

**DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING
UNIVERSITY OF TEXAS AT ARLINGTON
INTRODUCTION TO ROBOTICS - MAE 4345
PROJECT #1**

DUE DATE: FIVE CLASS MEETINGS FROM ASSIGNED DATE

There are available two robots an IBM 7535 SCARA and a GMF S-110. The first project will require you to program the IBM 7535 SCARA robot. The main objectives of this project are to get familiar with the MARS lab, robot safety issues and structured robot programming.

Project requirements:

1. Familiarize yourself with the robotics lab - phone and equipment in the lab. Also, understand and follow the posted safety rules.
2. Familiarize yourself with the basic SCARA robot, its operation, capabilities, workspace, etc.
3. Familiarize yourself with the programming language of the robot. This language is called AML - A Manufacturing Language.
Note: The programming language manuals are not to be removed from the lab.
4. Learn how to power on the robot and the functions of the teach-pendant - home, move, emergency stop, program downloading/uploading/execution, etc.
5. Learn how to instruct the robot to perform various types of motion available/capable such as point to point, via points, etc.
6. Learn how to teach positions and save them.
7. Learn how to move the robot relative to a taught position.

You will program the robot to perform a pick and place operation. The pick and place points are not always at the same locations. Therefore, you need to teach both of these points to the robot. Once the robot knows the pick and the first place points, you are to instruct the robot to pick up objects/parts and place them in a pattern. The pattern is shown below.

The robot will have to pick up parts from a designated location on the conveyor system. The digital input (DI) that you need to supply the robot to indicate that there is a part for pickup (i.e. when the proximity switch detects a part) is DI 03.

- You are to turn in a formal project report.
- The demonstrations are to be performed at a day to be defined later.

IBM 7535 SCARA ROBOT LAB SETUP SCHEMATIC

