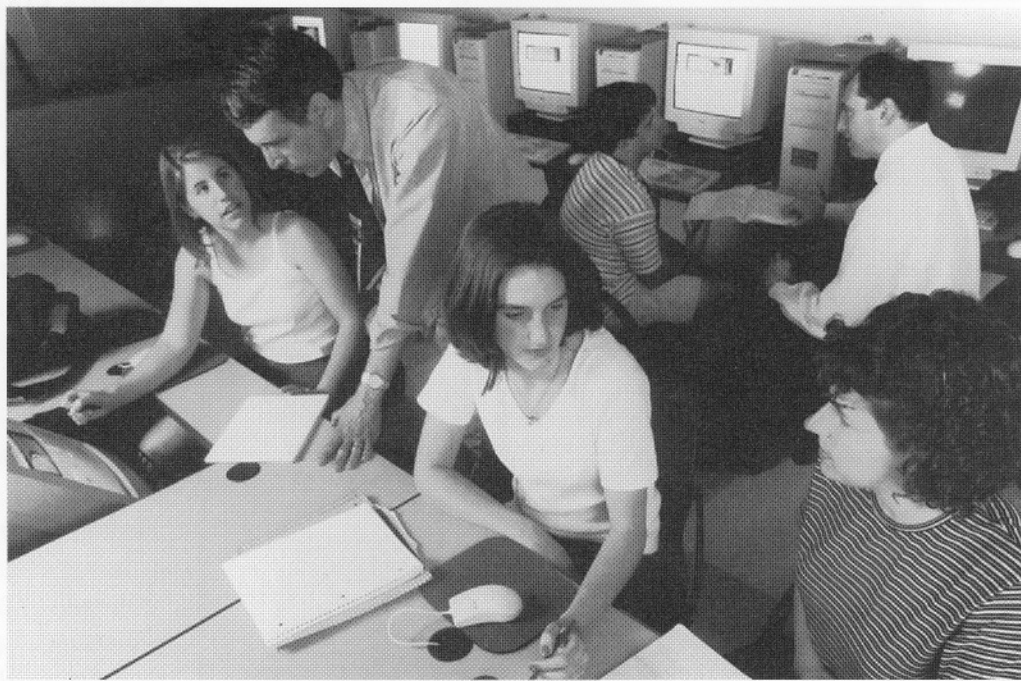


# All Plugged In and Ready to Learn

## U.Va. invests to make engineering classrooms cutting-edge



Classrooms within the School of Engineering and Applied Science are gaining high-tech aids that add new dimensions of sound and sight and make students and faculty partners in the learning process. Chalkboards and overhead projectors may never seem the same.

It's all the result of a partnership between the school and the University's Office of Information Technology and Communication, which considers SEAS an important laboratory for use of the new classroom technologies. ITC and the Provost's Office Classroom Improvement Fund have together supplied about \$500,000 in University funds for the project.

Three of the updated rooms, equipped for different and specialized uses, opened this semester in the Mechanical Engineering Building. One features a desktop computer for each student. In the second, desktops are shared by two students working as a team, while the third offers connections for laptop units.

Students work individually or in teams on problems that are loaded into their computers. Instructors discuss the work, advise the students, and display text and images on a big screen to illustrate points.

"The design and layouts differ significantly from the traditional face-forward style classroom," says Mitchel C. Rosen, associate professor of mechanical and aerospace engineering and director of information technology for SEAS. "Now engineering faculty have classrooms that

facilitate working with students in an interactive mode."

All of the classrooms have video projectors that can enlarge and project the image of any transparent or solid object that the professor might want to discuss. Instructors can focus on a tiny area of the object, such as a small portion of a scale model, and project that area onto the screen at various magnifications — and in three dimensions.

"These classrooms are the model for a new era of learning," says Robert J. Ribando, associate professor of mechanical engineering and one of the pioneers in the University's high-tech teaching initiative. "They allow students to learn by working through a problem in the classroom, alone or as part of a small team, rather than listening to someone solve the problem. It's more interesting to the student and far more effective at teaching a principle."

Engineering faculty members led the way in U.Va.'s recent push for new, technology-savvy teaching methods. Ribando, chairing a University-wide committee in 1993-94, proposed that the University support faculty through a Teaching and Technology Initiative and improve facilities through a Classroom Technology Initiative, which resulted in these new classrooms.

The engineering school has come a long way in teaching technology since 1989, says Bob Ribando. That's when he and George Cahen, professor of materials science, driven to create a prototype of the new type of classroom that they

In newly designed classrooms, students face in all directions, work in teams, and watch computer displays instead of blackboards. Faculty use computer networks to convey questions, respond to answers, and analyze problems with the class. It's a new way of teaching, say faculty members Bob Ribando and Mitch Rosen.

were envisioning, spruced up a classroom on their own time. With a very small budget, they were out to make a point. They needed a computer. Somehow, Bob Ribando found a way. Don't ask him how. Just rest assured, it was all worth it.

## MORE HIGH-TECH TUNE-UPS

Other SEAS upgrades, driven by new teaching technologies, include:

- Console computers and advanced projection systems for instructors in three classrooms
- 128 new computers with Windows NT operating systems in The Stacks, the student computer lab more formally known as the Avery Catlin Student Computer Facility
- Next fall, new multimedia teaching technologies for the E-School's largest classroom, 205 Mech. Eng., which seats 160 students