1077-20-638   **Xinyun Zhu*** (`zhu_x@utpb.edu`), Xinyun Zhu, Odessa, TX 79762. *Zero-divisor graphs with seven vertices.* Preliminary report.

Given a connected graph, there is a necessary condition $\star$ for G being a zero-divisor graph, that is , for any nonadjacent vertices a and b, there exists a vertex c such that $N(a) \cup N(b) \subset \overline{N(c)}$, where $N(x)$ denotes the set of all vertices which is adjacent to x and $\overline{N(x)} = N(x) \cup \{x\}$. Inspired by the work in "Johnothon A. Sauer, Semigroups and their zero-divisor graphs" regarding the classification of all the zero-divisor graphs with six vertices, we obtain a family of zero-divisor graphs with seven vertices. We also obtain a family of connected graphs with seven vertices which satisfies the necessary condition $\star$ of zero-divisor graphs, but are not the zero-divisor graphs. (Received September 09, 2011)