UAV DRONES LAB

Unmanned Aerial Vehicles

MCK-UALB-MR2

MINDS-i STEM INTEGRATED ROBOTICS: UAV DRONES LAB

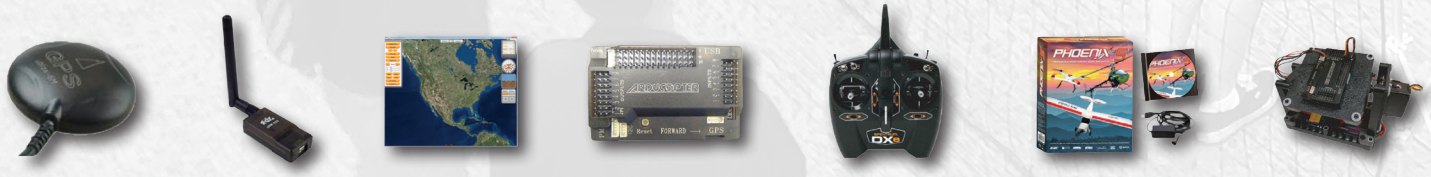
Take STEM learning to new heights with cutting-edge, programmable drones. The allure of UAVs (Unmanned Aerial Vehicles) attracts a diverse group of students to explore programming, electromechanical systems, and aerodynamics. Students design, build, and program drones for aerial search and rescues, GPS-guided crop dusting, autonomous deliveries to remote locations, and other compelling industry-related challenges.

SPARK AND SUSTAIN STUDENTS' INTEREST IN STEM

MINDS-i Robotics engages students in an energizing STEM learning environment with easy to build, program, and modify robots. Technologically advanced rovers and drones perform impressive real-world tasks that build excitement for STEM careers. The curriculum encourages collaborative problem-solving and the open-source Arduino® C++ programming language fosters endless creativity. With outstanding technical support, teachers are empowered and students are inspired to build whatever they envision in their "mind's eye."

COURSE DESIGN

Each lab is a half semester (45 Hours) and designed for 3-5 students. Foundations is the recommended prerequisite to the MINDS-i Drone Curriculum.



GPS & COMPASS | TELEMETRY | DASHBOARD | DRONE MODULE | RC CONTROL | FLIGHT SIMULATOR | GIMBAL KIT

FIND YOUR MINDS-i SALES REPRESENTATIVE AT:

mindsieducation.com »

info@mymindsi.com »

CURRICULUM OUTLINE - 45 HOURS

Unit 1: Introduction to MINDS-i

- 1.1 Introduction to MINDS-i
- 1.2 Student Performance Development Process
- 1.3 What is a Drone?

Unit 2: Drone Code & Sensors

- 2.1 Testing the Micro-Controller
- 2.2 Parts & Purposes
- 2.3 Drone Technologies - Part 1
  - 2.3.2 Gyro & Accelerometer
- 2.4 Drone Technologies - Part 2

