Engineering Careers Include:

- **Aerospace Engineers**
- **Agricultural Engineers**
- **Biomedical Engineers**
- **Chemical Engineers**
- **Civil Engineers**
- **Computer Hardware Engineers**
- **Electrical Engineers**
- **Electronics Engineers**
- **Environmental Engineers**
- **Health and Safety Engineers**
- **Industrial Engineers**
- **Marine Engineers and Naval Architects**
- **Materials Engineers**
- **Mechanical Engineers**
- **Mining and Geological Engineers**
- **Nuclear Engineers**
- **Petroleum Engineers**

Courses of Study:

- **Introduction to Engineering Design ETD101 -** Introduction to Engineering Design (3 Credit Hours) This course teaches problem-solving skills using a design development process. Models of product solutions are created, analyzed and communicated using solid modeling computer design software.

- **Principles of Engineering ETD102 -** Principles of Engineering (3 Credit Hours) This course helps students understand the field of engineering and engineering technology. Exploring various technology systems and manufacturing processes help students learn how engineers and technicians use math, science and technology in an engineering problem-solving process to benefit people. The course also includes concerns about social and political consequences of technological change.

- **Digital Electronics EET198 -** Digital Technology (3 Credit Hours) This course in applied logic encompasses the application of electronic circuits and devices. Computer simulation software is used to design and test digital circuitry prior to the actual construction of circuits and devices.

Second Semester Senior Course Options:

- **Civil Engineering & Architecture CAT110 -** Introduction to Civil and Architectural Technology (3 Credit Hours) This course provides an overview of the fields of Civil Engineering and Architecture, while emphasizing the interrelationship and dependence of both fields on each other. Students use state of the art software to solve real world problems and communicate solutions to hands-on projects and activities. The course covers topics such as the roles of civil engineers and architects, project planning, site planning, building design and project documentation and presentation.

- **Computer Integrated Manufacturing EGR128 -** Robotics in CIM Systems (3 Credit Hours) This course applies principles of robotics and automation. The course builds on computer solid modeling skills developed in the introductory courses. Students use CNC equipment to produce actual models of their three-dimensional designs. Fundamental concepts of robotics used in automated manufacturing and design analysis are included.

- **Engineering Design and Development ETD110 -** Engineering Design and Development (3 Credit Hours) This is an engineering research course in which students work in teams to research, design and construct a solution to an open-ended engineering problem. Students apply principles developed in the proceeding courses and are guided by a community mentor. They must present progress reports, submit a final written report and defend their solutions to a panel of outside reviewers at the end of the school year.

- **Biotechnical Engineering** Relevant projects from the diverse fields of bio-technology, bio-engineering, bio-medical engineering, and bio-molecular engineering enable students to apply and concurrently develop secondary-level knowledge and skills in biology, physics, technology and mathematics.

project lead the way®

PROJECT LEAD THE WAY

A Partnership with Great Oaks, Sinclair Community College Courseview and Warren County Career Center

Project Lead The Way gives students the tools to succeed in engineering, science and technology careers!

Sinclair Community College
Courseview

Great Oaks™ CAREER CAMPUSES
Diamond • Laurel • Live • Scarlet
Learning *works!*

Warren County Career Center
"Your choice for a future of opportunities"

Project Lead The Way offers students a hands-on daily experience in problem-solving skills in electronics, robotics, and manufacturing processes. Students will experience the same team problem-solving activities used in college and industry. In addition, the problem-solving/analytical skills and processes are applicable to any career field. Students who study engineering can experience a variety of exciting careers such as designing rollercoasters or racecars, building bridges or skyscrapers, or even working as an engineer in the entertainment and amusement park industry. With its network of schools across the United States, **Project Lead The Way** gives students the tools to succeed in engineering, science and technology careers.

"Employers in the 21st century are seeking more workers with strong science, technology, engineering and mathematics (STEM) backgrounds. In response to this demand, schools must prepare more students in STEM-related fields and raise student achievement in mathematics and science. Schools can increase student achievement in STEM courses by providing continuous, rigorous mathematics and science curricula with applied technology courses based on real-world, hands-on projects."

Project Lead The Way Works; High Schools That Work Research Brief by Gene Bottoms and John Uhn, September 2007

Listed in Ohio's Fastest Growing Occupations to 2014, Ohio Job and Family Services: Biomedical Engineers projected growth rate – 26.1%, average wage per hour $35.06. Environmental Engineers projected growth rate – 24.8%, average wage per hour $35.27.

Warren County Career Center
3525 N. State Route 48
Lebanon, OH 45036
513-932-5677
www.mywccc.org

Sinclair Courseview
5386 Courseview Dr.
Mason, OH 45040

Great Oaks
3254 East Kemper Road
Cincinnati, OH 45241

What: A two-year program for juniors and seniors in high school who are interested in the engineering field.
Where: Sinclair Courseview in Mason
When: Monday through Friday from 7:30 to 9:30 a.m. or from noon to 2 p.m.
How: Students should meet with their home high school counselors for eligibility and scheduling.
What else: Students may choose to take their academic courses at Sinclair, making this a dual credit program, or they may return to their home high school for academics.
Why: According to the **U.S. Dept. of Labor Occupational Outlook**, Employment of engineers is expected to grow in the next decade. Many engineers work on long-term research and development projects or in other activities that continue even during economic slowdowns.
Benefits: Students who successfully complete the program leave with college credits and a great start toward college and a career in engineering, science or technology.

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10/08