

TECHNOLOGY ENRICHMENT

MIDDLE SCHOOL PROGRAM AT TEC-SMART (MALTA)

MIDDLE SCHOOL PROGRAM FOR STUDENTS ENTERING GRADES 6-8

TUITION: \$275

70383

July 17 - 21, 8:30 a.m. - 3 p.m.

HVCC TEC-SMART Campus
345 Hermes Road, Malta

This program is comprised of six modules. Campers participate in all of these throughout the week.

- [Module 1 - Hover Craft Challenge](#)
- [Module 2 - NASA Spacesuit Challenge](#)
- [Module 3 - Point A to Point B, Then Back Again](#)
- [Module 4 - Schooner or Later](#)
- [Module 5 - Think Tank](#)
- [Module 6 - Turn Up the Volume](#)



HOVER CRAFT CHALLENGE

Physics comes alive as the Hover-Craft levitates on a cushion of air and races across the floor. Powered by two propellers, the Hover-Craft will need to be built for distance and speed. Can you build a craft that can go the distance? Top scores are based on distance and time combined.

Jeffrey Gargano, Instructor

NASA SPACESUIT CHALLENGE

It takes a lot to survive in space and it all starts with the equipment on your back, literally! You will work in teams to design and build a pressure suit that must protect the astronaut (marshmallow) from a vacuum situation. It must completely surround the astronaut to provide the necessary protection to the human body so that they may survive under the vacuum of space!

Jeffrey Gargano, Instructor

POINT A TO POINT B, THEN BACK AGAIN

Pneumatics, hydraulics and eggs, what do they all have in common? This challenge! First, we will build our knowledge with an introduction to using pneumatic and hydraulic cylinders in robotic systems. Then you get to exercise your creativity, as you design your own remotely-controlled robotic arm to safely transport an egg from one place to another, and return it to its original location, all in the quickest time possible.

Gregory Garrison, Instructor

SCHOONER OR LATER

It's summertime; let's have some fun in the water! With limited sail size and the same wind source as your opponents, you must design the most efficient hull to drive your boat to victory. We will discuss and explore various designs. Then, the fun part: using easy-working foam, you will design and problem-solve through various hull designs of your own, concluding with an exciting race where you get to see your results on our test track.

Gregory Garrison, Instructor



THINK TANK

Are you a problem solver? Can you work quickly as a team to accomplish a task? Do you like a good challenge? If so, this is for you. Students will be given a fixed amount of time and materials to solve a secret task while competing against the other teams. Students will also be introduced to a number of competitions that they can get involved in back at their home schools for the upcoming academic year.

Jeffrey Gargano, Instructor

TURN UP THE VOLUME

With touchscreen control and Bluetooth wireless connectivity, we can control and listen to music, wherever and whenever. Often we think more about our user interface and portability than what makes the sound. What about the speaker? Ultimately the speaker is what provides us the enjoyment of hearing our favorite song. We just use our touchscreen and Bluetooth to get it working. In this activity, you will learn how speakers work and build your own working model out of recycled materials.

Gregory Garrison, Instructor



HIGH SCHOOL PROGRAM AT TEC-SMART (MALTA)

HIGH SCHOOL PROGRAM FOR
STUDENTS ENTERING GRADES 9-11

TUITION: \$275
70659

July 10 - 14, 8:30 a.m. - 3 p.m.

HVCC TEC-SMART Campus
345 Hermes Road, Malta

This program is comprised of seven modules. Campers participate in all of these throughout the week.

- [Module 1 - Cantilever Testing](#)
- [Module 2 - Digital Concepts Lab](#)
- [Module 3 - Land, Air, Sea Rescue Challenge](#)
- [Module 4 - Maglev Vehicles](#)
- [Module 5 - Solar Dragsters](#)
- [Module 6 - Take Flight](#)
- [Module 7 - Think Tank](#)

CANTILEVER TESTING

Ever wonder how a structure can hold weight without being tied down at both ends? Well this is the interesting structure called a cantilever. You will study these designs and build your own cantilever. Get ready to build a structure that will outlast others!

Darrel Ackroyd, Instructor

DIGITAL CONCEPTS LAB

This lab focuses on digital concepts such as logic gates, integrated circuits, binary counter circuits, digital readouts, touch-activated switches, flip flops and more. We will create binary outputs and eight-segment LED number schemes.

Darrel Ackroyd, Instructor

LAND, AIR, SEA RESCUE CHALLENGE

Rescuers need crafts that can handle all types of terrain to save people's lives. Currently they need three types of vehicles to accomplish this task. Your job is to build a craft that can do all three and perform a specified task at the same time. Bring your thinking caps because you're going to need them for this!

Jeffrey Gargano, Instructor

MAGLEV VEHICLES

Everyone in the class has a shot at levitation with our maglev vehicles. Design your vehicle to race against your competitor. Be careful not to create a vehicle that is unbalanced; this could slow down your speed. Get ready to take off with the power of wind and magnets.

Darrel Ackroyd, Instructor

SOLAR DRAGSTERS

You are in a race, but to win the race you will have to design a dragster that will travel the fastest using only the sun. Solar panels, wheels, a motor and gears are all you have to use in this race for the sun.

Darrel Ackroyd, Instructor



TAKE FLIGHT

Ever wanted to learn to fly a drone? What about designing your own rocket plane? Well how about both? First we will take a look at the principles of flight with our drones. Here you'll learn how they work and how to fly them! Next we'll work on building rocket planes powered by B/C rocket motors. Unlike last year's smaller rocket gliders, these planes mean business and can go the distance.

Jeffrey Gargano, Instructor

THINK TANK

Are you a problem solver? Can you work quickly as a team to accomplish a task? Do you like a good challenge? If so, this is for you. Students will be given a fixed amount of time and materials to solve a secret task while competing against the other teams. Students will also be introduced to a number of competitions that they can get involved in back at their home schools for the upcoming academic year.

Jeffrey Gargano, Instructor

