CE 890 Graduate Seminar

DATE: September 1, 2010
TIME: 4:00 p.m. (refreshments at 3:45 p.m.)
PLACE: 2144 Fiedler Hall
SPEAKER: Alok Bhandari, Professor and Head, Dept. of Civil Engg., Kansas State University
TOPIC: "Woodchip Bioreactors for Removal of Nitrate from Agricultural Drainage Water"

ABSTRACT

Vast swathes of agricultural lands in the upper Midwest are artificially drained to allow timely planting and improved yields of crops such as corn and soybean. Water is drained through a network of pipes called 'tiles' (originally made from clay) laid 4 to 5 feet below ground surface at regular intervals of 80 to 120 feet. The effect of the tile-drain system on natural hydrology is a major topic of debate in the affected region. From a water quality perspective, citizens, scientists and regulators are concerned about agricultural contaminants conveyed from fields to surface streams by the tile-drain system. Several approaches are being studied to minimize potential adverse environmental impacts. Denitrifying drainage bioreactors, also known as 'woodchip' reactors, are being evaluated as a potential edge-of-field solution for the removal of nitrate from drainage water. Nitrate is a contaminant of concern because it has been identified by the US Environmental Protection Agency as a primary cause of hypoxia ('the dead zone') in the northern Gulf of Mexico.