Let $u = \sin^{-1} x$, $dv = dx \quad \Rightarrow \quad du = \dfrac{dx}{\sqrt{1-x^2}}$, $v = x$.

Then $\int \sin^{-1} x\, dx = x \sin^{-1} x - \int \dfrac{x}{\sqrt{1-x^2}}\, dx$. Setting

$t = 1 - x^2$, we get $dt = -2x\, dx$, so $-\int \dfrac{x\, dx}{\sqrt{1-x^2}} = -\int t^{-1/2}\left(-\tfrac{1}{2}\, dt\right)$

$= \tfrac{1}{2}(2t^{1/2}) + C = t^{1/2} + C = \sqrt{1-x^2} + C$.

Hence, $\int \sin^{-1} x\, dx = x \sin^{-1} x + \sqrt{1-x^2} + C$.