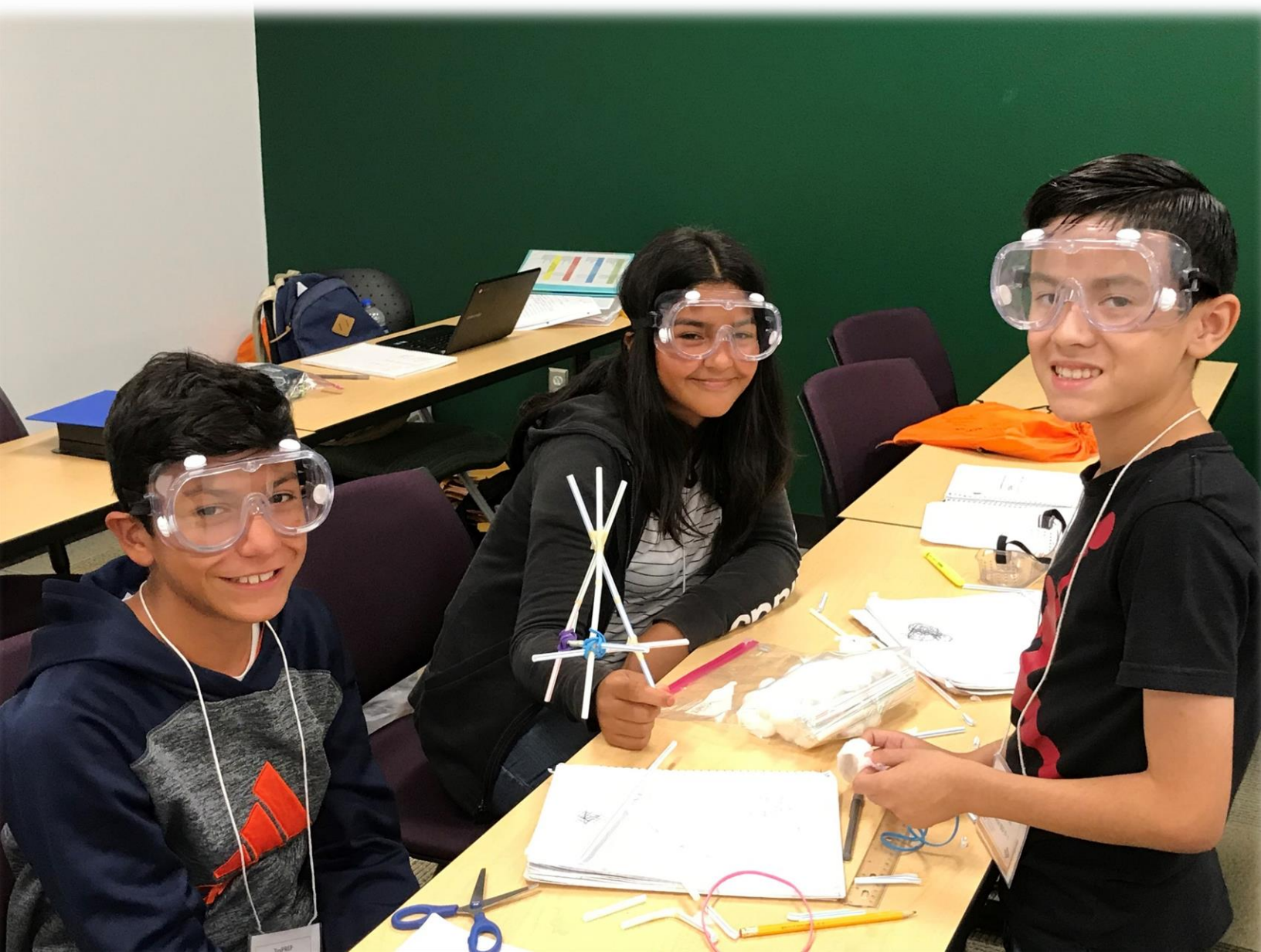


# South Texas College PREP Engineering Program





## **MISSION STATEMENT**

The South Texas College Prefreshman Engineering Program (STC-PREP) provides a challenging academic program designed to motivate and prepare middle and high school students for success in advanced studies leading to careers in science, technology, engineering or mathematics fields.

