction channels that enable humans to communicate with and control robots.

**Human- robot in teraction**

A. Desian

B. Interfaces

**Al & ml**

A Learn & adapt to new situations

Three Laws of Robotics

Safety and reliability

The design and implementation of safety features and redundancy to ensure that robots operate

Reliably and don’t pose a danger

To humans.

**First Law**

* 1. A robot cannot harm a human being of remaining passive, leave this human being exposed to danger.

**Second Law**

* 1. A robot must obey the orders given by human beings, unless such orders contradict the first law.

**Three law**

* 1. A robot must protect its own existence to the extent that this protection is not in contradiction with the first or the second law.

**Ethics and Societal Impact**

The consideration of ethical and societal issues related to the use of robots, such as privacy, Security, job displacement, and the impact on society as a whole.

***Applications of Robots***

**Industrial Robotics**

**Robot Mater in Workcall**

1. Welding
2. Painting Coating & Sealing
3. Machining
4. Assemble

Introduction

Sensors Detectors, and Transducers?

* A sensor/ Detectors/ Transducers are electrical, Optic-Electrical, or specialty electronics or otherwise sensitive materials, for determining if there is a presence of a particular entity or function.

Analog or Digital? IN ADC out-----