



Pre-Engineering Academy



NYS-approved Career & Technical Education Program

KENMORE EAST & KENMORE WEST HIGH SCHOOLS

What is the Pre-Engineering Academy?

Students who participate in this career-preparation academy develop and learn the skills necessary to be successful in today's high-tech world. This program focuses on preparing students for a variety of careers that are (or will) be available to high school and college graduates today and in the future. This program follows the Project Lead the Way (PLTW) curriculum and also includes courses that follow local and NYS-approved curriculum. (See: www.pltw.org and www.ktufsd.org/academies for more information.)

Who should be interested in the Pre-Engineering Academy?

Anyone interested in **STEMS** careers (**S**cience, **T**echnology, **E**ngineering, & **M**athematics)!

ALL STUDENTS – male or female, motivated to be successful in post-secondary education and future careers. Students participating in the Pre-Engineering Academy may be interested in careers in a variety of areas including:

- ✓ Engineering – Aerospace, Agricultural, Architectural, Chemical, Civil, Computer, Electrical, Environmental, Materials, Mechanical, Mining, Nuclear, Transportation, & other specialties
- ✓ Engineering technician careers in a wide-variety of fields
- ✓ Life sciences including biomedical, biomechanical, & clinical engineering
- ✓ Computer Science – including hardware and software engineering, installation, and maintenance
- ✓ Industrial and manufacturing careers including electricity, electronics, automation, and robotics
- ✓ Skilled trades apprenticeships and training as electricians and other career fields
- ✓ Architecture and related careers in construction design, planning, and management
- ✓ Technology management
- ✓ Secondary and post-secondary education
- ✓ Other science, technology, and mathematics related careers
- ✓ Military

What courses are available to Pre-Engineering Academy students?

The following courses are available to Pre-Engineering Academy participants and any other student interested in exploring the rapidly-evolving world of technology:

Required Courses:

- Design & Drawing for Production (DDP)
- PLTW Computer Integrated Manufacturing (PLTW CIM)
- PLTW Principles of Engineering (PLTW POE)
- PLTW Digital Electronics (PLTW DE)
- PLTW Capstone
- Architecture *or* AP Computer Science Principles (AP CSP)

Electives:

- Construction Systems
- Basic Electricity/Electronics
- Tool Time
- Media Design & Video Production
- Architecture
- AP Computer Science Principles

What are the advantages of participating in a CTE program?

Career & Technical Education (CTE) students participate in a unique sequence of study developed through a thorough planning process and approved by the Board of Education and the NYS Education Department. Pre-Engineering Academy graduates receive a high school diploma endorsement indicating that each is prepared to pursue further education and employment in career fields related in all areas of **SCIENCE, TECHNOLOGY, ENGINEERING, and MATHEMATICS** (STEMs) in addition to Regents or Advanced Regents designation. Pre-Engineering Academy students are also eligible to receive integrated credit in mathematics and science, participate in work-based learning opportunities, and earn college level credit through an agreement with Rochester Institute of Technology (RIT).

See back side for typical Pre-Engineering Academy schedule!

Pre-Engineering Academy – Technology Education

(NYS-approved Career & Technical Education Program)

Units of Credit	Grade 9	Grade 10	Grade 11	Grade 12
English	English 9	English 10	English 11	English 12
Social Studies	Global History 9	Global History 10	U.S. History	Economics & Part. In Gov't.
Science (b) (c)	Living Environment	Earth Science	Physical Science	Optional Science Elective
			<i>PLTW POE may substitute for a third unit of science credit</i>	
Mathematics (a) (c)	Algebra	Geometry	Third Unit Mathematics	Optional Math Elective
			<i>PLTW DE may substitute for a third unit of math credit</i>	
Health		Health (0.5 unit)		
Physical Education	PE (0.5 unit)	PE (0.5 unit)	PE (0.5 unit)	PE (0.5 unit)
L.O.T.E. (optional)	<i>Students completing a sequence of not less than five units of credit in Technology Education are not required to complete the additional two units of LOTE or to pass the Regents Comprehensive Examination in that language to earn a Regents Diploma with Advanced Designation.</i>			
The Arts (d)	Design & Drawing for Production (DDP)			
Technology Education	Tech. Elective (optional) <i>(0.5 or 1.0 units)</i>	PLTW CIM	PLTW POE	PLTW Capstone
		Technology Elective (optional)	Architecture or PLTW/AP CSP(e)	PLTW DE (f)
Units of Credit Earned	<i>At least 5.5 (g)</i>	<i>At least 6(g)</i>	<i>At least 6.5(g)</i>	<i>At least 4.5(g)</i>

NOTES:

- a) PLTW Digital Electronics (DE) may be used to substitute for a third unit of mathematics credit.
- b) PLTW Principles of Engineering (POE) may substitute for a third unit of science credit.
- c) Students earning a Regents Diploma with Advanced Designation must pass three commencement level Regents examinations in mathematics (Algebra, Geometry, and Algebra 2) AND two Regents examinations in science, with at least one in life science and one in physical science.
- d) Design & Drawing for Production (DDP) meets the one-unit Arts requirement for **all** students – including students not participating in an Academy.
- e) Students may complete Architecture and/or PLTW/AP CSP in 10th, 11th, or 12th grade.
- f) Students may complete PLTW DE in either 11th or 12th grade.
- g) All courses are 1.0 units of credit unless otherwise noted.