PREP-USA is a national program with an emphasis on increasing the number of women and underrepresented minorities in these fields.



Dear STC-PREP Student,

Congratulations and welcome to the South Texas College Prefreshman Engineering Program (STC-PREP)! You will now begin a program that can impact your life, both academically and personally. We are grateful for the commitment that you and your family have made to attend STC-PREP. We encourage you to take full advantage of the four-year program as it will build necessary skills and knowledge to make your dreams a reality. Throughout the program, we highly encourage you to work hard, learn and grow as a student.

Our STC-PREP staff which includes the Instructors, Program Assistants (PA), the Site Director, and Office Staff are here to assist you throughout the journey. If you have any concerns while in our program, please speak to our staff about them. If they are serious and do not get resolved, bring them to my attention, the Site Director.

Succeeding at STC-PREP means commitment and obligation! Our institution provided you this opportunity because we believe that you are capable and will accomplish each year of the program successfully. When you complete the program, you will feel a great sense of accomplishment and will be able to share your incredible experience with others. The STC-PREP Office in San Antonio has shared the advantages of attending the program which includes success in high school, college, and later employment. Consequently, we know you have these same capabilities and will excel in our rigorous program.

We look forward to this summer and your academic success!

Sincerely,

*Leonardo Castañeda*

Leonardo Castañeda  
STC Site Director

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"If you only look at what is, you might never  
attain what could be."

**-Unknown**

# INTRODUCTION

Dr. Manuel P. Berriozábal, a retired professor of mathematics at UTSA, founded the San Antonio Texas Prefreshman Engineering Program (TexPREP) in 1979. Since then over 14,500 students in the San Antonio area have completed at least one summer of TexPREP. Since 1986, PREP has been replicated in 17 other Texas cities as the Texas Prefreshman Engineering Program (TexPREP). In 1996, a grant was awarded by NASA to provide for the replication of PREP at colleges throughout the United States. This program was referred to as Proyecto Access. Remaining PROYECTO ACCESS sites and all new sites beyond Texas are operational at four campuses across the country.

TexPREP is an academically intense, mathematics-based, summer project conducted at most college and university campuses across the State of Texas. The program identifies achieving middle and high school students with the interest and potential for careers in engineering, science, technology, and other mathematics-related areas and reinforces them in pursuit of these fields. Enrollment particularly targets students who are female and members of minority groups that traditionally have been underrepresented in these professions.

TexPREP stresses the development of abstract reasoning and problem solving skills, as well as the application of this knowledge, through coursework, team projects, class presentations, and examinations. In addition to a strong academic curriculum, TexPREP provides career awareness speakers, field trips, and courses taught by college instructors, high school teachers, military officers, and mentoring by undergraduate students majoring in engineering, mathematics, science or technology.

**As a student at the South Texas College PREP Program, your first priority is to learn!** An orientation is held the first day of classes to provide students with an overview of the STC-PREP program. The topics discussed include PREP goals and expectations, conduct, roll call procedures, library privileges, transportation, guest speakers, lunch procedures, attendance requirements, classroom rules, grading procedures, and curriculum content.

Placement tests also are conducted on the first day. Based on this, you'll be assigned to a group consisting of 20 or more students who are at approximately the same mathematical and grade level. Each group is assigned a Program Assistant Mentor (PA), who is a college student usually majoring in math, science, or engineering. Their role is to serve as a guide and mentor for the student throughout the entire summer program. **Note:** Any student who feels they have been placed in a group that is not challenging enough should consult with their Site Director to request a re-evaluation.

On a daily basis, the PAs will:

1. Conduct roll call and ensure the students' safety and appropriate behavior throughout each STC-PREP day.
2. Attend virtual classes with students, providing tutoring for students, and assistance to instructors, as needed.
3. Supervise Research and Study period.
4. Assist with the preparation of special STC-PREP activities.
5. Maintain records of students' work and grade daily student journals and homework.

## TYPICAL PREP SCHEDULE

A typical day at STC-PREP consists of presentations by guest speakers, lectures, classes, homework, and special projects. The day begins with roll call by PAs at a designated location.

