1011-34-157 **Eric R Kaufmann*** (erkaufmann@ualr.edu), Department of mathematics & Statistics, 2801 S. University, Little Rock, AR 72204, and **Youssef N Raffoul**, Department of Mathematics, University of Dayton, Dayton, OH 45469. *Periodicity and Stability in Neutral Nonlinear Dynamic Equations with Functional Delay on a Time Scale.* Preliminary report.

Let $\mathbb{T}$ be a periodic time scale. We use a fixed point theorem due to Krasnosel'skiĭ to show that the nonlinear neutral dynamic equation with delay

$$x^{\Delta}(t) = -a(t)x^{\sigma}(t) + Q^{\Delta}(t, x(t), x(t - g(t))) + G(t, x(t), x(t - g(t))),$$

$t \in \mathbb{T}$, has a periodic solution. Under a slightly more stringent inequality we show that the periodic solution is unique using the contraction mapping principle. Also, by the aid of the contraction mapping principle we study the asymptotic stability of the zero solution provided that $Q(t, 0, 0) = G(t, 0, 0) = 0$ for an arbitrary time scale $\mathbb{T}$. (Received August 24, 2005)