



The University of Akron Pre-Engineering Program

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Goal

Pre-Engineering is designed to encourage and stimulate the interests of targeted high school students who have expressed or demonstrated interest and skill in mathematics or science to pursue careers in engineering.

Objectives

The objectives of Pre-Engineering are:

- to identify, recruit and select Upward Bound, Upward Bound Math/Science, and Educational Talent Search students who demonstrate the potential for success in engineering;
- to increase the students' awareness of career options for engineers and applied scientists;
- to provide hands-on learning opportunities designed to generate excitement about mathematics, science and engineering;
- to motivate and increase cognitive skills of students in the pursuit of careers in engineering and science;
- to demonstrate the realities of the workplace by providing on-site workshops and other local industry experiences;
- to provide educational enrichment programs;
- and to encourage completion of the college preparatory course to ready students for college engineering courses.

Participants

The Pre-Engineering target group is 9th through 12th grade University of Akron Academic Achievement Program students. Prospective students must attend a briefing with their parents, complete an application with essay questions, interview with the program coordinator, and maintain a 2.8 G.P.A. Forty students are selected for the program at the beginning of each academic year.

Supporting Partners

The University of Akron	The College of Engineering at The University of Akron
The U.S. Department of Education	The K-16 Initiative
The Upward Bound Program at The University of Akron	The American Society of Civil Engineers (ASCE)
The Upward Bound Program Math/Science Program at The University of Akron	URS Greiner, Inc.
The Educational Talent Search Program at The University of Akron	Local industry/research facilities
	National Society of Black Engineers

Program Services

Summer Component

For six weeks during the summer, Pre-Engineering students spend one hour and thirty minutes daily with engineering professors, engaging in building projects, participating in classroom demonstrations, attending lectures and visiting engineering departments at local companies. Applying scientific and mathematical principles, students and professors work together on projects such as designing bridges, building robots, launching rockets and designing circuits. The areas of emphasis are mechanical, electrical and civil engineering.

Academic Year Component

During the academic year, the program conducts weekly hands-on workshops and tutorial sessions. Utilizing a collaborative learning model, students are encouraged and challenged to work together on hands-on problem solving building projects and also in organized study sessions designed specifically to meet the needs of participants. The focus of the program is not only academic excellence but also to promote a positive competitive environment that embraces student success.

Other Activities and Program Features

- Field trips to science museums
- On-site career workshops and career fairs
- Projects, competitions: robots, bridges, radios, rockets
- (2) Paid work internship programs
- "Engineer for a Day" shadowing
- Motivational speakers
- \$1,000-\$2,000 renewable scholarships provided by The University of Akron College of Engineering
- Academic year four-day major science trip
- Nationally recognized in journal publications

Profile of Recent Pre-Engineering Program Graduates

- 95% college enrollment rate
- 76% majoring in mathematics, science or engineering

Program grads were placed in the following colleges or universities:

The University of Akron	North Carolina A&T University
Bowling Green State University	Oberlin College
Case Western reserve University	Ohio State University
Howard University	Ohio University
Kent State University	Purdue University
Central State University	LaSalle University
Morehouse College	Zavier University of Ohio
Michigan State	Dartmouth