Throughout the duration of the program, a Career Awareness speaker will present on their insights into job related experiences and various careers are explored. Students are encouraged to interact with the speaker during the question and answer period. Students are reminded to conduct themselves in a respectful, appropriate manner with all our guest speakers here at STC-PREP. Remember, they are donating their time to help you learn.

Following this activity, students attend classroom lectures, participate in individual or group assignments and have a 30-minute lunch break daily.

## PREP POLICIES AND REGULATIONS

**The following regulations must be observed at all STC-PREP Sites:**

1. Students must attend all classes, unless excused by the Site Director.
2. Students must be on time for daily roll call and classes. If a student is absent, tardy, or requesting an early dismissal, the parent or guardian must notify the assigned PREP site by writing a letter or calling their office **24 hours** in advance to obtain an **Excused Absence**. Students must provide a written note from the parent or a physician upon returning to the PREP program. Students with **5 tardies** or **early dismissals** will be asked to resign from the program.
3. Excused absences are approved by the Site Director. A **maximum of three absences** is allowed for the program. On the fourth absence, the student will be dismissed. Students are reminded that it is difficult to make up work after the second consecutive absence.
4. The school district dress code must be strictly adhered to throughout the six-week program.
5. Students must attend the virtual graduation ceremony to complete the STC-PREP program and receive credit for their time in STC-PREP. Cellphones is not permitted and PAs will monitor for this during academic sessions to ensure learning for all students.
6. Unruly, unsafe or inappropriate behavior is grounds for dismissal.
7. Each site may have additional rules that must be followed.

## **ROLL CALL**

Roll call/attendance will be taken on an hourly basis during virtual instruction. Punctual attendance at roll call is necessary. It is critical for student accountability and for staff to share information concerning special events, field trips, and special projects. The following rules must be complied with:

1. Be logged in at the designated classroom on time with your PA for roll call.
2. When roll is being called, remain quiet with your group. Do not interrupt the PA or disrupt any other group.
3. If you fail to report for roll call, you will be considered absent and your parents/guardians will be notified immediately.

## FUTURE SUMMERS AT STC-PREP

Schools receive First Year applications and students are encouraged to see their counselor, math or science teacher to obtain them. Applications for Second, Third, and Fourth Year participants will be mailed to each participant with a deadline to return to their counselor each academic year.

## LIFE AFTER STC-PREP

**Job Opportunities:** Students who have completed at least one year of college with a 2.5 or higher GPA are eligible to work as a **Program Assistant Mentor (PA)** for STC-PREP. The position is for part-time summer employment. Duties consist of mentoring and monitoring a group of approximately 30 students for 7 weeks, attending and assisting students in the classroom, supervising a Research and Study period, maintaining students' records, and assisting with STC-PREP's daily operations. At the conclusion of the program, a selected group of PAs continue to assist with the following activities: preparing the final report, assisting with the follow-up survey, and evaluating the program.

## CONCLUSION

The last day of the STC-PREP program is the Closing Day Ceremony. All students who have successfully completed the program **must** attend graduation.

For 4-year graduates to have their final grades sent to their school, parental permission is required through a Grade Release Form provided by their District Representative. **Remember, the elective credit will be accumulated into your GPA average and class rank at your school.**

In addition to the information provided to you in this handbook, there are other things you, as a participant, must remember. You were accepted into this program on the premise that you are the best of the best and have earned your way. As such, we will treat you with respect and foster the development of your potential and skills. In return, we expect you to be respectful and courteous with all STC-PREP staff members and classmates and to make a commitment to study and learn.

This handbook is provided for your information and use while at STC-PREP. It is intended to serve as a guide for you and your parents/guardians throughout the program. Have a great summer!! Learn, discover, grow and, above all, enjoy your STC-PREP experience!!





## **APPENDICES**

# Appendix A

## STC-PREP PROGRAM



# 2021 FACTS

## PURPOSE

The South Texas College Prefreshman Engineering Program (STC-PREP) identifies achieving middle and high school students with an interest in engineering, science, technology and other mathematics-related areas and strengthens their potential for careers in these fields.

