Dowolne n

$$\begin{array}{ll} a_{11}^{(1)}x_1 + \ldots + a_{1n}^{(1)}x_n = b_1^{(1)} & E(1) \\ \vdots & \\ a_{n1}^{(1)}x_1 + \ldots + a_{nn}^{(1)}x_n = b_n^{(1)} & E(n) \end{array}$$

Wykonano "k" kroków

$$\begin{array}{lll} a_{11}^{(1)}x_1 + a_{12}^{(1)}x_2 + \quad \cdots & + a_{1n}^{(1)}x_n = b_1^{(1)} & E(1)^k \\ \qquad a_{22}^{(2)}x_2 + & + a_{2n}^{(2)}x_n = b_2^{(2)} & E(2)^k \\ \qquad\quad \ddots & \vdots & \\ \qquad\qquad a_{kk}^{(k)}x_k + \cdots & + a_{kn}^{(k)}x_n = b_k^{(k)} & E(k)^k \\ & \vdots & \\ \qquad\qquad a_{nk}^{(k)}x_k + \cdots & + a_{nn}^{(k)}x_n = b_n^{(k)} & E(n)^k \end{array}$$

Niech

$$m_{ik} = \frac{a_{ik}^{(k)}}{a_{kk}^{(k)}} \qquad i = k+1, \ldots, n$$

Nowe eliminacje

$$a_{ij}^{(k+1)} = a_{ij}^{(k)} - m_{ik}a_{kj}^{(k)}, \qquad i, j = k+1, \ldots, n$$

$$b_i^{(k+1)} = b_i^{(k)} - m_{ik}b_k^{(k)}, \qquad i = k+1, \ldots, n$$

W końcu

gdzie $\quad u_{ij} = a_{ij}^{(i)}, \qquad g_i = b_i^{(i)}$

$$\begin{array}{r} u_{11}x_1 + \cdots + u_{1n}x_n = g_1 \\ \vdots \\ u_{nn}x_n = g_n \end{array}$$

I ostatecznie

$$x_n = \frac{g_n}{u_{nn}}$$

$$x_i = \frac{\left(g_i - \sum_{j=i+1}^{n} u_{ij}x_j \right)}{u_{ii}}, \qquad i = n-1, \ldots, 1$$