



MIDDLE SCHOOL ENGINEERING SCIENCE LABS

Mondays, September 14-December 14

No class October 12 or November 23

9:30am-11:00am

Ages 11-14

Students study different branches of engineering to understand scientific principles of the natural world, and use this knowledge to invent, design, and build machines and structures to artfully achieve practical goals. All lab costs are included in registration fee. Course enrollment is limited to 12 students.

Instructor: Candra Umunna

Location: STEM Lab (suite 21)

Full Series - \$275 OR \$25/lab

10% off sibling discount

LAB SCHEDULE:

ENGINEERING DESIGN

Monday, September 14

9:30am-11:00am

Today, we review simple machines and how they make work easier, and design and build a complex machine created from a series of these simple devices.

AERONAUTICAL ENGINEERING

Monday, September 21

9:30am-11:00am

We study the principles of aeronautical engineering that enable objects to fly, glide, and move through air, and we explore how to manipulate the variables that affect flight.

VEHICLE SAFETY ENGINEERING

Monday, September 28

9:30am-11:00am

Students become vehicle safety engineers as they learn the physics behind collisions, and experiment to make vehicles safer by reducing impacts.

HEALTH AND SAFETY ENGINEERING

Monday, October 5

9:30am-11:00am

This week, we solve health and safety problems as we engineer solutions to keep our homes and workplaces safe.



ALTERNATIVE ENERGY ENGINEERING

Monday, October 19

9:30am-11:00am

We study alternative energy resources as we design and build wind-powered vehicles.

AERODYNAMICS ENGINEERING

Monday, October 26

9:30am-11:00am

Students learn about and test aerodynamic features of dragsters as we engineer cars ready for racing.

STRUCTURAL ENGINEERING

Monday, November 2

9:30am-11:00am

In lab today, we experiment with construction principles as we design and build structurally sound, free-standing PVC towers that can hold weight.

MECHANICAL ENGINEERING

Monday, November 9

9:30am-11:00am

Students study mechanical engineering to learn the physics behind designing the loops and drops that make exciting and effective roller-coasters

ELECTRICAL ENGINEERING

Monday, November 16

9:30am-11:00am

We investigate the basics of electrical engineering as we work with circuits and electrical components to understand how to build robots.

AEROSPACE ENGINEERING

Monday, November 30

9:30am-11:00am

Today, we explore aerospace engineering as we build, repair and fly drones.

CIVIL ENGINEERING - DESIGN

Monday, December 7

9:30am-11:00am

This week, we learn what goes into planning the layout of a city as students are challenged to design their own city, including adequate housing, protection, services and amenities.



CIVIL ENGINEERING - CONSTRUCTION

Monday, December 14

9:30am-11:00am

Our civil engineers turn city planning designs into small city models to see how their ideas on paper are transformed into living spaces.

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