



“Just the presence of the ThinkPad Tablet and the ease of moving it around affects our students’ visual learning in a positive way. The design of the technology enhances that kind of learning, and we really value the experience.”

- Dan McNally, Associate Professor and Chair of the Science and Technology Department

## OBJECTIVE

In order to translate the Science and Technology curriculum into the newest and most cutting-edge realms of research, faculty members partnered with Lenovo to deploy ThinkPad X61 Tablet PCs. By making these computing solutions available to faculty and students, learning tools were created and utilized in lecture, demonstration, and laboratory classes for activities that encompass data gathering, field work, and mapping projects. While some ThinkPad Tablet PCs have only been tested by faculty members for particular applications, others have been classroom and field tested.

## CUSTOMER PROFILE

Founded in 1863, Bryant University is a private university with two undergraduate colleges and a graduate school of business in Smithfield, Rhode Island. The Science and Technology Department’s laboratory courses enroll approximately 400 students per semester of the university’s more than 3,200 undergraduate and 400 graduate students.

## OPPORTUNITY

Professors in the Science and Technology department have been asked to test their ideas in different learning situations by using the X61 Tablet, and provide feedback to Lenovo so that the technology can be tailored specifically to the University’s uncovered needs. For the faculty, the introduction of the ThinkPad X61 Tablet enables the “mixing and matching” of different types of graphical data. For example, students can have one illustration on their ThinkPad Tablet of what they are supposed to be seeing through their microscope, and then actually see that same image through the laboratory equipment. The X61 Tablet offers a great opportunity for visual learning such as this, as well as growing mapping capability. The true benefit of tablet mapping tools and different mapping software programs is the onsite value. Whether a student is layering maps or adding field, lab and personal interpretative data, ThinkPad X61 Tablet PCs see the process through from beginning to end.

## WHY LENOVO?

- Lenovo ThinkPad laptops are already the standard among students at Bryant, and the ThinkPad University program is entrenched
- Lenovo has been engaged with Bryant as a partner in exploring the latest learning technologies and classroom solutions
- Lenovo has a long-standing partnership with Bryant

## SOLUTIONS BENEFITS

- The flexibility of the Lenovo ThinkPad X61 Tablet PC is valuable in a variety of pedagogical situations
- The X61 Tablet has been tested by faculty members and shown to enhance learning effectiveness

## SOLUTION SNAPSHOT:

### LENOVO HARDWARE

#### Netbooks

- IdeaPad™ S10-2

#### Notebooks

- ThinkPad® A31
- ThinkPad® R40, R51, R52, R60, R61
- ThinkPad® T61, T400
- ThinkPad® X41s, X61 Tablet

#### Desktops

- ThinkCentre® M57p, M58p

### THIRD-PARTY APPLICATIONS

- Adobe® Fireworks CS4
- CARIS GIS Software
- Citrix® FLASH
- DNR Garmin® Software
- ESRI ArcReader GIS Software
- ESRI ArcView 3.x GIS Software
- Garmin® eTrex Legend GPS Data Collector
- Google™ Earth
- MapWindow™ GIS Open Source Software
- MathWorks™ MatLab
- Microsoft® Excel
- PASCO® Science Workshop

**“Lenovo brings us bleeding-edge classroom technologies that will greatly benefit our curriculums and the very foundation of our institution.”**

- Dave Gannon, Associate Director of Academic Computing and Media Services



### Redefining the Classroom

One of Bryant University's original purposes for its test supply of ThinkPad X61 Tablet PCs was to deploy them in laboratory classes and have students use them to fill in digital forms and notesheets. But that quickly changed.

“My immediate impression with the use of these tablets was to take them out in the field to make notes and upload photos,” said Dan McNally, Associate Professor and Chair of the Science and Technology Department. “Using a tablet just requires that you take the screen with you and download your data from satellite transmission before heading back to the lab. But then I started changing my thinking.” From that point on, McNally was determined to use the X61 Tablet to take field work into the classroom. “You have the power of a computer right there at your fingertips, and you are literally taking real life into the classroom.”

McNally is currently asking his students to use the ThinkPad Tablet PCs to examine erosion and sea level rise by annotating changes on comparison maps from the past and the present, develop environmental renovation projects such as eelgrass restoration in coastal areas, study forestry coverage and development in the Narragansett Bay watershed in Rhode Island and Massachusetts, and gain an understanding of subsurface contamination. By taking groundwater, surface water, air and soil samples from various locations around Narragansett Bay, students are able to then go back to the classroom and match those samples with metals, toxic material and organic content found in 10-year-old data. Department faculty also have students use the ThinkPad X61 Tablet to create geologic maps onsite and annotate digital elevation models, topographic maps, and digital aerial photos.

### Optimizing the Curriculum

As Bryant's faculty discover more ways to harness the benefits of the ThinkPad Tablet PC, new labs and course topics are finding their way into the curriculum of the Science and Technology Department. For example, a microbiology lab is utilizing the ThinkPad X61 Tablet – in conjunction with mapping software – to capture microbe images through microphotography and track mold distribution on campus, and a geology lab is running a seismology program on the X61 Tablet to assess the distribution,

magnitude and tectonic locations of various earthquakes.

Students are even using GPS software on their ThinkPad Tablet PCs to complete mapping projects in China on Giant Panda preserves and bamboo growth, as well as butterfly surveys in Rhode Island. Additionally, Bryant faculty and students traveling to Mongolia for field sampling are using the ThinkPad X61 Tablet to upload data on fossil analysis, plant distribution and desertification in Mongolia.

“The hardware is now keeping up with the software,” said Dave Gannon, Associate Director of Academic Computing and Media Services at Bryant. This is why University collaborations on mapping projects are possible with environmental NGOs, conservation commissions, state agencies, land trusts, and even the Audubon Society, he said. From wetlands analysis and trail mapping to A.I. robotics, the tablet possibilities are endless for Bryant students and faculty.

### Seeing the Potential

Not only does the Lenovo ThinkPad X61 Tablet PC enhance the learning experience of Bryant's students, but it makes the lives of the Science and Technology Department's faculty much easier. When professors are able to annotate PowerPoint slides and Web pages during lectures, the class engages in visual powerful visual learning. “We're all in this game to help them learn as well as they can with great tools,” McNally said.

After breaking students into small teams to take on real-life mapping and GIS projects, professors then must take on the wealth of content that their students capture on their X61 Tablet PCs. “In many of my environmental courses, students complete a number of drawings, and with the ThinkPad Tablet they can e-mail me their sketch as part of an exam or quiz,” McNally said. “It has all worked very well – first because the system is so user-friendly, and second because annotating the graphics while I'm grading is extremely simple. Now I can grade faster than ever before, and that means I can devote more time to my students.” Other faculty are testing applications for the X61 Tablet PCs for transferring data more efficiently from laboratory instrumentation, or even using the Table PCs as data recorders. By using predesigned templates and reference materials created by faculty, students can then complete research reports quickly and efficiently as soon as data is collected, thus gaining better comprehension of the significance of their findings.

As the Science and Technology Department's faculty envision future uses for the ThinkPad Tablet PC in their teaching and research, new majors and minors are unfolding such as Environmental Science and Biotechnology. Hand-on research is a required component for all students in the Environmental Science major, and Gannon said similar expectations should become the norm as Bryant asserts itself as a research leader.

To learn more, visit [www.Lenovo.com](http://www.Lenovo.com).

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