Applications of Engineering and Technology Course Syllabus 2024-2025 Saraland High School Mr. Beasley <u>cbeasley@saralandboe.org</u> 251-602-8970

Course Description:

Applications of Engineering and Technology offers students an investigative view of the engineering profession and the fundamental skills utilized in the field. Students continue investigating engineering disciplines and related career paths. Students will expand leadership and teamwork skills through creativity, collaboration, communication, and critical thinking. Additionally, students will increase their understanding of science, technology, engineering, and mathematics (STEM) principles used in problem-solving through the engineering design process.

Course Prerequisites:

Foundations of Engineering and Technology, Algebra I with Probability

Course Goals / Objectives:

This course focuses on making math and science relevant for students. The approach used is called APPB-learning (activities, projects, and problem-based learning). By engaging in handson, real-world projects, students understand how the material covered in class can be applied in their everyday lives. Learning activities will include teacher-led instruction, cooperative learning, and project-based learning. Technology will be used to enhance students' learning, and provide real-world applications.

CTSO Integration:

Each Career Tech program has a Career Tech Student Organization. For Engineering, this organization is the Technology Student Association (TSA). Students will complete projects based on TSA competition guidelines and compete against other schools in local competitions.

Anchor Assignment:

Students will perform research and build a hydraulic system that serves as either a hydraulic lift or a hydraulic press. They will use the appropriate measurements to determine the overall mechanical advantage generated by their system. They will then automate the system using electricity, a button/switch, and a motor. A final write-up will include potential uses for their system, issues faced and overcome throughout the design process, and ideas for the nextgeneration version of their system.

Course Grade Basis:

Assessment	Description	Percent
Standards-Based	Projects, Quizzes, Tests, etc.	60
Assessments		
Formative Activities	Daily tasks, Bellringers, Homework, etc.	40

Industry-Recognized Credential: Students will have the opportunity to earn an IT Specialist Certification in Python.

Generative Artificial Intelligence Statement

This course will allow—in some cases, even encourage—the use of generative artificial intelligence (GAI) techniques in some assignments. Unless otherwise indicated, the default is that this kind of use is prohibited. GAI use must be recognized and referenced. Academic misconduct will be the result of breaking this policy and could result in loss of credit for the assignment(s) as referenced in the cheating policy in the Saraland City Schools' Student Handbook. It is the student's responsibility to follow the requirements of each course or assignment.