The program promotes high achievement and provides students with the necessary reinforcement to successfully pursue higher education and careers in math, science, engineering, and technology. With a focus on building a high quality and diverse 21<sup>st</sup> century workforce, women and members of minority groups, traditionally underrepresented in these areas, continued to serve as special target groups.

## ACADEMIC PROGRAM

STC-PREP is a six-week mathematics-based, academic enrichment program, designed for students in grades six through eleven. The Texas Education Agency has authorized participating school districts in the state of Texas to award one elective credit toward high school graduation for each successfully completed summer of STC-PREP.

STC-PREP is a structured and challenging program, which stresses the development of abstract reasoning and problem-solving skills through coursework, homework, team projects, class presentations, and examinations. The curriculum emphasizes the application of mathematics and logic.

## ELIGIBILITY REQUIREMENTS

Middle and high school students from Roma, Weslaco and PSJA are encouraged to apply. Year 1 requirements include:

Parental permission;

- Recommendations from a mathematics teacher and a counselor, science or English teacher;
- Satisfactory conduct grades and an essay;
- Students in grade 6 require a 90 or better average in current mathematics, science and English class (85 or better if in honors or advanced placement);
- Students in grades 7, 8, and 9 require an 85 or better average in current mathematics, science and English class (80 or better if in honors or advanced placement);

Year 2, 3 and 4 requirements:

Students who successfully complete Year 1, 2 or 3 STC-PREP are invited to apply for the following year of STC-PREP.

## CORE CURRICULUM

### *Year 1*

Logic and Its Applications to Mathematics  
Introduction to Engineering

### *Year 2*

Algebraic Structures  
Introduction to Physics

### *Year 3*

Introduction to Probability and Statistics  
Introduction to Technical Writing

### *Year 4*

Computer Science  
Advanced Science and Engineering

### *All Years*

Topics in Problem Solving  
Career Awareness Seminars

## STC PREP SITES

### *Pecan Campus*

- PSJA ISD

### *Mid-Valley Campus*

- Weslaco ISD

### *Starr Campus*

- Roma ISD

## PERIOD OF OPERATION

June 14 to July 22, 2021

## South Texas College STC-PREP Site Director:

**Leonardo Castañeda**  
(956) 872-2619  
Office: X-155, Pecan Campus

## Appendix B

### STC-PREP PROGRAM 2021 STUDENT AGREEMENT

Graduating from STC-PREP will make an important difference in your high school, college, and future success. STC-PREP staff is committed to maintaining standards of excellence. We must ensure that all STC-PREP students are safe and have an environment that allows each one to do his or her best. Therefore, we require that all students and their parents understand and agree to STC-PREP's rules before we finalize a student's admission. Remember, although our program standards are high, they are very attainable.

**IMPORTANT:** Be certain you and your parent(s) or guardian read this agreement carefully. Think about each item before you sign the **Student Pledge** on page 8. **Keep this page as reference.**

#### ATTENDANCE

- I am aware that daily attendance is MANDATORY and **my webcam must be turned on** during Virtual Instruction.
- I understand that I may be dismissed from STC-PREP:
  - on the fourth absence (after three excused absences); or
  - if I am late or leave early more than five times.
- I understand that, for an absence to be considered "excused":
  - the Site Director must approve the absence;
  - the absence must be approved in advance, except in an emergency; and
  - STC-PREP must receive a written note signed by a parent/guardian or doctor.
- I understand that I must be on time and attend all classes, labs, roll calls, etc. I know I must stay with my assigned group and follow my assigned schedule at all times.
- I understand that I must attend the Closing Day Ceremony to complete the STC-PREP program and be eligible for credit.

#### BEHAVIOR

- I agree to follow STC-PREP standards of behavior -- to be courteous, respectful and committed to learning.
- Cellphones are not allowed during Virtual Instruction to ensure learning for all students.
- I agree to wear only modest, safe and appropriate clothing. Shirts with offensive sayings, caps and sunglasses are NOT permitted during Virtual Instruction.
- I agree to follow all additional rules set by STC-PREP sites.
- I understand that STC-PREP has a zero-tolerance policy on a child's noncompliance with all PREP and/or host institution's rules and policies. In the event of a rule/policy violation, the site director will dismiss the child from the program.

