We investigate the general structure of all universal processes on two qubits. We define the universal process, let say $\Pi$, for two qubits as a quantum operation (a linear traceless completely positive map), which maps an arbitrary input two-qubit mixed state describing by the density operator $\rho_{\text{in}}$ onto an output two-qubit mixed state describing by $\rho_{\text{out}}$ and moreover fulfills the covariance condition of universality:

$$\Pi(U_1 \otimes U_2 \rho_{\text{in}} U_1^\dagger \otimes U_2^\dagger) = U_1 \otimes U_2 \Pi(\rho_{\text{in}}) U_1^\dagger \otimes U_2^\dagger,$$

for arbitrary $U_1, U_2 \in SU(2)$. Using the obtained mathematical description of universal processes we analyze the problem of the optimal complementing map UNOT.