

University Scholars

The University Scholars Program, now in its 23rd year, honors faculty members for superior research and teaching, along with great promise for future achievement. The award provides \$10,000 a year for three years.

Krishna Reddy

Professor of civil and environmental engineering

By Paul Francuch



PHOTO: KATHRYN MARCHETTI

Krishna Reddy: Making sure recycled materials are as good as what they replace, without causing new problems.

When it comes to learning the real dirt on soils, Krishna Reddy is an expert who gets down to the gritty details.

A civil engineer who did graduate work in soils, foundations and earthquake engineering, Reddy worked in private industry after earning his Ph.D.

It was a time when the environmental movement was beginning to flower.

"There were issues with solid waste disposal, landfills and contaminated sites," he recalls. "The challenge was to find feasible solutions and I thought the research then wasn't adequate."

While his work posed challenging and interesting new problems, the management and paperwork that came with the job helped lure Reddy into academia, where he became a pioneering scholar in the cross-disciplinary field of geoenvironmental engineering.

"From my work in industry, I got an understanding of the real issues," he says.

Reddy has published some 75 papers in top academic journals, delivered more than 100 talks and written a textbook that's become standard reference, *Geoenvironmental Engineering: Site Remediation, Waste Containment, and Emerging Waste Management Technologies*.

He's created four upper-level undergraduate and graduate courses that fill to capacity when offered.

"I use my textbook, but my practical experience helps me teach courses in a better and more inter-

esting way," he says.

Reddy's research focuses on ways to build better, more environmentally friendly landfills and remedial work on old landfills and dumps that need to be decontaminated.

He's an expert on a process called electrokinetic remediation, which uses low electrical currents to help the liquid flow, dispersal and clean-up of heavy metal and organic contaminants in stubborn soils such as clay.

A process called in-situ air sparging used to separate out pollutants from ground water has been improved through Reddy's examination and experimentation.

The recycling of products such as worn tires and other seemingly useless industrial scrap also interests Reddy.

He's successfully demonstrated the use of shredded tires in landfills as a cheap and environmentally benign drainage filler material, rather than gravel and sand.

"I like to look at opportunities that consume large quantities of waste materials, like in landfills and on roadways that run for miles," he says.

"You want to make sure these recycled materials are as good as the original materials they replace, and that they don't cause new environmental problems. Those are the challenges."

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