IN THIS CATALOG YOU’LL FIND

A Class Listing
All our one- to three-hour classes.

A Course Listing
Courses are a series of classes that lead to a digital badge earned by students.

Class Descriptions
Brief descriptions of each class.
21DISCOVERY™ is the name of SAMSAT’s K-12 course offerings. Through all our classes, we Inspire students to consider STEM, Engage them in STEM hands-on, and share Pathways to STEM post-secondary education and careers.

HOW WE SCHEDULE

We work with you to find a time that works! Our content is adaptable to fit different sized time windows. Contact us at info@samsat.org or 210-338-0439 to schedule a class.
WE CAN DELIVER AT SAMSAT, AT YOUR LOCATION, OR ONLINE

SAMSAT offers classes in our space, mobile (at your site), and online. Most topics are offered via all three methods. See the Class Listing for details, or feel free to contact us.

“AT SAMSAT” MEANS WHERE, EXACTLY?

Most classes delivered at SAMSAT are specifically at AREA 21™, our exhibit space at the Tech Port Center. For content or space reasons, selected classes are at the our History Center or Education Center, both directly across the street from AREA 21.
HOW LONG ARE CLASSES?

• **At SAMSAT**
  Classes are about three hours, including a tour or Scavenger Hunt, and detailed content on your topic of choice. We can make special arrangements for those needing a shorter program or who want to bring many student groups through in a short period.

• **At Your Location**
  Classes at your location are one or two hours. We can provide extended content for longer class periods, or deliver shorter classes to multiple groups. We can adapt one-hour classes to class period length. We have a minimum on-site time of two hours for classes at your site.

• **Online**
  Classes are one to two hours, and can be adapted to class period length.

• **We adapt regularly** to the needs of the schools and organizations we serve. Contact us to discuss options!
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**TOPIC: Cyber SOC**

**Cyphers: Cracking the Secrets**

Learn what a cypher is, about careers in the field, and associated pay. Review the history and types of cyphers. We also discuss unsolved cyphers. The students will also have a chance to try their hand at cracking and writing some code of their own.

**Cybersecurity**

Discover what cybersecurity is, the careers in this field, and the associated pay. Review various types of cybersecurity and learn tips and tricks of how to stay safe online. The students will also play a game acting as the CEO of a company trying to avoid cyber attacks.

**What is a SOC?**

Learn what SOC stands for, what it does, and why it's important. We also discuss many types of threats faced online. We play a card game in which you can practice your newly learned skills.
**3D Printing**

Discuss what 3D printing is, careers it is used in, and how it was invented. We then discuss the different types of 3D printing, how it is used, and the future potential.

**Video Game Design**

We begin with a discussion about block coding, moving into careers, and pay. We start asking foundational questions about the design process. We discuss the differences in "good" and "bad" games. The students will then have the opportunity to create their own video game on the platform "Scratch".

**Robots**

Dive into the careers and applications of robotics. We define what a robot is and cover the background and foundation of robotics. We also begin to explore Artificial Intelligence and the different types.
**Space: In Our Own Backyard**

Learn about what space is and what defines a planet. Delve into the details of the planets (and more!) located in our solar system, while also learning about various careers.

**Space: Beyond Our Solar System**

We begin to touch on aspects of space outside of our solar system. We also learn about the force of gravity.

**Space: It’s Not Just for Astronauts**

In this lesson, we focus on the careers in the field of space that can be done here on Earth. We also learn about nature, art, and video games in NASA.
TOPIC: SMART ENERGY

How Many Years to Disappear?

We learn about the "Story of Trash", and the locations of landfills and recycling centers in the city. We discuss how long common items take to decompose. We discover the difference between organic and inorganic materials and what assists in their breakdowns. We finish with discussing recycling and upcycling.

Food Deserts

We define a "Food Desert", it's impacts, and consequences. We define food security and insecurity. We discuss options on how to face and fix this problem.

Energy Conservation Vs. Energy Efficiency

We begin with defining energy conservation and energy efficiency, then comparing them. We then look at the use and cost of energy.
EV3

Dive into the careers and applications of robotics. We define what a robot is and cover the background and foundation of robotics. The students will also get the opportunity to program a Lego Mindstorm EV3 robot.

MagLev (Magnetic Levitation)

Students learn about what magnetic levitation is, how it works, and it's applications. Using the Engineering Design Process, the students will then work in groups to configure a MagLev Bullet Train of their own.

Sphero

Dive into the careers and applications of robotics. We define what a robot is and cover the background and foundation of robotics. We will go more in depth into block coding and how it applies to robotics. The students will then program a Sphero robot using block coding.

Structural Engineering

The students will learn about what structural engineering is, how it is used, and the careers it entails. They will learn about the different types of skyscrapers and bridges. They will then be challenged to construct a structure using their knowledge.