Let $K$ be an algebraic number field and $O_K$ its ring of integers. A superelliptic curve $\mathcal{X}$ defined over $O_K$ is a planar curve with equation of the form $y^n = f(x)$, for $n \geq 2$ and some $f \in O_K[x]$. Finding a nice polynomial $f(x)$ such that it has “small” coefficients correspond to the case when the zero map $\epsilon(f^*)$ of the homogenized form $f^* \in K[x,z]$ is in the fundamental domain of the modular group $\Gamma_K := SL_2(O_K)/\{\pm I\}$ action on the upper-half plane. In this talk we discuss how to choose $f$ in the case when the curve $\mathcal{X}$ has extra automorphisms and $K = \mathbb{Q}$. (Received September 08, 2016)