

## **FAQ Emerging Technologies** *AAS Instrumentation and Control Technologies*

In the Fall 2010, Finger Lakes Community College will launch a new degree called Emerging Technologies. This hands-on projects and internship driven program will teach students how to be adaptable technologists through use of latest automated data acquisition, instrumentation, robotics and control tools.

### **What are Emerging Technologies?**

Emerging technologies refers to new tools and techniques for designing, testing, manufacturing and quality control in industrial, commercial, medical and other settings. These tools enable us to continuously monitor health of people, crops, vehicles, machinery – crucial for infrastructure improvement; and innovations in our systems of healthcare, transportation, electric grid, and internet.

As these tools have become more affordable, they have been put to a broad range of uses – often leading to synergetic emergence of entirely new categories of applications of technologies that original inventors did not anticipated.

### **Examples:**

- Sensors that can monitor environmental factors in a building, transmit the information to a computer that can be checked remotely, and help improve energy efficiency – helping innovate green technologies (Wind, Solar, Fuel cells, Hybrid).
- Sensors that continuously monitor vibration and stress in a bridge to alert engineers about potential catastrophic failure.
- Machine Vision Cameras that can spot defects on a production line for electronic, medical or consumer items.
- Instruments that can continuously check a patient's conditions and make critical data available remotely. Robotic surgery, remote surgery, thought controlled wheel-chair, hand-held sonogram devices are other examples.
- Putting videogames to real use: therapeutic use of game controller, and remote control drone aircraft are among wide range of applications.

### **Why did FLCC create this program?**

Local businesses have told us they need adaptable technologists who can build, test and repair small and large systems using these new tools. We have an advisory board that helped us pinpoint the skills students would need to learn. It is important to note these jobs are less prone to be outsourced -- the technologist has to be on the site to understand, design and integrate systems.

### **What are the specific jobs students would get with a two-year degree?**

Job titles include: measurement and test technician, electromechanical technologist, control technician, automated inspection engineering assistant, automation technician. Starting salaries will be in the mid-\$30,000 range – top graduates could earn close to \$40,000. Graduates would also be in a position to advance their knowledge on the job or with additional technical training, and see rapid increase in their pay.

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### **How are these technicians currently being trained?**

Since these new technologies are emerging right now, there are no traditional programs that address the specific needs of employers. Much of the training now is done on-the-job by employers who may invest in someone out of the area only to have them move away or the work is handled by engineers who are needed for more complex tasks.

### **How will FLCC's program solve this problem?**

Emerging technologies is an interdisciplinary program – our Dean Dr. Topping aptly calls it a “liberal-Arts” program for technologists. It involves knowledge of mechanical systems, but it is not strictly mechanical engineering. It involves knowledge of electrical circuits, but it is not strictly electrical engineering. It involves knowledge of software and hardware, but it is not strictly computer science. We will also tailor our English requirement to include technical writing. All of our coursework will entail project based learning, often multidisciplinary, because that is how problems are tackled in the real world. It will also be hands-on from day one. Student will get to see right away how basic skills such as use of mathematical equations relate to the tools and techniques used in the program.

Studies show that most community college graduates have ties to the community and settle down in the region. By training our young people for jobs we know are needed right here, we can reduce the migration of talented young people to other areas of the country.

### **What is the reaction from business the community?**

Over sixteen companies have already pledged a total of 20 internships for our first class of students; the internships will grow into job opportunities for the students. The businesses have also projected the number of technician jobs they expect to have in the next few years. So we know we are filling a need in the community.

Many of these businesses are ones you have heard of, such as: Optimax, IEC Electronics, Surmotech, Zeller, G.W. Lisk Co., Pliant Corp. , Johnson Controls, ITT-Goulds Pumps, Gorbels, Redcom Laboratories, Unique Automation, Viewpoint Systems, FSI Systems, Infotonics Technology Center and Kirtas Technologies.

If you have additional Questions for this FAQ, feel free to email Sam Samanta:  
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