#### OTHER

I understand that according to the Texas Education Agency, all districts must award one (1) elective for high school graduation for students who successfully complete STC-PREP.

#### STUDENT PLEDGE

I will do my best to attend STC-PREP every school day as scheduled from June 14-July 22, 2021. I have read and understood STC-PREP's requirements for students, particularly those on attendance, dress code, and student behavior. **By signing the Student Pledge, I promise to abide by these policies and all STC-PREP rules.**

#### PARENT/GUARDIAN CONSENT

I approve of my child's participation in STC-PREP. I understand this involves a commitment of approximately six weeks attendance. I have read and understand STC-PREP's requirements for students, in particular that **absences must be excused**. I will comply with these policies and all STC-PREP rules.

## Appendix C

### PROGRAM LEARNING GOALS

STC-PREP is an intellectually demanding, mathematics-based, academic enrichment program for middle and high school students. Its program is presented in six (6) week sessions over the course of four summers, for a total of twenty- four weeks.

The intent of STC-PREP is to provide students who have demonstrated mathematical ability (through academic performance, participation in competitions and teacher/counselor recommendations) with the academic and intellectual competencies to succeed in high school, college preparation courses; in college programs in mathematics, science and engineering; and to facilitate their interest in and commitment to pursuing careers in mathematics, science and engineering. It is targeted toward, but not limited to, students who are members of minority groups or female, i.e., groups who have traditionally been underrepresented in the professions of mathematics, science and engineering.

The curriculum is designed to strengthen the students' ability to problem solve, reason, conjecture, and apply mathematical knowledge logically and systematically. It stresses the development of critical thinking, abstract reasoning, and systematic analysis. Through an integrated and hands-on approach, it demonstrates the application of mathematics to diverse disciplines, particularly to the fields of science, computer science, and engineering, and to a wide range of career opportunities. Students not only develop their basic mathematical skills and knowledge, but also learn to communicate and reason mathematically - both orally and in writing. In addition, through their experiences of success in a rigorous academic program, they learn that hard work, perseverance and commitment result in meaningful knowledge and pride in accomplishment.

Over the three year period, students take a series of classes. The foundation of these is mathematical logic and reasoning; this includes an intentional and consistent emphasis on utilization and problem solving. Specific course content is enhanced by experiences designed to promote a clear understanding of how mathematical concepts and procedures are applied, particularly in the fields of engineering, computer science and science. Integration of course material is formally built into the program through special events and projects. These challenge the students' critical and divergent thinking skills and allow for the innovative application of mathematical ideas. In addition, guest speakers from a variety of career fields in mathematics, science and engineering discuss how mathematical, science and engineering concepts are actually utilize within their professions. To summarize, the emphasis throughout is on developing mathematical thinking ability, as well as an understanding of its usefulness and significance.

The course curricula for STC-PREP was reviewed in depth in order to ensure that it met the **Curriculum and Evaluation Standards** developed by the National Council of Teachers of Mathematics. It specifically addressed the following learning goals:

#### **Logic and Its Applications to Mathematics (Year 1)**

- Students will demonstrate the ability to understand and apply logical statements, compound statements (negation, conjunction, disjunction, conditional, and biconditional), logical equivalents, valid and invalid arguments, truth tables, rules of inference, paradoxes, elementary set theory (sets, subsets, union, intersection and complements, and properties of operations), Boolean Algebra (definition, examples, and properties), and switching networks (definition, examples, and switching statements).
- Students will demonstrate the ability to understand and utilize universal and existential quantifiers.
- Students will demonstrate knowledge of the basic concept of set theory.
- Students will demonstrate the ability to conjecture, and to test and build arguments.
- Students will demonstrate an understanding of the use of mathematics to symbolically represent ideas, relationships, and operations.
- Students will demonstrate the ability to communicate using the signs, symbols, and terminology of mathematics.
- Students will demonstrate an increased capacity for both critical and divergent thinking, as well as inductive and deductive reasoning.
- Students will demonstrate an increased ability to analyze and communicate their thinking processes.

