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## Student Engineers Take to the Law

### Course at U. of Washington covers patents, trademarks, and copyright

By PETER MONAGHAN

Seattle

"Think of driving your car," said Melany Ann Hunt.

"If no one had told you that you could take a free right turn, you'd be sitting at a lot of red lights."

What she was trying to say was that it didn't matter how savvy she is as an electrical engineer -- she still needed to know what kinds of legal static she may confront on her way to marketing components or processes she invents.

Ms. Hunt just graduated with a degree in electrical engineering here at the University of Washington, where she concentrated in "controls and robotics." She is one of 43 students who this past semester studied the basics of intellectual-property law.

They enrolled in a survey course taught in large part by practicing intellectual-property lawyers. It's a field in which law students have been schooled for generations, but for electrical engineers like Ms. Hunt, the class was most unusual.

And necessary, she added. "There is a need for an engineer to understand more than how a product works -- to have some familiarity with how the laws work."

That's certainly true, said Mark Wittow, a lawyer who was one of the course's instructors. As the lecture-hall lights dimmed for a class session last month, he said to his students: "When you see some technology that's infringing on yours -- for example, a Web site that's using your information for an on-line game or something like that -- you've got to figure out a way to capture it, download it at the time you notice it. It's up to you to do that. The infringing material may be gone next time you look."

He got an aw-jeez chuckle from the engineering students -- they're not lawyers, but they weren't born yesterday. But he

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added: "Don't leave that up to a lawyer. A lawyer probably has no idea how to do it."

Mr. Wittow is one of 10 lawyers who each took a turn at running students here through the basics of intellectual-property law, starting with patents, copyright, trademarks, and trade secrets. All 10 are from the firm of Preston Gates & Ellis, which has this city's largest department of technology and intellectual-property law.

Mr. Wittow could be forgiven for not understanding how much Ms. Hunt and her classmates knew about computing. Ms. Hunt's resume, for instance, records that while working with Lockheed Martin Government Electronic Systems last summer in Moorestown, N.J., she "identified the key-word sequences needed to configure the JP8530 Network Analyzer used in the AEGIS Radar Receiver Cabinet modifications made during the refurbishment of the ANFAST near-field test chamber."

Many of Ms. Hunt's classmates have already been involved in patent and copyright proceedings. Several of them have signed contracts to serve as consultants for companies in which they'll have to deal with copyright applications and other intellectual-property concepts. A few have received patents for chip designs and electronics components, systems, and processes.

And soon, many will be making a lot of money.

"Electrical engineering is right now becoming a cutting-edge area for a lot of the exciting new technologies," said Howard J. Chizeck, who heads the department of electrical engineering here and who oversaw the course. "Software is finding a home now in all of the smart little devices, in appliances, or automobiles, or anything else."

Most of those enrolled this spring -- about three-fifths graduate students, the rest undergraduates -- were studying electrical engineering. Others were in biotechnology and computer engineering.

Many of the most exciting developments in high technology, said Mr. Chizeck, are taking place at the intersections of electrical engineering, computer engineering, and bioengineering. He cited various kinds of high-tech doodads in which, he said, the lines between software and hardware have blurred -- systems-on-a-chip, for instance, along with sensors, testing equipment, "masks" for chips, and other devices.

Such terms, of course, may mean nothing if you're not an

engineer. "Everything's a computer these days" is the non-engineers' explanation Mr. Chizeck provided.

Offering the course makes more sense here than at most places, he said. "In the Northwest, we have a great many companies interested in intellectual property for software. Probably the intellectual property is *the* value for these companies."

He added: "Our engineering students were going out into that environment without any exposure to copyright, patent, and start-up law; how to write or sign or read the agreements of their employment, or their consulting; and really the whole host of issues."

The 43 enrollees -- who aspire to be, or already are, chip makers, testing-equipment inventors, game designers, and "dot-com people" -- responded to a single e-mail notice saying that the course would be offered. Mr. Chizeck said that 200 students would have enrolled if there had been enough room. Even a few professors attended a session or two.

At the law firm, the driving force behind the course has been Timothy Nielander, a participant in the Washington Software Alliance, a statewide consortium of manufacturers, researchers, and planners.

As it happens, the "Gates" in Preston Gates & Ellis is the senior version of Bill Gates, Jr. Mr. Nielander said Mr. Gates, Sr., was "very serious about seeing that we do a lot of community service, and this seemed like an easy, natural project to take on." But the firm's partners may also think it's a good investment to help out students who may need top-dollar legal services in the near future.

In the 10-week course, each of the 10 Preston Gates lawyers taught one session. Mr. Nielander and Mr. Chizeck asked the lawyers to give students just a sense of how the law might affect their careers. Said Mr. Nielander: "The thrust of the class is not to replace the kind of class you'd take in a law school, where you'd read lots of cases and try to figure out what the judge was getting at with each turn of phrase."

He added: "All we're hoping to accomplish really is that a student will walk out and have some heightened awareness of the ways you can very quickly lose the most important asset that any of these start-up companies have, which would be some computer code or a basic invention of some type."

To explain to students how that can happen, Mr. Nielander and his colleagues detailed the differences between patents and

copyrights. They explained the legal status of trade secrets, non-disclosure agreements, and licensing deals. They discussed the language -- and the intellectual-property implications -- of employment and independent-contractor agreements. And they sketched the history of legal protections for intellectual property -- from English and continental common law through the U.S. Constitution. Intellectual property, Mr. Chizeck noted, "was discussed for months in the Federalist Papers."

Students also learned about more-arcane issues, such as the concept of "trade dress," which prohibits manufacturers from mimicking the characteristic looks of well-known products -- for example, the shape and appearance of Coca-Cola bottles. In the computer world, that protection is being extended to "domain-name squatting," in which opportunists have registered Internet sites using the names of well-known corporations in hopes of selling the sites to those companies at a big profit.

More complicated than most issues, said Mr. Nielander, is "back engineering" -- taking apart patented devices or components to see how they work. Often -- and usually illegally -- the goal is to incorporate patented features into new devices or components. Also on the syllabus was federal copyright protection of "masks" -- stencils for making computer chips, analogous to dress-making patterns or silk-screens.

Many students enrolled in the course said they knew before the first class session how important such information could be to them. Said Vince Offenback, a graduate student in electrical engineering: "When I started my first engineering job, at Bell Telephone Labs in 1979, two of the first documents I was given were B.T.L.'s own patent guide and a bound, blank engineering notebook where all my work-related thoughts were to be recorded."

Several students in the intellectual-property class are engaged in research here at the university that may incorporate the results of research they did during internships or in earlier corporate jobs. That means they will need to know their obligations to earlier employers as well as under technology-transfer policies that govern the licensing of inventions created by anyone in the university's employ.

Said Mr. Chizeck: "Maybe they signed some kind of a deal when they went to be an intern someplace, and you can tell they're thinking, 'I've continued to do research on that while I've been at the U., and now I'm wondering what's going on. The rights for this kernel of an idea that I worked on elsewhere

may not be where I thought they were."

Such issues can be of real concern for students like Michael Dougherty, a Ph.D. candidate in electrical engineering. Mr. Dougherty, whose research includes acoustic recognition and whale tracking, has one patent already, and another awaiting approval -- both for an audio-signal-processing system that automatically adjusts music or other sound signals in the presence of competing noise.

Mr. Dougherty said he knew it was important to acknowledge, as he had, that his work on the inventions was "all done very much before I was at the U.W." And he sounded a lot like a lawyer when he said it, too.

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