

Course Name: ROBOTIC (I)

Course Code: T.R 01

Course Duration: 24 Hours – 3 Days

Course Syllabus:

1. FIRST CHAPTER: robotics

- History
- Location description
- Industrial robots mechanisms
- Mechanical arms forward cinematic
- Mechanical arms reversed cinematic
- Availability space & work space
- Speed cinematic-Jacobean
- Mechanical arms dynamics
- Path designing

2. SECOND CHAPTER: Robot actuators

- DC electrical motors
- Stepper motors
- AC servo motors
- DC servo motors
- Hydraulics actuators
- Pneumatics actuators

3. THIRD CHAPTER: Robot Sensors

- Different types
- Coding
- Limit switch
- Inductive proximity sensors

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- Capacitive proximity sensors
- Optical proximity sensors
- Pneumatic proximity sensors
- Supersonic proximity sensors
- Magnetic proximity sensors
- RCC
- Reed switch

4. FORTH CHAPTER: End Effectors

- Clamp
- Pincers
- Welding tools
- MIG/MAG Welding Torch
- Paint Applicator
- Automatic Tool-Changing System(ATC)
- Fixture designing

5. FIFTH CHAPTER: Robot Simulation

- Robot simulation importance
- PLM
- Introducing some of robot simulation software
- ROBCAD robot simulation software
- Introducing MATLAB
- Introducing v-realm builder 2.0
- Connecting SOLID WORKS to MATLAB

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