

STUDENTS IN ENGINEERING



Clear Creek Independent School District

February 2006

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What's New at -
Clear Creek HS
Clear Brook HS
Clear Lake HS

Where to get more information –
Parents and students interested in more information or in enrolling in the Pre-Engineering program should contact:

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Individual Highlights

Clear Brook HS	2
Clear Creek HS	2
Clear Lake HS	2
Engineering Shortage	3
New Courses	4

“Forging new generations of engineers”

Pre-Engineering Majors



Majoring in engineering while in high school is a new concept in Clear Creek ISD. Students who want to explore engineering as a possible college major and career can try it out in a series of elective courses in grades 9 to 12.

The Pre-Engineering program is based on a national program titled Project Lead the Way

(PLTW). Through PLTW, the district has a relationship with engineering universities throughout the U.S. that offer college credits for the high school courses.

Students can enroll in the pre-engineering elective courses in grades 9 to 12 and leave high school with an understanding of what engineers do and what it takes to become

an engineer. Students also complete hands-on engineering related problem solving activities using software like Autodesk *Inventor*. *Inventor* is used in new product development to move engineering and design from two-dimensions into three-dimensions. Student creativity and higher order thinking skills are put into action.

Engineers Offer Advice

The CCISD Engineering Advisory Team is made up of professional engineers and parents of future engineers. The Engineering Advisory Team's purpose is to assist CCISD faculty and staff with the implementation and improvement of the Pre-Engineering program at each high school. When the Engineering Team met in December 2005, they discussed the

phase-in of courses in the engineering program.

The first course *Introduction to Engineering Design (IED)* is being offered during this school year. For the 2006-2007 school year, two additional courses were recommended – *Digital Electronics (DE)* and *Principles of Engineering (POE)*. Additional information about the new courses can be

found on page 4 of this newsletter and on pages 92 and 93 in the *2006-2007 Educational Planning Guide—A Catalog of High School Courses* that is provided to each high school student prior to pre-enrollment for next school year. The engineer and parent advisors are working with the Pre-Engineering instructors (*Please Turn to page 3*)



What's New -



"It is so fulfilling to see these students express their creativity while they learn."
Patti Nesrsta,
Instructor and
Electrical Engineer

Clear Brook Student Achievements

Clear Brook High School student, Amanda Supak, was named Student of the Month for December for the School of Engineering, Agriculture, and Technology. Amanda is in the Pre-Engineering program. Amanda received two autographed pictures of NASA astronauts as part of her recognition. Amanda is the daughter of Cathy and

Ray Supak and is the Pre-Engineering student of Mrs. Patti Nesrsta who has a Bachelor of Science in Electrical Engineering. In addition to teaching in the Pre-Engineering program Mrs. Nesrsta teaches AP Calculus at Clear Brook. Mrs. Nesrsta believes the program is making a difference in student's attitudes. Ac-

ording to Mrs. Nesrsta, "During one project, teams of students came up with very creative bird feeders such as one for penguins with a mechanism for scaring off sharks. It is so fulfilling to see these students express their creativity while they learn."

Clear Creek Pre-Engineering

Clear Creek High School Pre-Engineering program was off to a great start with the new course Introduction to Engineering Design.

Pre-Engineering instructor, Robin Merritt has found students are fascinated with the Auto-desk *Inventor* software. *Inventor* allows students to design in two-

dimensions and then work with a team to design interactive parts in three-dimensions.

Just like engineers, the students work within teams using technology to problem solve and to move from a concept to an actual product. Students can see what will happen as a concept comes to life and the

benefits of working together as a team.



Instructor Robin Merritt with Pre-Engineering students.

Clear Lake Leading to Engineering

With the effective instruction of teacher/engineer, Ms. Lillian Wilson, students at Clear Lake High School have moved into the world of engineering. Prior to becoming a

math teacher, Ms. Wilson spent a number of years employed as a mechanical engineer. She enjoys getting to see the creativity of her students as they design products and make

class presentations about their work. She believes these real world applications will develop the interest of high school students and will assist them as they learn if they really want to be engineers.

Engineering Shortage

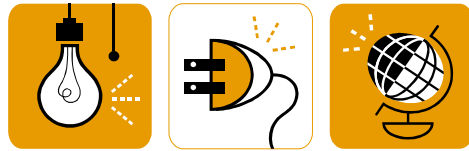
Clear Creek ISD high schools have joined with more than 650 high schools throughout the nation to help address a serious shortage of engineers. The United States is suffering a critical shortage of qualified engineers in many of the fields of engineering. As an answer to this shortage, Project Lead The Way (PLTW) was developed to peak the interest of high school students and prepare them to obtain college degrees in engineering."



Lillian Wilson, Engineer, is the Pre-Engineering instructor at Clear Lake High School.

PLTW has developed a four year sequence of courses which, "when combined with college preparatory mathematics and science courses in high school, introduces students to the scope, rigor and discipline of engineering and engineering technology prior to entering college," according to the PLTW web site at www.pltw.org. By

joining with PLTW, CCISD high schools can take advantage of a curriculum that has been developed by engineers and tested throughout the U.S. The district can also take advantage of training offered to all of the PLTW instructors. This summer the CCISD instructors will attend two to three weeks of intensive 12- to 18-hours-per-day training designed to prepare them help students learn. The training will be offered through the University of Texas at Tyler.



Clear Brook Pre-Engineering students work in teams.

Engineers Offer Advice

to make certain that the programs fits the needs of CCISD pre-engineering students and prepares them for college as well as future careers as engineers. The Engineering Advisory Team

Cont'd from page 1

members will be visiting the high school campuses to look at the facilities and equipment being used, as well as provide advice on the new courses being added.

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**Clear Creek ISD
Pre-Engineering
High School
Program**



Advanced Academic Courses Added

Two exciting new courses will be added to the Pre-Engineering program for the 2006-2007 school year, according to Gail Rodgers, Director for CCISD. Students interested in engineering should pre-enroll in early February for the 2006-07 school year.

Students entering the Engineering program for the first time in grades 9 to 12 can take the new course **Digital Electronics (DE)** for advanced academic credit. DE is a

course in applied logic that 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.

The second new course, with advanced academic credit, is **Principles of Engineering (POE)**. Open to students in grades 10 to 12 who have completed Introduction to Engineering Design, POE

helps students understand the field of engineering and learn how engineers use math, science and technology in an engineering problem solving process.

The Pre-Engineering program started this school year with the **Introduction to Engineering Design (IED)** course. This course is open to students in grades 9 to 12 and provides an interactive look at how engineers design for industry.

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