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CFB: COVER STORY

UCF's photonics college helps local businesses shine

Private-sector partnerships make the college a cornerstone of photonics industry

By Christopher Boyd | Sentinel Staff Writer

Posted May 23, 2005

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FAST FACTS

- 78 -- Number of photonics-technology companies in the Florida High Tech Corridor.
- 2,500 -- Number of workers employed by photonics companies in the Florida High Tech Corridor.
- \$137 million -- Total annual payroll for photonics companies in the Florida High Tech Corridor.

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PHOTOS



[How it works.](#) (BOBBY COCKER/ORLANDO SENTINEL)
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Without the University of Central Florida's College of Optics and Photonics, LaserPath Technologies wouldn't be in a race to develop high-tech medical devices.

In fact, without training and technical assistance from the college, LaserPath likely wouldn't exist at all.

"All six of our employees are UCF grads," said G. Kim Jenkins, a founding partner of the company. "The college is an anchor for our industry here. As long as they produce employees with a strong competency in photonics, the industry will grow."

When it comes to partnering with the private sector, UCF is becoming one of the most aggressive universities in the country. Last year, the university made the two-decade-old photonics school a college, making it the first of its kind in the country. Today, the college has 147 graduate students in its Ph.D. program.

From the outset, the college has fostered close ties with business. In 2002, the state established a Center of Excellence within the college, a designation that came with a \$10 million grant and the expectation that it would become an engine for tech-sector growth. It is one of three such centers in Florida.

Photonic devices harnesses photons -- the particles that constitute light -- in much the same way that electronic devices employ electrons. In both cases, energy is transformed into a wide assortment of applications. Lasers, the concentrated light beams that, among other things, read compact discs, are photonic devices. So are light-emitting diodes, the glowing lights known as LEDs that let you know your computer is on.

The optics college, through its Center for Research and Education in Optics and Lasers, promotes development of new photonic equipment. It not only gives students and faculty access to costly research tools, it makes the equipment available to businesses.

"Industry hears a strong message that we are trying to work with them," said Eric W. Van Stryland, the college's dean. "Part of our mission is to attract, retain and grow the photonics industry."

According to the business-development group known as the Florida High Tech Corridor Council, 78 photonics companies employing 2,500 workers with an annual payroll of \$137 million operate in the

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In the lab. (BOBBY
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21 counties that fill the state's midsection. The greatest concentration of those businesses is in Orange County.

Van Stryland said UCF's desire to contribute to the state and local economy gives the optics college a unique opportunity to work with business. The partnership goes both ways: As the college offers access to its research and equipment to businesses, it receives benefits in return.

Last year, for example, Northrop Grumman's Space Technology division gave the college a package of patents, cash and equipment worth \$24 million. It represented the contents of a discontinued Northrop photonics program.

"We figured out that Central Florida is quite a place for lasers and photonics," said Dan Dillary, director of avionics engineering with Northrop's Integrated Systems division in Melbourne.

The optics college has connections to a number of start-up companies, staffed in many cases by its own alumni.

"About 70 percent of our staff are graduates of the program," said Jeff Bullington, founder of Raydiance Inc., an Orlando photonics company with 25 employees that was formed less than two years ago. "There's a very good talent pool here, and it's growing."

Raydiance is developing photonic laser devices, the nature of which is a company secret, using licensed technology developed by UCF. Bullington said UCF has provided access to analytical tools that he said are "way too expensive to buy."

The help companies like Raydiance receive is valuable, particularly at a time when investment money for product development is scarce. The photonics sector was blunted following the telecom bust early in the decade.

Many of the photonics companies formed in the late 1990s focused on developing technology to exploit the huge amount of fiber-optic cable that was installed nationwide as the communications industry boomed. When the telecom bubble burst in 2001, demand for photonics fell.

Since then, the industry's focus has shifted.

Many companies, including LaserPath and Raydiance, are exploring medical applications. Others are working on light-driven products that speed data processing and storage. Still others are finding work through military contracts, developing weapons-guidance systems, land-mine detectors and measuring devices.

Central Florida, with its concentration of defense contractors and training-and-simulation companies, is fertile ground for photonics developers. In fact, many of the companies working on photonics projects aren't even considered part of the field.

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