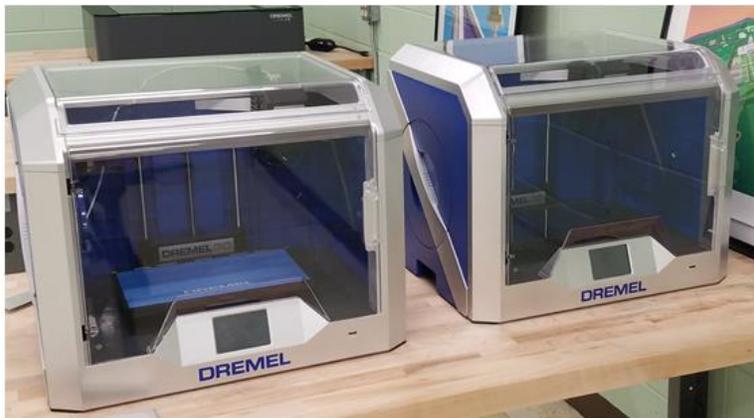


# James Rumsey Aerospace Engineering Newsletter



## New 3D Printers

New Dremel 3D printers were purchased for the Aerospace Engineering program at James Rumsey Technical Institute. They will be used by students to print projects such as nose cones for rockets and sample wings that will be tested in the wind tunnel. In addition to projects in the curriculum, students will be able to print extra credit projects such as small remote-control aircraft parts or training examples. The designs will be created electronically using computer aided design programs such as Solid Edge and Onshape. Once complete, the design will be saved as a file that the printer can read and convert into an object. After the printing is complete and the object is sanded smooth, it can be tested and the results analyzed to see if the prototype works or if it needs improvements. The printers are user friendly and a valuable tool to help student creativity.



Dremel Digilab 3D40 3D Printers

## Inside this issue

New 3D Printers	1
Laser Cutter	2
A Little About Our Program	2
Remote Control Fleet	3
How to Enroll	4

## Special points of interest

- Open House December 8th
- FAA Drone Pilot License
- Other Certifications



## Laser Cutter

In addition to the 3D printers, the program also has a laser printer. This can be used to cut balsa wood for glider projects or to etch plastic or metal. This is similar to the 3D printers in that is user friendly and students unfamiliar with the machine can pick up on it quickly.

This laser cutter will be able to make precise and accurate cuts. Students will be able to see the cutting section through the camera mounted on the cutting head. Layout is accomplished by scanning a document such as a PDF file. The cutter takes the pattern and places it on a grid system that represents the cutting chamber.

Users can manipulate the pattern on the computer to orient the cut and pattern any way they wish on the material.

*“This laser cutter is able to make precise and accurate cuts.”*

### Projects :

1. Propulsion
  2. Winged Flight
  3. Glider Flight
  4. Aircraft Wing Design
  5. Basic Navigation
  6. Electric Motors
  7. Electric Powered Plane
  8. Learning to Fly Using Simulators
  9. The Evolution of Navigation
  10. Basic Helicopter Flight and Control
  11. Control and Guidance Systems
  12. Design of Unmanned Vehicles
  13. Aerospace Communications
- And more.

## A Little Information About Our New Program

The Aerospace Engineering program at James Rumsey Technical School is a project-based program that is designed to introduce students to the world of aviation and engineering.

Students are given projects and use the Engineering Design Process that requires teamwork and research to create designs that they will build and test. Projects use different elements of math to determine lift ratios, rocket trajectory, and plot courses for flights.

There are additional projects not in the Aerospace Curriculum that students can participate in to prepare them for entry into the workplace such as Simulated Workplace, building a Career and Technical Education Portfolio as well as pursuing certifications.



*Remote control aircraft fleet in the Aerospace Engineering class*

## Remote Control Fleet

The class will now have use of a fleet of remote-control aircraft for training and testing thanks to Mr. Eisenhart. This fleet once belonged to his father and had been used for recreational flying. It had been sitting in his parent's basement for the past few years. Instead of discarding broken or damaged parts Mr. Eisenhart thought it would be best used by his students to help them understand aircraft design.

"A lot of the items fit right into what we are learning about from wing design to electric motors" Mr. Eisenhart said in an exclusive interview. After cleaning, repair, assembling and inventorying, these can be used for some of the class projects.

In addition to the planes, there are also various rechargeable batteries and chargers, remote controllers, Monokote paper, and servos. Students can use the additional materials to design and build their own aircraft. Remote control flight simulator programs will be available on the computers as well as study questions for the FAA Part 107 Drone Pilots License.

### FAA Part 107 Drone Pilot License

According to the FAA you do not need a license to fly a drone for recreational purposes. However, if you choose to use your drone to make money, you'll need to get your drone pilots' license.

Aside from imposing that commercial drone pilots get drone licenses; Part 107 also enforces several restrictions on drone flight. These restrictions include not flying drones over crowds or moving vehicles, flying only within visual line-of-sight, and always yielding the right of way to manned aircraft, among others. The Part 107 rules continue to evolve and have been the subject of several rounds of review and revision in the last couple of years.

The drone license is one of the most important components of Part 107. To earn a drone license, a drone pilot must satisfy a few qualifications, be vetted by the TSA, and pass a 60-item Part 107 knowledge test. This imposes a minimum level of proficiency for all commercial drone pilots and ensures that all of them know the restrictions and procedures required by Part 107.

James Rumsey Technical  
Institute

---

### Equipment Used

- ◆ CAD Programs
- ◆ Laser Cutters
- ◆ 3D Printers
- ◆ Model Rockets and Launchers
- ◆ Flight Simulator Programs

### Certifications

- ◆ Microsoft Office Specialist
- ◆ OSHA 10
- ◆ FAA Drone Pilot License

## How to Enroll

If you are interested in enrolling in this program you can go to the website: <https://www.jamesrumsey.com/admissions/#enroll> and fill out and submit an application. There will be an open house on Tuesday December 8th from 4:00 to 7:00 p.m. You can make reservations to talk to the instructor at <https://www.picktime.com/jrtiopenhouse>

Questions? Please contact Paul Eisenhart at:

**[paul.eisenhart@jamesrumsey.net](mailto:paul.eisenhart@jamesrumsey.net)** or

**[paul.eisenhart@k12.wv.us](mailto:paul.eisenhart@k12.wv.us)**

James Rumsey Technical Institute

---

3274 Hedgesville Rd.  
Martinsburg, WV 25403Y

Phone: 304-754-7925  
E-mail: [paul.eisenhart@k12.wv.us](mailto:paul.eisenhart@k12.wv.us)

PLEASE  
PLACE  
STAMP  
HERE