Careers In:
ENGINEERING

▶ Engineering Transfer

▶ Civil and Environmental Engineering Technology

▶ Electrical Engineering Technology

▶ Computer Science

▶ Laser/Photonics/Optics

▶ Mechanical Engineering Technology
   and Mechatronics Technology

▶ Nanoscience Technology

College of Lake County

www.clcillinois.edu/egrdv

ENGINEERING

Engineers, computer scientists and technicians are the brainpower behind the technological innovations that will make our lives better and fuel economic growth.

Engineering, engineering technology and computer science are fields that focus on maximizing the potential of technology to improve our lives. Although there is some overlap between these fields, each has different focus and distinct educational requirements. Each, however, provides wide-ranging opportunities for stimulating, well-paid careers.

Engineering, which focuses on the design of new structures, devices, products or applications, generally requires a bachelor's degree. It offers several specialties—civil, electrical, environmental and mechanical, but regardless of the specialization, advanced math and science are required along with an understanding of scientific theories.

Other specialties: industrial, computer, biomedical, chemical, aerospace, agricultural, architectural and more!

Whereas engineering focuses on design, **Engineering Technologies** tend to focus on hands-on work like trouble-shooting and repairing or testing devices. It requires less advanced math and science than engineering and offers good career opportunities at different educational levels—career certificate, associate degree or bachelor's degree.

Software engineers, programmers and computer scientists develop software programs, write programming code and design and conduct research in such areas as computer chips and processors, robotics and virtual reality. They have significant theoretical knowledge and often work in multidisciplinary teams with electrical engineers, mechanical engineers and other technology specialists.

Engineering
Professional engineers choose an engineering specialty.
Major ones are:

Civil engineer
Civil engineers design, plan and supervise construction of roads, bridges, dams and skyscrapers, water treatment plants and solid waste landfills. Within civil engineering are many specialties: structural, water resources, construction, transportation and geotechnical engineering. Many civil engineers work as city engineers. Others work in consulting, research and teaching.

Electrical engineer
Electrical engineers design, test and supervise the manufacture of electrical equipment ranging from electrical systems in cars and aircraft to life-saving medical equipment. In addition to design work, careers are available in research and teaching.

Environmental engineer
Environmental engineers use the principles of biology and chemistry to design solutions to problems like oil spills and toxic waste sites. Typical projects include designing wastewater treatment systems and conducting research on the environmental impact of proposed construction projects.

Mechanical engineer
A mechanical engineer designs tools, engines and mechanical devices of all sizes, from bulldozers to lawn mowers to artificial limbs. Some mechanical engineers work on devices such as generators, engines and turbines. Others may design devices as diverse as machine tools, robotics and automobiles. Many engineers also work in sales, management or teaching.

Engineering, Engineering Technology or Computer Science—Which is right for you?

	Engineering	Engineering Technology	Computer Science
Focus of Work	Designing	Troubleshooting/repairing testing	Design and research including developing mathematical algorithms, programming, advanced mathematics
Technical emphasis	Requires advanced math and sciencee	Requires less advanced math and science	Requires advanced mathematics
Educational requirements	Bachelor's degree	Career certificate, associate degree or Bachelor's degree	Bachelor's degree; graduate degree often required
Earnings*	$72,900-$86,800	$52,500-$56,000	$71,400-$96,200

* Annual median salary in 2010, according to the U.S. Bureau of Labor Statistics.

Engineering Technologies

Like engineers, engineering technicians choose a specialization.
Major ones are:

Civil/environmental engineering technician
Civil engineering technicians work in the design and construction of highways, bridges and other structures. They are involved with inspection, testing, surveying and civil drafting aspects of civil projects. Environmental engineering technicians operatewater/wastewater treatment plants and assess environmental sites for pollution.

**Electrical engineering technician**
Electrical engineering technicians play a critical role in the testing, troubleshooting or repair of electronic devices ranging from cell phones to medical pumps.

Mechanical engineering technician
Technicians in this field apply engineering knowledge to the solution of design problems. Examples of their work include prototyping and testing motorcycles, solar cars, under water robots and other high-tech devices and systems.

Mechatronics technician
Mechatronics technicians design, test, troubleshoot and maintain cutting-edge automated systems, from personal and industrial robots to ATM machines, artificial hearts and virtual reality simulators.

