

# **Introduction to Aerospace Engineering and Aviation**

**Local Course #:** 801

**State Course ID:** 13036200

## **Course Description:**

The Engineering Essentials course introduces students to engineering concepts that are applicable across multiple engineering and other disciplines and empowers them to build technical skills using a variety of engineering tools. Students will learn and apply the engineering design process to develop mechanical, electronic, process, and logistical solutions to relevant problems across a variety of industry sectors, including health care, public service, and product development and manufacturing. This class will help a student to learn how to solve real-world problems while working collaboratively with a team to find a solution. The Modeling process will detail your ideas for a solution and detail a comprehensive plan of action. Alternate solutions will be considered to come to the best solution. During the process, the student will explore experimental design and testing, CAD and drafting, Geographic Information Systems, systems thinking, project management, modeling computational and analytical skills and electronics.

Students who successfully complete this course will receive high school credit.

## **Link to TEKS:**

[https://texas-sos.appianportalsgov.com/rules-and-meetings?chapter=127&interface=VIEW\\_TAC&part=2&subchapter=I&title=19](https://texas-sos.appianportalsgov.com/rules-and-meetings?chapter=127&interface=VIEW_TAC&part=2&subchapter=I&title=19)

## **First 9 Weeks Major Topics:**

So You want to be an engineer?

Introduces the student to the many facets of engineering and which fields interests the student.

Students are also introduced to the Design Process and how to document each step of the process in an engineering log.

## **Second 9 Weeks Major Topics:**

Electronics -

Basic introduction to Electrical Engineering

Soldering

Microcomputers

Coding

## **Third 9 Weeks Major Topics:**

Mechanical engineering -

Gears and gear systems

Mechanical Advantage

**Fourth 9 Weeks Major Topics:**

Aerospace Engineering -

Forces of Flight

Challenges of working in space

Planning missions in space