1 Model

A block is moving on a plane by the driving of a driving factor u. u drives the block through the coefficient k_{drive}. The driving force is:

$$F_{\text{drive}} = k_{\text{drive}} \cdot u$$

.
Meanwhile, it can be slowed down by a friction force, the friction coefficient is k_{fric}. So friction force equals to $k_{\text{fric}} \cdot G$, where $G = mg$. However, the friction force disappears at the instant the block stops. So the friction force can be calculated as following:

$$F_{\text{fric}} = -k_{\text{fric}} \cdot G \cdot \text{sign}(v)$$

Where v is the velocity of the block. The positive direction is the absolute positive direction.