A large number of institutions are struggling with low success and retention rates in Mathematics courses. To deal with this challenging problem, several educational strategies such as Emporium model, have been developed and successfully employed by a large number of educational institutions. A model showing considerable promise and success is the flipping-the-class model. This paper presents a self-paced, modularized flipping-the-class (Emporium based) model of instruction developed by the author and implemented for enhancing the student retention and success rate at UNTD. The model has been modified to specifically suit the needs of students who struggle in Gatekeeper Mathematics courses such as College Algebra and Calculus. Consequently, this flipping-the-class model adopts a modularized structure where the entire course content is divided into an appropriate number of modules. As a pilot program, this modularized flipping-the-class model was developed and adopted for a Gatekeeper - College Algebra course. The benefits of employing the model, in terms of enhanced student success rates and performances, have been assessed and the relevant data exhibiting the success of the model in achieving its objectives is presented. (Received September 19, 2017)