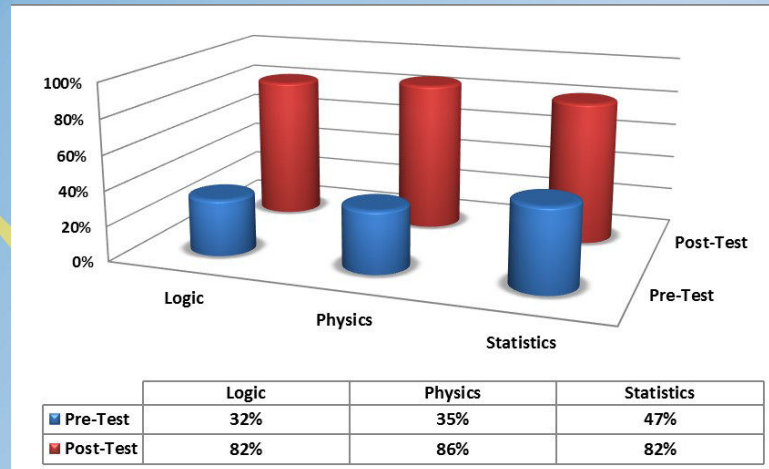
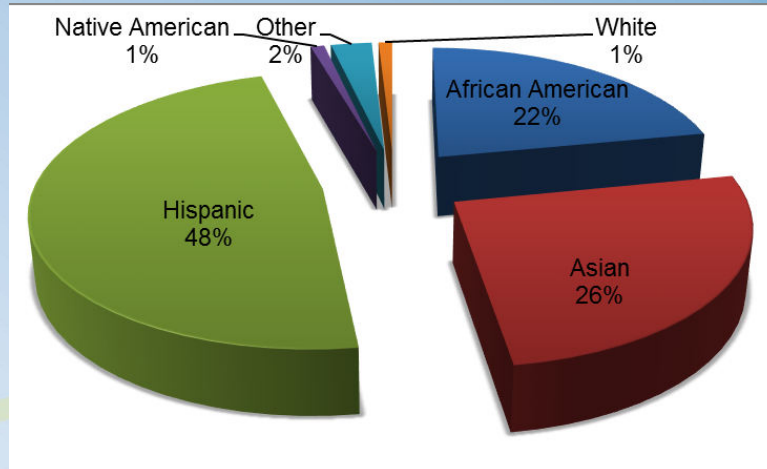


