We investigate the general structure of all universal processes on two qubits. We define the universal process, let say Π, 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 ρ_{in} onto an output two-qubit mixed state describing by ρ_{out} and moreover fulfills the covariance condition of universality:

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

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.