### **Introduction to Engineering (Year 1)**

- Students will demonstrate knowledge of the history and philosophy of engineering the engineering design process and mathematical tools, the use of computers in engineering, engineering ethics and standards of professionalism, and the job focus and also requirements for career preparation for various types of engineering fields.
- Students will demonstrate knowledge of basic engineering principles in the areas of work and energy, simple machines, light and optics, thermal science, and mechanics.
- Students will demonstrate the ability to apply engineering principles to team projects, i.e. airplane designs, security systems, egg drops, bridge design, solar reflectors, etc.
- Student will demonstrate knowledge of the relevance of distribution math and its link to engineering and study electrical engineering (middle school adaptation of the Infinity Project created by Texas Instruments and the SMU School of Engineering).
- Students will demonstrate the ability to apply the engineering design process and design a sound demixing device and describe techniques related to multi-channel surround sound.

### **Algebraic Structures (Year 2)**

- Students will demonstrate knowledge of groups, rings and fields using the systems of integers and rational numbers as models, and the derivation of algebraic properties of these systems.
- Students will demonstrate knowledge of the basic concepts of set theory, operations involving sets, properties of abstract mathematical systems, and the use of deductive and inductive reasoning with proofs.
- Students will demonstrate the ability to represent situations and number patterns with tables, graphs, mathematical symbols and equations, and will be able to understand and communicate the relationships, patterns, and concepts.
- Students will apply algebraic concepts and procedures to problem solve.

### **Introduction to Physics (Year 2)**

- Students will demonstrate knowledge of Mechanics: units and physical quantities, equilibrium of a particle, motion in a straight line, Newton's second law, motion in a plane, work and energy, inertia and momentum, circular motion, and equilibrium.
- Students will demonstrate knowledge of Electricity and Magnetism: Coulomb's Law, electric fields, potential, capacitance, current, resistance, electromotive force, direct current circuit, and magnetic fields.
- Students will demonstrate the ability to apply principles of physical science in the laboratory: friction linear air track, free-falling bodies, multiflash photography, the conical pendulum, capacitors in series and parallel, resistors in series and parallel, and Ampere's Law.

### **Introduction to Probability and Statistics (Year 3)**

- Students will demonstrate an understanding of basic probability theory: counting procedures, addition rule, multiplication rule, and independence.
- Students will demonstrate knowledge of probability models: binomial, hypergeometric, Poisson, exponential, and normal.
- Student will demonstrate knowledge of descriptive statistics: tables and charts, measures of center, and measures of spread.
- Students will demonstrate knowledge of analytical statistics: confidence intervals for means and proportions, tests of hypothesis for means and proportions, and simple regression.
- Students will be able to collect, organize and evaluate data.
- Students will develop the ability to analyze, conjecture, and build arguments based on data analysis, and using logic, reasoning and problem solving techniques.
- Students will develop the ability to sort, analyze, and interpret numerical data using statistical software.

### **Introduction to Technical Writing (Year 3)**

- Students will demonstrate increased clarity and effectiveness in their writing skills as particularly applicable to the disciplines of engineering and science. This includes techniques such as appeal to authority, appeal to original research data and appeal to logic.
- Students will demonstrate increased skill in technical writing methods: invention, assessment of purpose and audience, organization and development, revision, editing, style, grammar, and mechanics.

- Students will demonstrate their ability to produce clear, persuasive and efficient technical reports using word processing software and graphic techniques.

### **Introduction to Water Science (Year 4)**

- Students will learn about watershed management, water quality and geographic information Systems (GIS) in this relevance-based course.
- Students will apply knowledge by addressing local community watershed issues via service learning.
- Students will work with watershed modeling using systems tools and will use GIS data as input to the system dynamics model to predict water flow levels.
- Students will be introduced to systems with the expectation that they will understand systems, systems thinking and a new way of solving problems.
- Students will be introduced to modeling using watersheds and will learn how to create a simple yet exercisable model of a watershed basin.
- Students will develop computer modeling skills using the Systems Thinking Educational Learning Laboratory with Application (STELLA) graphically driven simulation/modeling software and create a working watershed model using STELLA.
- Students will expand the computer model and use the model to analyze specific watershed issues.
- Students will work as teams to continue to expand their individual STELLA models, discuss and summarize their research findings and gain an understanding of their individual contributions to group knowledge and learning.
- Students will explore the utility of systems thinking and system dynamics in other fields such as business, engineering, etc. to open their minds to the value of systems thinking and how it can be universally used for problem solving.
- During the last week of TexPREP, students will present the results of their work to the local community involving such organizations as the National Resources Conservation Service, local water agencies, parents, and other community stakeholders.