Unit 3: UAV Flight Principles

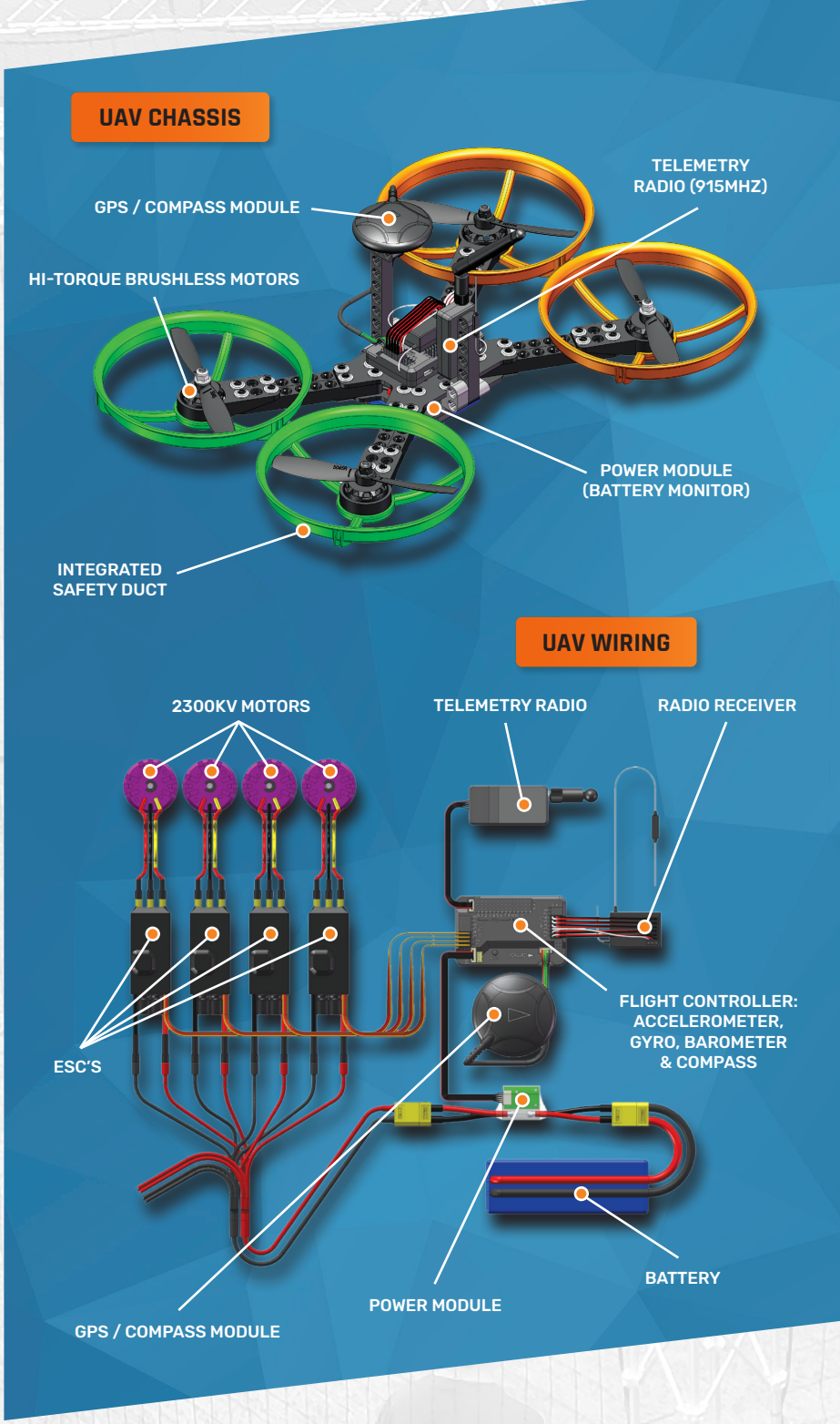
- 3.1 Physics of Flight
- 3.2 UAV Build
- 3.3 Flight Dynamics
- 3.4 Autopilot & PID Tuning
- 3.5 Simulated Flight
- 3.6 Manual Flight
- 3.7 FAA Pilot Certification

Unit 4: Applied Systems Thinking

- 4.1 Systems Thinking
- 4.2 Interrelationship Diagram

Unit 5: Culminating Project

- 5.1 Preparing for the Challenge
- 5.2 Cleanup / Organization



STEM INTEGRATED ROBOTICS DRONES

This curriculum covers a multitude of engineering concepts including

- Programming
- Physics
- Mechanical Systems
- Electrical and Electronic Systems
- Hands on Activities and Capstone Projects in each Semester

MINDS-i DASHBOARD SOFTWARE & MEGA 2560 HARDWARE

- Open Source Software / Windows 10, OS X & Linux Ready
- Easy to use Graphical Interface
- Drag and Drop Installation (w/Radio Driver)
- Save and Load GPS Paths
- Live Location Tracking
- Wirelessly Adjust Settings
- Capable of Navigating to 100 Waypoints
- Customizable Graphs: Latitude, Longitude, Yaw/Direction, Pitch, Roll, Ground Speed, Voltage, Amperage and Altitude
- Full Telemetry Logging
- Inclinometer Gauges