Young Ivy Academy
<mark>Tech Curriculum</mark>

Course Offerings and
Available Tools for Use

Logic:
- Coding & Programming
- Lego Robotics
- Blockchain & Smart Contracts
- Coding for Drones
- Chess

3D Printing & Design:
- Two 3D Color Printers
- Twelve 3D Printing Pens
- 3D Race Car Creation
- Pancake Printer

Augmented & Virtual Reality:
- Microsoft HoloLens
- HTC Oculus

Maker:
- Hands-on IoT (Internet of Things) Projects
- Raspberry Pi
- Arduino

Featuring classes in Lego Robotics, Littlebits, Arduino, Blockchain, and more, students at Young Ivy engage in a well-developed technology curriculum where they gain a profound understanding of the technology around them. We teach a broad spectrum of programming technologies, ranging from basic programming with Legos to more difficult Arduino work. For Chess, classes and tournaments are taught and supervised by Yakov Zusmanovich of the Ken Whyld Chess Association.

Coding & Programming

Programming Littlebits is one of the most engaging ways to learn how to build a circuit with the parts you have on hand. Students learn the four things necessary for a circuit to function: power, input, wire, and an output. Put to real life application, kids can learn to create burglar alarms and clap-triggered light switches.

*Arduino is a more complex version of Littlebits. When programming with Arduinos, students learn to make and program a circuit. We incorporate Arduino technology into Littlebits so students can build circuits regardless of their respective programming levels.

Lego Robotics

Here, students learn how to create and command their own Lego robots. They'll build and program their robot to understand

commands, including simple programs such as driving forward and backward. Beyond this, the robots can learn to sense and detect walls, follow a line, measure distances from objects nearby, and much more. Students learn how to use what components they have on hand to create a robot to solve problems, which breeds innovation and friendly competition. Ultimately, they can program their robots to perform elaborate moves and participate in mini golf, drag racing, chariot racing, bulldozing, catapulting, and grand prix.

More details: https://goo.gl/mBXZrJ

3D Design & Printing

Learning 3D Design helps kids develop problem solving skills and exercise their imaginative and creative muscles. They'll learn the fundamentals of mechanical design principles and be able to strengthen their 3D visualization skills through mastering professional-level software. In this way, they gain significant exposure and familiarity with the tools of tomorrow, which affords them an advantage in our increasingly technological society. 3D Design and Printing also presents opportunities for individuals to learn at their own pace, which encourages healthier self-esteem and deeper enjoyment in the process.

The introduction of digital tools and techniques has completely transformed all facets of design in today's age. New software and methods have paved the way for groundbreaking developments, allowing people to explore their creativity to exciting heights—and we're only just beginning to understand the potential of these technologies. The best design is one that is inspired by both old and new principles, and 3D printing offers an excellent format in which students can create their own art while using the technology of tomorrow.

3D printers are revolutionary; they allow us to realize now in the present what was previously seen as futuristic and hence unobtainable, and our 3D Printing classes give students the opportunity to use these fantastic machines, available right at their fingertips. We own two 3D printers, one of which is the Makerbot Mini. Students design their creations on Tinkercad, where they learn to manipulate shapes to create a finished product. We assign a topic every class so that students can truly understand the different concepts and tools that the tool provides.

An example of one of the many projects that students can make in our 3D Printing Class is the creation of a model fire hydrant. We show students the basic shapes, and from then on, it all comes down to the student's own creativity. Small or big, wide or skinny, shallow or deep—these design factors depend on what the student wants to make.

In addition to our 3D printers, we also provide 3Doodlers, or 3D printing pens which showcase the striking intersection between modern 3D printing technology and more traditional pen-to-paper artistry. While the 3Doodler is not as precise at the 3D printer, it provides immediate results to the student after only minutes of brainstorming. Without the size constraints of a 3D printer, students can create something with no parameters, potentially larger than what the 3D printer can make.

Maker

Raspberry Pi: Introduction
Music Box
Minecraft
WiFi Extender
WhatsApp
Echo
Set Top Box
Bluetooth Speaker
FTP
Personal Cloud

Questions?
Call or text us anytime at 925.548.0188 or email us at youngivyacademy@gmail.com.

Want to register?
We offer these courses in both the After School Program and in the Summer Camp. Depending on which, you'll need to complete a ready-to-fill PDF or submit an online registration form. The choice is yours!