



UNIVERSIDAD POLITÉCNICA
DE LA ZONA METROPOLITANA DE GUADALAJARA

Cinemática de Robots.

Chagoya de la Cruz Levi Hazael.

Practica 1.

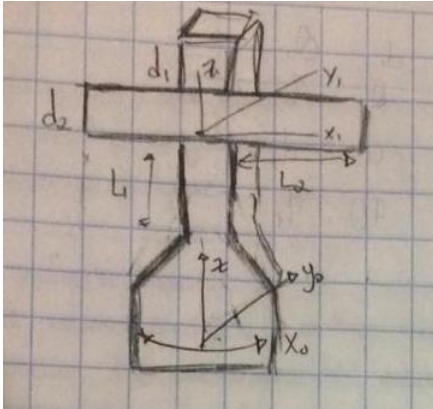
Ingeniera Mecatrónica.

Mtro. Enrique Moran Garabito.

8.B

UPZMG.

Practica 1.



i	Ai-1	$\alpha - 1$	Di	ϕi
1	0	90°	0	$\phi 1$
2	L1	0	D1	$\phi 2$
3	L2	0	D2	$\phi 3$

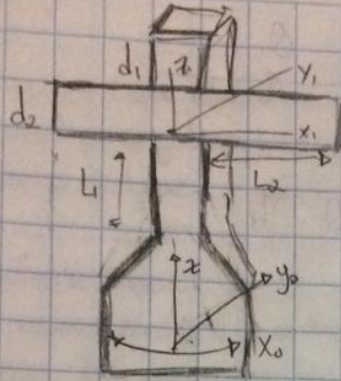
Código de Matlab.

```

T1=[cos(theta1),-sin(theta1),0,0;0,0,-1,0;sin(theta1),cos(theta1),0,0;0,0,0,1]
syms L1
T2=[cos(theta2),-sin(theta2),0,L1;sin(theta2),cos(theta2),0,0;0,0,1,d1;0,0,0,1]
syms L2
T3=[cos(theta3),-sin(theta3),0,L2;sin(theta3),cos(theta3),0,0;0,0,1,d2;0,0,0,1]

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i	d_{i-1}	α_{i-1}	d_i	θ_i
1	0	90°	0	θ_1
2	L_1	0	d_1	θ_2
3	L_2	0	d_2	θ_3

$$T_2 = \begin{bmatrix} C\theta_2 & -S\theta_2 & 0 & L_1 \\ S\theta_2 & C\theta_2 & 0 & 0 \\ 0 & 0 & 1 & d_1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$T_1 = \begin{bmatrix} C\theta_1 & -S\theta_1 & 0 & 0 \\ 0 & C\theta_1 & -1 & 0 \\ S\theta_1 & C\theta_1 & 0 & d_1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$T_3 = \begin{bmatrix} C\theta_3 & -S\theta_3 & 0 & L_2 \\ S\theta_3 & C\theta_3 & 0 & 0 \\ 0 & 0 & 1 & d_2 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

$$[C(\theta_2) * (C(\theta_3) * C(\theta_1) - S(\theta_3) * S(\theta_1)) * S(\theta_2) * S(\theta_1), (C(\theta_2) * S(\theta_3) + C(\theta_2) * S(\theta_1) - S(\theta_3) * C(\theta_1) - S(\theta_3) * C(\theta_1) * C(\theta_2) - S(\theta_1) * S(\theta_2)), S(\theta_1) * (C(\theta_2) - S(\theta_3) * S(\theta_2) + L_1 * C(\theta_1))]$$

$$[0, 0, -1, -d_1 - d_2]$$

$$[C\theta_2 * (C\theta_3 * S\theta_2 + C\theta_2 * S\theta_3 * C\theta_1 * C\theta_1 * C\theta_2 - S\theta_3 * C\theta_1 * C\theta_2 - S\theta_3 * (C\theta_1 * S\theta_2 + C\theta_2 * C\theta_1)), S\theta_2 * (C\theta_3 * S\theta_3 + L_1 * S\theta_1)]$$

$$[0, 0, 0, 1]$$