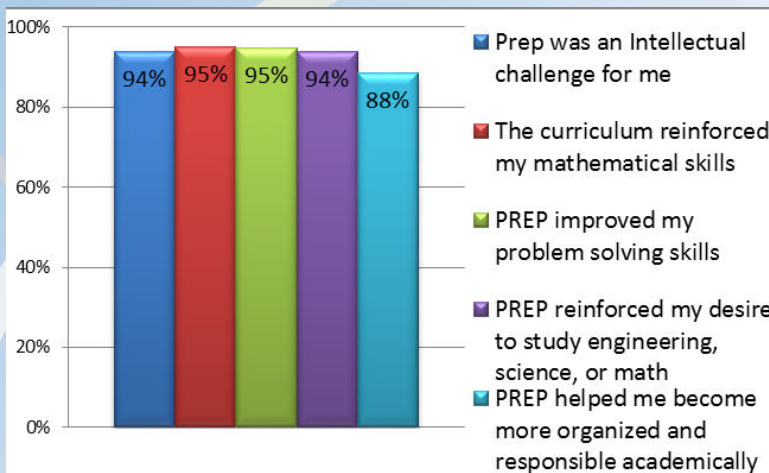
# PROGRAM STATISTICS



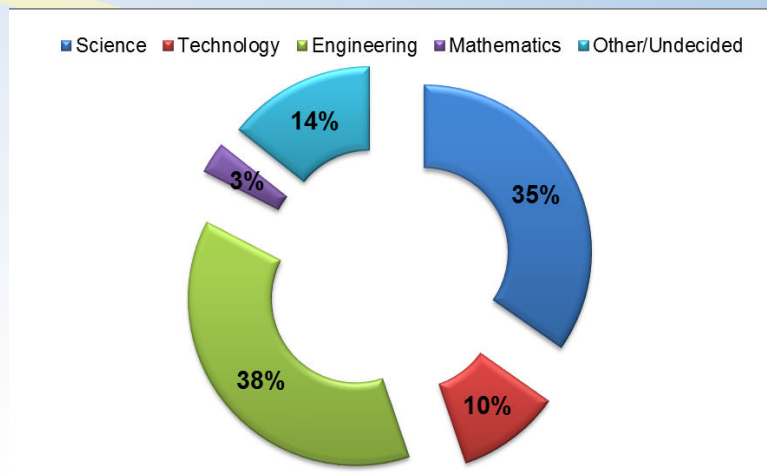
Test results show significant improvement after attending Houston PREP



Student demographics are based on the students that participated Houston PREP during the summer of 2016



Results are from a survey that students took at the end of the program



Students were asked in the survey "What field of study would you like to pursue in the future?"

*In a recent Houston PREP follow up survey, the following are the results from students who responded:*

- ⇒ 99.99% are high school graduates.
- ⇒ 84% of the senior college graduates are members of underrepresented minority groups.
- ⇒ 48% of the senior college graduates are engineering, mathematics, science or computer science majors, which is an increase of 167% compared to the national average.

## SPONSORS

- ◆ Alief Independent School District
- ◆ Aldine Independent School District
- ◆ Center Point Energy
- ◆ City of Houston – Summer Food Service Program
- ◆ College of Sciences and Technology, UHD
- ◆ Galena Park Independent School District
- ◆ Goya Foods
- ◆ The Powell Foundation
- ◆ Schlumberger
- ◆ Sheldon Independent School District
- ◆ Spring Branch Independent School District
- ◆ State of Texas Legislature
- ◆ TexPREP –UT-San Antonio

# 2016 Final Report





## MESSAGE FROM THE DIRECTOR

Houston PREP is doing its part to respond to the dwindling number of students entering careers in Engineering, Mathematics, and Science, which are occurring on a national scale. Notably, the increasing number of economically and socially disadvantaged groups in our population are not looking to these fields as viable options. Houston PREP is designed to encourage students from these groups to follow these career opportunities. Moving forward into the next decade without such efforts, our nation is risking its leadership role in the high technology society that we have developed. Programs such as Houston PREP are making a difference. The people and organizations that support it are the backbone of this development. We extend our sincerest thanks to all of you.

Sangeeta Gad  
Director, Houston PREP

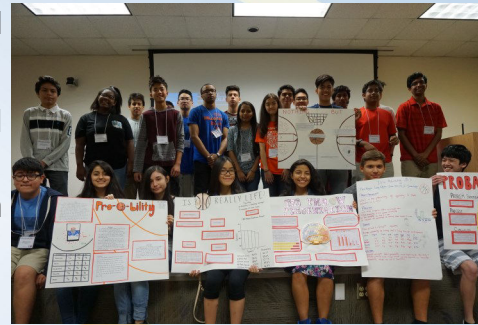
## PURPOSE AND GOALS

The Houston Pre-freshman Enrichment Program (Houston PREP) is an academically, intense, mathematics-based summer program, which stresses the development of abstract reasoning and problem solving skills. Since 1989, Houston PREP has been part of the successful TexPREP initiative of the Univ. of Texas - San Antonio (UTSA). TexPREP is a state-wide program which serves middle and high school students with an interest in science, mathematics and engineering fields.

The purpose of the program is to identify high achieving middle and high school students with an interest in science, technology, engineering and mathematics areas, to increase their potential for careers in these fields.

