Let \( \varphi \) be an analytic self-map of the open unit disk \( \mathbb{D} \) and \( g \) be an analytic function on \( \mathbb{D} \). The generalized composition operator induced by the maps \( g \) and \( \varphi \) is defined by the integral operator

\[
I_{(g,\varphi)}f(z) = \int_0^z f'(\varphi(\zeta))g(\zeta)\,d\zeta.
\]

Given an admissible weight \( \omega \), the weighted Hilbert space \( \mathcal{H}_\omega \) consists of all analytic functions \( f \) such that \( \|f\|_{\mathcal{H}_\omega}^2 = |f(0)|^2 + \int_{\mathbb{D}} |f'(z)|^2 w(z)\,dA(z) \) is finite. In this talk, we characterize the boundedness and compactness of the generalized composition operators on the space \( \mathcal{H}_\omega \) using the \( \omega \)-Carleson measures. Moreover, we give a lower bound for the essential norm of these operators. (Received September 26, 2017)