ONLINE REGISTRATION
24/7
WWW.CLCILLINOIS.EDU
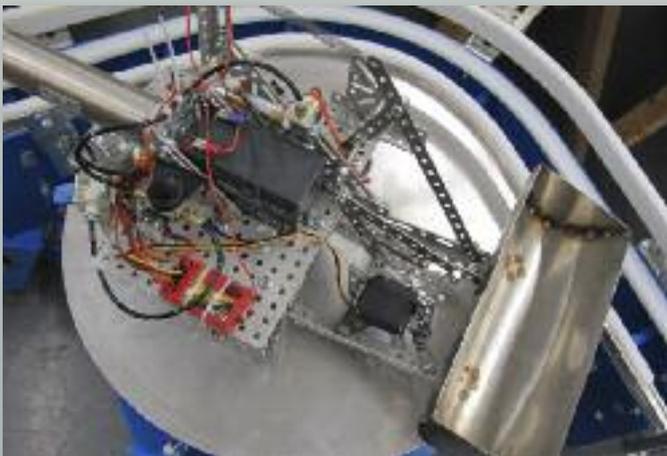
View Current Class Schedules and Apply Online

Emerging Technologies

New technologies are creating exciting opportunities for technicians that should only grow as the economy recovers.

Among these are nanoscience and laser/photonics/optics–both fields projected to lead to many new jobs.

Nanoscience technician

The emerging field of nanoscience works at the atomic level— a nanometer is one billionth of a meter—to design and improve hundreds of products from drugs to fabrics. Nanoscience careers are available in research and development, production, manufacturing and sales. In CLC's program, you'll learn using leading-edge tools such as a scanner electron microscope.

Laser/Photonics/Optics

Photonics (from the word, "photon," a unit of light) is the science of light and its practical uses. Laser, optics and photonics technicians install and troubleshoot lasers, optical systems, fiber optic devices, telecommunications equipment, control systems and more. With experience, technicians can move into management, sales or training.

Computer Science

With a strong background in mathematics, computer scientists, programmers and software engineers are bringing the virtual world into reality.

Major specialties in this field are:

Computer software engineer

This is an exciting and fast-changing career that's involved in designing, testing and evaluating software of all sorts. The work involves creating detailed sets of instructions called algorithms, upon which computer programs are based.

Computer programmer

Programmers write the instructions and source code that operate computers, using languages like Java, C++, Python or others. Programmers also test, debug, troubleshoot and update the source code.

Computer scientist

These scientists apply a strong background in theory to design and invent new technology for robotics and virtual reality applications or to make computers work faster and with more power. This exciting and challenging career requires at least a master's degree in computer science.

For gainful employment information on CLC programs, visit **www.clcillinois.edu/gainfulemployment**.
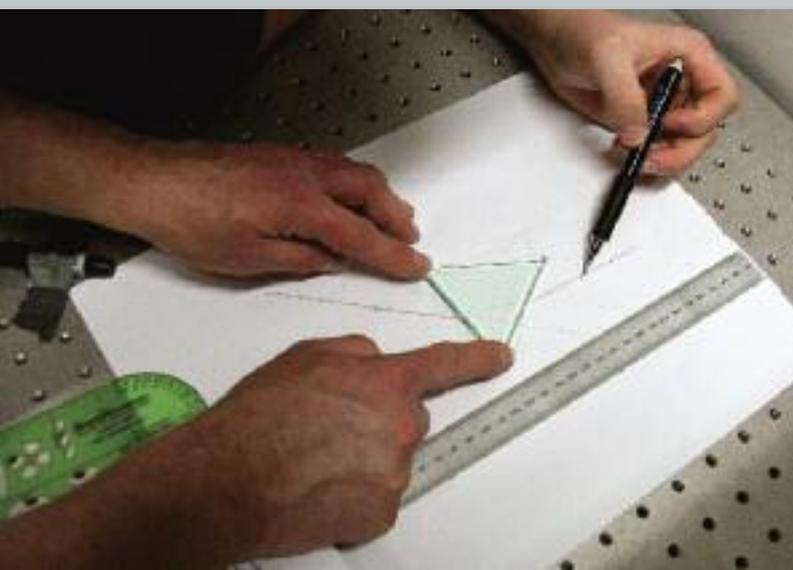
For more information on salary, job outlook and required courses in each career program, check the information sheet that is posted online at www.clcillinois.edu/egrdv.

CLC: The start of your career preparation

Engineering:
Associate in Engineering Science Degree

CLC offers the first two years in a pre-engineering program. Course work combines a strong foundation in calculus, physics and other natural sciences with liberal arts and social sciences. CLC's Associate in Engineering Science degree credits will transfer to universities accredited by the Accrediting Board for Engineering and Technology (ABET). These colleges include the University of Illinois (Chicago and Champaign campuses), Northern Illinois University, Southern Illinois University and the Illinois Institute of Technology.

Engineering Technologies:
Associate in Applied Science Degrees and Career Certificates

CLC's two-year associate degree and shorter-term certificate programs are designed to give you the practical skills for a new career or to update skills for your current engineering technology career.

