In 2007, a unique opportunity occurred that allowed a learning support mathematics program to be built from scratch incorporating small class sizes, mastery learning, self-paced learning, and just-in-time teaching. In light of efforts to redesign and accelerate learning support courses, how has the design fared over the past seven years? In this presentation, the presenters will describe the design and implementation of a technology-based, mastery-based, self-paced developmental mathematics course created in 2007 at the presenters’ institution. The presenters show data from the lifetime of the program including success rates within the course itself and in subsequent mathematics courses. (Received September 11, 2014)