

OLOMDWEWE ZAHNAB OMODUNNI

15/ENG 01/012, CHEMICAL ENGINEERING.

ENG 382 ASSIGNMENT

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4$$

$$2T_1 - T_2 + T_3 + 2T_4 + T_5 - 3T_6 = 20$$

$$T_1 + 3T_2 - 3T_3 - T_4 + 2T_5 + T_6 = -15$$

$$5T_1 + 2T_2 - T_3 - T_4 + 2T_5 + T_6 = -3$$

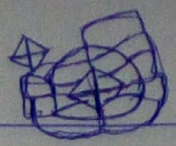
$$-3T_1 - T_2 + 2T_3 + 3T_4 + T_5 + 3T_6 = 16$$

$$4T_1 + 3T_2 + T_3 - 6T_4 - 3T_5 - 2T_6 = -27$$

1	1	-2	1	3	-1	T_1	4
2	-1	1	2	1	-3	T_2	20
1	3	-3	-1	2	1	T_3	-15
5	2	-1	-1	2	1	T_4	-3
-3	-1	2	3	1	3	T_5	16
4	3	1	-6	-3	-2	T_6	-27

1	1	-2	1	3	-1	T_1	4
$2 - \frac{2}{1} \times 1$	$-1 - \frac{2}{1} \times 1$	$1 - \frac{2}{1} \times (-2)$	$2 - \frac{2}{1} \times 1$	$1 - \frac{2}{1} \times 3$	$-3 - \frac{2}{1} \times (-1)$	$\times T_2$	$20 - \frac{2}{1} \times 4$
$1 - \frac{1}{1} \times 1$	$3 - \frac{1}{1} \times 1$	$-3 - \frac{1}{1} \times (-2)$	$-1 - \frac{1}{1} \times 1$	$2 - \frac{1}{1} \times 3$	$1 - \frac{1}{1} \times (-1)$	T_3	$-15 - \frac{1}{1} \times 4$
$5 - \frac{5}{1} \times 1$	$2 - \frac{5}{1} \times 1$	$-1 - \frac{5}{1} \times (-2)$	$-1 - \frac{5}{1} \times 1$	$2 - \frac{5}{1} \times 3$	$1 - \frac{5}{1} \times (-1)$	T_4	$-3 - \frac{5}{1} \times 4$
$-3 + \frac{3}{1} \times 1$	$-1 + \frac{3}{1} \times 1$	$2 + \frac{3}{1} \times (-2)$	$3 + \frac{3}{1} \times 1$	$1 + \frac{3}{1} \times 3$	$3 + \frac{3}{1} \times (-1)$	T_5	$16 - \frac{3}{1} \times 4$
$4 - \frac{4}{1} \times 1$	$3 - \frac{4}{1} \times 1$	$1 - \frac{4}{1} \times (-2)$	$-6 - \frac{4}{1} \times 1$	$-3 - \frac{4}{1} \times 3$	$-2 - \frac{4}{1} \times (-1)$	T_6	$-27 - \frac{4}{1} \times 4$

1	1	-2	1	3	-1	T_1	4
0	-3	5	0	-5	-1	T_2	12
0	2	-1	-2	-1	2	$\times T_3$	-19
0	-3	-9	-6	-13	6	T_4	-23
0	2	-3	6	10	0	T_5	28
0	-1	9	-10	-15	2	T_6	-43



$$\begin{bmatrix} 1 & 1 & -2 & 1 & 5 & -1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 4 & -6 & -8 & 6 \\ 0 & 0 & -0.67 & 6 & 6.67 & -0.67 \\ 0 & 0 & 7.33 & -10 & -13.33 & 2.33 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -35 \\ 36 \\ -47 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 5.43 & 5.43 & -0.29 \\ 0 & 0 & 0 & -3.71 & 0.29 & -1.85 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ 32.86 \\ -12.43 \end{bmatrix}$$

$$\begin{bmatrix} 1 & 1 & -2 & 1 & 3 & 1 \\ 0 & -3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 1.11 & -8.67 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ -1.22 \\ 10.89 \end{bmatrix}$$

$$\begin{bmatrix} 1 & -1 & -2 & 1 & 3 & 1 \\ 0 & 3 & 5 & 0 & -5 & -1 \\ 0 & 0 & 2.33 & -2 & -4.33 & 1.33 \\ 0 & 0 & 0 & -2.57 & -0.57 & 4.71 \\ 0 & 0 & 0 & 0 & 4.22 & 9.67 \\ 0 & 0 & 0 & 0 & 0 & -11.21 \end{bmatrix} \begin{matrix} T_1 \\ T_2 \\ T_3 \\ T_4 \\ T_5 \\ T_6 \end{matrix} = \begin{bmatrix} 4 \\ 12 \\ -11 \\ -16.14 \\ -1.22 \\ 11.21 \end{bmatrix}$$

$$\begin{aligned} -11.21 T_6 &= 11.21 & T_6 &= 11.21 \\ -11.21 & & -11.21 & \\ & & -11.21 & \end{aligned}$$

$$T_6 = -1$$

$$4.22T_5 + 9.67T_6 = -1.22$$

$$4.22T_5 + 9.67(-1) = -1.22$$

$$4.22T_5 - 9.67 = -1.22$$

$$4.22T_5 = -1.22 + 9.67$$

$$4.22T_5 = 8.45$$

$$T_5 = 8.45 / 4.22$$

$$T_5 = 2.002$$

$$T_5 = 2$$

$$-2.57T_4 + 0.57T_5 + 4.71T_6 = -16.14$$

$$-2.57T_4 + 1.14 - 4.71 = -16.14$$

$$-2.57T_4 + 0.57(2) - 4.71(-1) = -16.14$$

$$-2.57T_4 + 1.14 + 4.71 = -16.14$$

$$T_4 = \frac{-16.14 - 1.14 - 4.71}{-2.57}$$

$$T_4 = 4.89$$

$$T_4 = 4.89$$

$$2.33T_3 - 2T_4 - 4.33T_5 + 1.33T_6 = -11$$

$$2.33T_3 - 2(4.89) - 4.33(2) + 1.33(-1) = -11$$

$$2.33T_3 - 9.78 - 8.66 - 1.33 = -11$$

$$2.33T_3 = -11 + 9.78 + 8.66 + 1.33$$

$$2.33T_3 = 8.77$$

$$T_3 = 8.77 / 2.33$$

$$T_3 = 3.76$$

from second step of the matrix,

$$-3T_2 + 5T_3 - 5T_5 - T_6 = 12$$

$$-3T_2 + 5(3.76) - 5(2) - (-1) = 12$$

$$-3T_2 + 18.8 - 10 + 1 = 12$$

$$T_2 = -0.73$$

$$T_1 + T_2 - 2T_3 + T_4 + 3T_5 - T_6 = 4$$

$$T_1 - 0.73 - 7.52 + 4.89 + 6 + 1 = 4$$

$$T_1 = 0.36$$