

Undergraduates at Virginia Tech to Benefit from Courses On Land Development Design

When individuals think of land development, they may conjure up thoughts of anything from mixed-use structures to landscape architecture. Yet many civil engineering graduates are being employed in the land development industry. To better prepare students for this field, the civil and environmental engineering department at Virginia Polytechnic Institute and State University is offering undergraduate courses in land development design and sustainable design.

Randel L. Dymond, Ph.D., P.E., M.ASCE, an associate professor of environmental and water resources engineering and the director of the university's Center for Geospatial Information Technology, defines land development design as a process that includes configuring storm-water drainage, assessing the geotechnical aspects of a site, and taking into consideration changing roadway access. He says that land development design also includes implementing such principles of sustainable design as managing storm-water runoff by using pervious pavements and materials and implementing methods that remove pollutants from storm water.

The Land Development Design Initiative (LDDI), as the undergraduate program has been named, "is designed to raise awareness of land development as a career opportunity for undergraduate students at Virginia Tech" and will "benefit students by providing in-depth exposure into this aspect of civil and environmental engineering, increase the ability of future employers to interact with students, and ultimately create opportunities for internships, research, and graduate work in land development," according to the LDDI Web site, www.lddi.net.

Dymond states that one-third to one-half of all graduating civil engineers at Virginia Tech are employed by the land development industry. "It was really an eye-opening number for us," says Dymond, who also explains that, despite this number, courses in land development design have never been offered to undergraduates.

Among the main purposes of the initiative is to demonstrate the relationships that exist between different areas of civil engineering, according to Dymond. The emphasis on land development design, he explains, will help students see how traditional areas of civil engineering come together at a site, that is, how the outcome encompasses geotechnical, transportation, water resources, and environmental engineering.

Another purpose of the initiative is to introduce a practical note into land development design education by involving professional mentors. For example, the introductory land development design course groups students from various disciplines, including architecture, urban planning, and engineering, and assigns each group a mentor. That professional then takes the students through the process of designing an actual site.

Shaun Cavey, a civil engineer specializing in hydrology and water resources who recently graduated from Virginia Tech, took two land development design courses and a seminar on sustainable land development, which introduces students to the environmental facets of development. Among his favorite aspects of the courses and the seminar were field trips that he and his group would take with their mentor to project sites. "The mentor would tell us about the different issues with the site. It was really a crash course into the real world," he says.

Erika Seelenbinder, a civil engineer who recently graduated from Virginia Tech with a specialty in water



The land development design course, which will be offered as part of the Land Development Design Initiative, a new educational track at Virginia Polytechnic Institute and State University, matched mentors, *standing*, with groups of students. The mentors acquainted the groups with the factors considered on land development design projects. More than 100 professionals are lending their services to the initiative, and 20 firms are sponsoring it.

resources, says that the sustainable development seminar she took was truly worthwhile because it gave her an expanded perspective on environmental issues that she hopes to continue to cultivate throughout her career. She also says that the experience has provided her with a fuller view of other disciplines. "You get a feel for the thought process of what the other majors are—like the planners and architectural majors—and what they think about."

Dymond says that more than 100 professionals are lending their services to the initiative and that 20 firms are sponsoring it. What is more, the faculty at Virginia Tech is integrating the practitioners into the process by soliciting their views and assistance in designing the curriculum. "I think it is a pretty unique thing in what we are trying to do. [We are] enhancing the involvement of not just our alumni, but [also] our industry into the educational experience of this particular track," Dymond says.

Dymond and an LDDI advisory board are now designing the curriculum for the land development design track, and they hope to present it to the department's curriculum committee this fall. He recognizes that the LDDI coincides with the goals set forth in ASCE's report *Civil Engineering Body of Knowledge for the 21st Century* in that it emphasizes sustainability and seeks to show how the civil engineer operates in a broader context. He also says that practitioners have provided impressive levels of support for the initiative, including financial assistance.

Dymond explains that the courses currently being offered are assessed using the same methods employed for other university classes, that is, by means of instructor evaluations or evaluations that focus on course objectives. The track's assessment component also will be presented to the curriculum committee. Dymond says that he has been casting about for ways to generate stu-

dent interest in the program. However, through a land development design club, a Listserv, field trips, and Web site contests, much interest has already been generated in the discipline, he notes. "My advisory board tells me how amazed they are at how quickly things are coming together. The students are grabbing on to it, the practitioners are grabbing on to it, and I find myself constantly out of breath," he says. Dymond hopes that interest will continue to grow and that the initiative will begin a national trend in preparing students for careers in land development design.

—Brett Hansen