Associate in Applied Science Degree Programs
- Civil/Environmental Engineering Technology
- Electrical Engineering Technology
- Mechatronics Technology
- Mechanical Engineering Technology
- Nanoscience Technology

Certificate Programs
- Electronics Technology
- Electrical/Electronic Maintenance
- Electrical Technology
- Fiber Optics Technician
- Laser/Photonics/Optics
- Mechanical Engineering Technology
- Mechanical Service Technician
- Mechatronics Technology
- PC Technician
- Surveying and Civil Technology
- Wireless Networking Security

Computer Science:
Associate in Science Program

The Associate in Science degree in computer science is a math-intensive program that is equivalent to the first two years of a bachelor's degree program. Graduates have transferred to many four-year colleges, including the University of Illinois, Northern Illinois University, DePaul University and the University of Wisconsin.

"Electrical Engineering Technology is a great career with many possibilities. There is always a new challenge with every job you take on."

— Mitchel Kauppila
2010 graduate in Electrical Engineering Technology and electrical engineering technician

"Community colleges offer a tremendous place to not only start one's college education but to strengthen one's career. While attending CLC, more often than not there were times when I could apply what I had learned the night before at CLC to what I was working on the next day at work. I was also impressed with CLC's commitment to stay current with the latest CAD technology, smaller class sizes, personal attention and the chance to work on project teams."

— Susan Goedke
2004 graduate in Mechanical Engineering Technology and senior research & development engineer

"The instructors have real-life work experience; they are very knowledgeable. They balance lab and class time well. This (Electrical Engineering Technology) program offers a solid base and preparation for a four-year electrical engineering technology degree or a career in the electronics industry."

— Thomas Strasser
2009 graduate in Electrical Engineering Technology; earned a B.S. in Industrial Technology from Southern Illinois University in 2011; currently manager of a wind turbine service department.
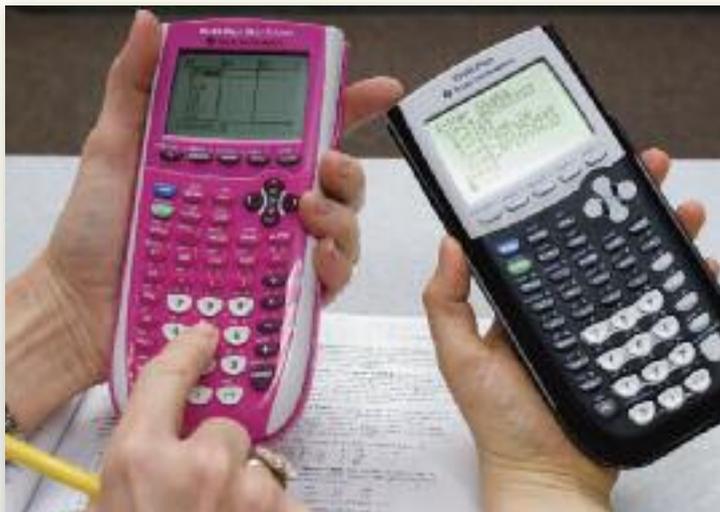
Why attend CLC's program?

CLC's faculty have worked as professional engineers and engineering technicians. What's more, an advisory committee, consisting of top-tier consultants from around Chicago, ensures that the program uses the latest teaching methods, tools and equipment. Also, CLC's average class size is only 21 students. Add online courses, affordable tuition, scholarship opportunities and flexible scheduling, and you have a combination that's hard to beat.

Interested? Find out more.

For department contacts and more information on both the Engineering and Engineering Technology programs, visit the following websites:

- **Engineering transfer**
  www.clcillinois.edu/credit/programs/egr.asp

- **Civil and Environmental Engineering Technology**—
  www.clcillinois.edu/credit/programs/civ.asp

- **Electrical Engineering Technology**—
  www.clcillinois.edu/programs/elt/index.asp

- **Mechanical Engineering Technology and Mechatronics Technology**
  www.clcillinois.edu/credit/programs/mcd.asp

- **Nanoscience Technology**—
  www.clcillinois.edu/programs/nan/index.asp

- **Laser/Photonics/Optics**—
  www.clcillinois.edu/programs/lpo

Convinced? Apply today.

Visit **www.clcillinois.edu** to review admission requirements, apply to the college and view upcoming courses.

To learn more—

Visit **www.clcillinois.edu/academics** or contact our faculty.

Program:	Contact:
• **Engineering Transfer Program** • **Civil and Environmental Technology**	**Rob Twardock** (847) 543-2903 eng491@clcillinois.edu
• **Computer Science Transfer Program**	**Scott Reed** (847) 543-2909 eng508@clcillinois.edu
• **Mechanical Engineering Technology and Mechatronics Technoloy**	**Margie Porter** (847) 543-2904 margieporter@clcillinois.edu
• **Nanoscience Technology**	**Dr. Ahmad Audi** (847) 543-6537 aaudi@clcillinois.edu
• **Electrical Engineering Technology**	**Michelle Leonard** (847) 543-2760 eng529@clcillinois.edu
• **Laser/Photonics/Optics**	**Steve Dulmes** (847) 543-2330 eng526@clcillinois.edu **Bill Kellerhals** bkellerhals@clcillinois.edu

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