### **Introduction to Computer Science (Year 4)**

- Students will demonstrate a basic knowledge of the capabilities and application of computers; computer concepts and terms; basic hardware and software concepts; definitions of system components; computer architecture; networks and types of programming languages; computer security (i.e., spamming, viruses, worms, phishing, etc.) and social implications surrounding computers (i.e., copyright rules and ethical; use of computers).
- Students will demonstrate basic programming skills in an object oriented language such as Java, C++, C#, etc.
- Students will develop the ability to utilize computer software to assist with sorting, analyzing and interpreting data.
- Students will recognize that mathematical concepts and data can be represented utilizing a variety of graphic and numerical forms.
- Students will develop the ability to utilize computer software to present material clearly and effectively through the use of graphics, tables, etc.
- Students will learn about basic web technology including the client-server model, navigation and web site organization. Students will create a web site using a web development tool such as Microsoft's Expression Web Development System and modify programs to generate dynamic, interactive web pages.

### **Topics in Problem Solving (All Years)**

- Students will demonstrate knowledge of formal problem solving techniques, both heuristic and algorithmic, including looking for patterns, developing lists and tables, writing equations, simplification, utilization and evaluation of research.
- Students will demonstrate the ability to utilize problem solving techniques as a method of inquiry and application, specifically to investigate and understand mathematical content, formulate problems, construct, analyze and test hypothesis, gather evidence, verify and interpret results, draw inferences, build arguments, and generalize solutions.

- Students will demonstrate the ability to generalize and extrapolate patterns of solutions and problem solving strategies.
- Students will demonstrate an understanding of how problem solving approaches, methods of investigating and reasoning can be applied to new situations and to multi-step, complex and non-routine problems.
- Students will demonstrate the application of problem solving techniques to specific mathematical concepts in algebra and geometry.
- Students will demonstrate an understanding of how problem solving and thinking can be represented, clarified, contrasted and/or consolidated through the use of mathematical symbols and language.
- Students will demonstrate an increased ability to reason mathematically, as well as increased flexibility in exploring mathematical solutions and ideas.
- Students will demonstrate knowledge of the importance of accurate documentation and clear, efficient, persuasive presentations.
- Students will demonstrate the ability to conduct library research, interviews, surveys, and field investigations, incorporating their problem solving and reasoning skills. (During Year 3, the Problem Solving and Technical Writing courses are integrated.)
- Students will apply their course work to solving real world problems using an interdisciplinary approach. In Year 4, the Problem Solving and Water Science courses are integrated to include systems thinking and systems dynamics as new problem solving approaches. These tools facilitate learner-centered learning, inquiry, creative problem solving, clear communication, and teamwork.

#### **Career Opportunities Awareness (All Years)**

- Students will demonstrate increased knowledge of the diversity of professions within the fields of mathematics, science, technology, and engineering.
- Students will demonstrate a basic understanding of the necessary steps, and the opportunities available to them, to pursue careers in mathematics, science, technology, and engineering.
- Students will demonstrate increased motivation to achieve academically in high school.
- Students will be able to explain the relationships between mathematics and the disciplines it serves (physical and life sciences, social sciences and humanities).
- Students will demonstrate understanding of the flexibility and usefulness of mathematics as applied to diverse aspects of everyday living.
- Students will demonstrate an understanding of the link between mathematics and continuous innovation in technology and computer science.
- Students will demonstrate knowledge of the college application process, as well as awareness of financial aid and scholarship opportunities.

