



**Red River Technology Center
Pre-Engineering Academy**



Course Descriptions:

Introduction to Engineering Design: Students will enhance problem-solving skills through a design development process. Specialized computer software will be utilized for students to create and analyze models.

Principles of Engineering: Students will explore technology systems and manufacturing processes through theoretical and hands-on problem solving activities. Students will also identify career possibilities and address the social and political consequences of technology changes.

Trigonometry/Pre-Calculus: Students will prepare for Calculus through a rigorous review of Algebra II topics, the study of Trigonometry, and an introduction to Limits.

Physics: Students will study motion, matter, and energy. The course will guide students into the inter-relationships of these topics through the application of mathematics and observations in the laboratory.

AP Calculus*: Students will study differential and integral calculus topics. This course is equivalent to a one-semester university Calculus I class, and students will have the opportunity to take the AP exam for college credit.

AP Physics*: Students will have an intensive study of mechanics. This course is equivalent to a one-semester university physics class, and students will have the opportunity to take the AP exam for college credit.

Engineering Specialization Course (Digital Electronics): Students will learn applied digital logic using electronic logic circuits that they design and then test using digital logic modeling technology.

Engineering Design and Development: This is the capstone course in the Pre-Engineering Academy. Students will research and formulate the solution to an engineering question. They will utilize the skills gained from their previous courses and consult with a community mentor to create and defend written reports in an oral presentation to a panel of outside reviewers.

*Advanced Placement (AP) = this designation indicates a college-level course. The course has a national AP Exam for which students may receive college credit. Visit the College Board web-site for more information.