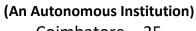


SNS COLLEGE OF TECHNOLOGY





Coimbatore – 35

DEPARTMENT OF MATHEMATICS

UNIT - III SOLUTIONS OF EQUATIONS

Gauss Elimination Method: (Solve the system of countions by Gaussian elimination method. 10 71 - 24+33 = 23 2 n + 10y - 53 = -33 371 - 49 +103 = 41 The given system is equivalent to AX=B $\begin{pmatrix} \dot{u} \\ 2 \\ 3 \\ -4 \\ 3 \end{pmatrix} \begin{pmatrix} 10 \\ -3 \\ -5 \\ 3 \\ -4 \\ 10 \end{pmatrix} \begin{pmatrix} 2 \\ 3 \\ -5 \\ -33 \\ -33 \\ -41 \end{pmatrix} = \begin{pmatrix} 23 \\ -33 \\ -41 \end{pmatrix}$ Now $[A,B] = \begin{bmatrix} 10 - 2 & 3 & 23 \\ 2 & 10 - 5 & -33 \\ 3 - 4 & 10 & 41 \end{bmatrix}$ Let us reduce augmented matrin FA, BJ to upper triangular matrin.



SNS COLLEGE OF TECHNOLOGY



(An Autonomous Institution)

Coimbatore – 35

DEPARTMENT OF MATHEMATICS

UNIT - III SOLUTIONS OF EQUATIONS

Step 1: Fin the first row, change 2 & 3 row with now 1 $\begin{bmatrix} A,B \end{bmatrix} \sim \begin{bmatrix} 10 & -2 & 3 & 23 \\ 0 & 10.4 & -5.6 & -37.6 \\ 0 & -3.4 & 9.1 & 34.1 \end{bmatrix} \xrightarrow{R_2} \xrightarrow{R_2} \xrightarrow{R_1} \xrightarrow{R_1} R_1$ Step 2: Fin 1& 2 row, change 3 row with 2nd row which is an upper trangular matrin. Step 3' Back Substitution. We get. 7.263 = 21.80 => 3 = 3 10.44-5-63 = -37.6 => y = -2 $10\pi - 2y + 33 = 23 \implies \pi = 1$ $10\pi - 2y + 33 = 23 \implies \pi = 1$ 10(1) - 2(-2) + 9 = 23 10(1) - 2(-2) + 9 = 23Hence soln. is n=1, y=-2, 3=3