#### **Research and Study (All Years)**

- Students will demonstrate self-awareness, organizational skills and initiative in planning, evaluating personal strengths and goals, and in completing projects and assignments including a personal journal.
- Students will develop a personal relationship with a Program Assistant Mentor, who will serve as role model, individual and small group tutor, and facilitator of personal growth and goal planning endeavors.

#### **Field Trips (All Years) (Not offered during Summer 2021 due to COVID-19 Pandemic; May Resume Spring 2022)**

- Students will gain hands-on experience and knowledge of the applications of science and mathematics in factories, business, entertainment centers and other environs.
- Students will gain a broader exposure and awareness of the impact of mathematics, science, engineering and technology on their everyday lives.

## Component Grade Breakdown

Each component is worth a certain percentage to the final grade. The component breakdown consists of the following:

<b>Year 1</b>	Logic- 50% Engineering- 20% Problem Solving- 20% Presentation Journal- 10%
<b>Year 2</b>	Algebraic Structures- 40% Problem Solving- 25% Physics- 25% Presentation Journal- 10%
<b>Year 3</b>	Probability and Statistics- 30% Problem Solving- 30% Technical Writing- 30% Learning Log- 10%
<b>Year 4</b>	Computer Science- 30% Problem Solving- 30% Advanced Science & Engineering- 30% Learning Log- 10%

## Grade Scale

Below is the scale used to calculate all final grades:

100.00-99.00	A+ (Outstanding)
98.99-98.00	A+ (Honors)
97.99-93.00	A
92.99-85.00	B
84.99-75.00	C
74.99-69.50	D (Any student with a Grade of 69.5 or greater has successfully completed the program.)
BELOW 69.50	F



## APPENDIX E

### TEST TAKING TIPS

**The following are suggestions for test taking strategies:**

1. Be sure that you have all required testing materials for the exam. (Showing up for an exam late or without a pencil is a sure way to increase your stress.)
2. **Read all directions carefully.** Notice key words in the directions that indicate how to record your answers.
3. Use your time wisely. Do a quick preview of the test to determine the type and number of questions to be answered. Notice where you will start on the test. Check yourself at 15-minute intervals to see if you are progressing at an acceptable rate.
4. You may have problems remembering answers to questions from time to time. If you find yourself blocking, move on to the next question.
5. Ask for help in interpreting test questions that you do not understand.
6. Be aware of any negative statements you are telling yourself about the test. Such statements as, "I'm failing, I didn't study for this, or this test is too hard for me," increases anxiety.
7. Worry only about yourself. Do not be concerned with what other students are doing. (This is another sure way to increase anxiety by telling yourself that you are the only one having trouble.)
8. As a general rule, answer the easy questions first.

### TESTS INVOLVING PROBLEM SOLVING

1. Use the technique of budgeting your time.
2. Work the easiest problems first.
3. Write down the formulas, equations, and rules before you begin working on the test.
4. Check your answers when time permits. Check for addition and multiplication errors by reversing numbers whenever possible.
5. Show all your work; label your answers.

## Objective Exams

1. Answer the questions in order.
2. Put check marks by the questions that are doubtful, and come back to them later.
3. Read the questions carefully. Be careful of questions containing negative words such as "not, no, least," etc. (This could cause you to misinterpret the question.)
4. Pay attention to wording such as, "all, most, some, none; always, usually, seldom, never; best, worst; highest, lowest; smallest, largest." (It might make a difference in which answer selection you make.)
5. Watch for limiting phrases in true-false statements. Names, dates, places, are often used as the key to make a statement false.
6. In multiple choice questions, look for grammatical inconsistency between the stem and response. In most cases, the alternative is not correct if you find an inconsistency.
7. Change your answers only if you are sure you made an error. Often your first intuition is correct.

## Essay Exams

1. Read all questions first. Write down the key points that occur to you as you read the questions.
2. Plan the amount of time you can spend on each question based on the difficulty and the amount of points to be received.
3. Answer the easiest questions first.
4. Underline key words in the questions that give you a clue about how to answer. Words such as, "define, compare, contrast, and explain," require different ways of answering.
5. Answer all questions. If you don't know the precise answer, try to write a closely related one.
6. Be neat and legible.
7. Leave enough space between answers to be able to add information you may recall while working on other items.