The goals of the program are to increase the number of competently prepared students from Texas who will ultimately pursue engineering, science, technology, and mathematics studies in college and to increase the retention rate of these students as they progress through college by:

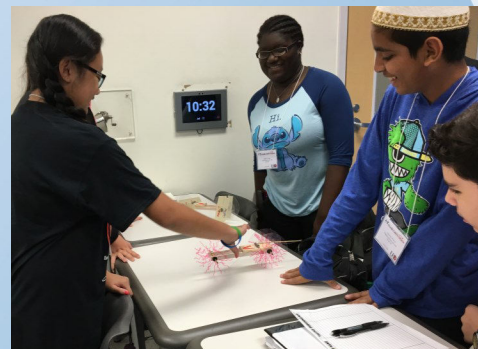
- acquainting these students with professional opportunities in engineering;
- reinforcing the academic preparation of these students at the secondary school level; and
- creating an environment in which talented students are encouraged to learn, explore, achieve, and discover.



## FIRST YEAR ACTIVITIES



This summer, new students embarked on their first year of Houston PREP. As a first year participant, the curriculum consisted of classes in Engineering, Problem Solving, Logic, SAT, Computer Science, and Enrichment. In their Engineering class, students were placed in groups and were assigned several hands on projects, which included building mouse trap cars and designing a tower using balsa wood. The mousetrap racecars were tested for distance and aerodynamic design. The students designed the towers in order to compete and see which tower would be able to support the most weight before collapsing.



## SECOND YEAR ACTIVITIES

Returning second year students had Engineering, Physics, Algebraic Structures, and Computer Science as courses in their curriculum. In Computer Science PREP students were introduced to the fundamental concepts of programming such as, variables, conditionals, loops, objects, algorithms, and functions. In their Engineering class, students constructed houses using balsa wood and tiny pins. In groups, students measured, cut, and assembled their houses to match the specific design they were assigned. This project lasted the duration of the program, and when completed, each house was graded for neatness, accuracy, and durability.



## THIRD YEAR ACTIVITIES

Third year students had Statistics, Robotics/Computer Science, SAT, and Technical Writing in their curriculum. For the Robotics/Computer Science course, students worked with Arduino kits to program several different projects. In the Technical Writing course, students were introduced to important concepts in preparing a resume. The students had the opportunity to write a cover letter and a resume, in order to begin applying for scholarships. Additionally, an SAT Preparation course laid the foundations for the upcoming Scholastic Assessment Test that is crucial in college admission. Students practiced for math and verbal components of the SAT.



## HOUSTON PREP ACADEMY

Incoming 4<sup>th</sup> year students got to experience firsthand what it takes to be a college student by enrolling in college credited courses. The students passed the Texas Success Initiative (TSI) Assessment in order to be eligible to enroll in Intro to Communication (COMM 1304), Intro to Computer Science with Visual Basic (CS 1408), and Explorations in Computational Geoscience (NS 2490). The results are:

- 26 students were enrolled into Intro to Computer Science with Visual Basic, CS 1408; 13A's, 9B's, 4C's.
- 28 students were enrolled into Intro to Communication, COMM 1304; 28 A's.



## SCHLUMBERGER SPONSORED DUAL CREDIT COURSE IN COMPUTATIONAL GEOSCIENCE

Nineteen Eligible HISD students from Houston PREP and other STEM schools in HISD were recruited to participate in a 4 credit hour dual credit course. Schlumberger professionals took part in judging the students final projects, as well as providing great advice. The results are:

- 19 students were enrolled into Explorations in Computational Geoscience, NS 2490; 9A's, 10B's.



## ENGINEERING DAY/CAREER DAY

Houston PREP held its annual Engineering Day on July 11<sup>th</sup>. Engineering day is a great way for students to talk to professionals one on one about the duties and lives of scientists and engineers in today's world. We were excited to have a whole day booked with presenters and activities from leading companies in the Houston area. UHD professors gave students hands on activities in the structures, biology, the electronic control and instrumentation labs, and Computer Science labs. UHD's student services offered sessions on Financial Aid and College Admissions.

