Berrien Springs Partnership Syllabus and Instructor Qualifications

CLASS TITLE: **Build & Program Your Own Computer II**

GRADE OR AGE LEVELS: **7th – 12th**
START DATE: **September 9th** **END DATE:** **January 20th**
 # WEEKS TOTAL: **17** **WEEKS OFF:** **3**
DAY/TIME REQUIRED: **Wednesday 1:30pm-2:30pm** **ADD'L DAYS/WK AVAILABLE:**
 # HOURS (REQUIRED): **17** **# HOURS (OPTIONAL):** **73 (approx.)**
TOTAL SEMESTER HOURS POSSIBLE: **90**

LOCATION/ADDRESS: Niles STEAM room: 2601 N. 5th Street, Niles, Michigan

MAIN INSTRUCTOR: Paul Oblak

CONTACT INFORMATION: phone: 269-697-0069 email: poblak@gmail.com website: https://funlearningcompany.com/

ADDITIONAL REGISTRATION AT SITE REQUIRED? NO

MAIN INSTRUCTOR QUALIFICATIONS:

36 years as an Information Technology Professional encompassing everything from Mainframe operations and programing through all of the latest technologies including networking, servers, Business Intelligence programming and analysis, etc. Proficient at PC hardware building and diagnosis, etc. I Have taught classes at Lake Michigan College in Windows Servers, Fab Lab, and FIRST Robotics. Served as a CSA (Control Systems Advisor) for several years at FIRST Robotics competitions in Michigan.
I enjoy mentoring young people with the desire to see them reach their full potential as human beings and fully enjoy whatever they choose as a career field.

COURSE DESCRIPTION (complete overview shown on website):

In this class, students will continue to build on their Python programming foundation and incorporate electrical circuits into their programming projects. They will program Minecraft games that use real-world sensors from Piper's Sensor Explorer Pack – which includes an ultrasonic sensor, a color sensor, and a temperature sensor. In addition, students will build and program their own controller using Piper's Beta Command Center. We will continue with the Turing Tumble to learn more about Binary Numbers and Boolean Logic, as well as covering a range of new programming topics such as classes, inheritance, dictionaries, arrays, reading/writing to files, and more!

SYLLABUS/OUTLINE: weekly breakdown of Project-Based Learning activities

Weeks 1&2: Review programming in Python & using your Piper computer.

Weeks 3-7: StarLab -- trying out small scale projects using the Piper Sensor Explorer to learn how ultrasonic sensors, temperature sensors, and color sensors work.

Weeks 8-10: Start programming your sensors using PiperCode

Week 11: Review computer architecture & recent Turing Tumble challenges.

Weeks 12-17: Python + Sensors -- design, create, and debug your own program using at least one of the sensor's we've added.

COURSE OBJECTIVES AND APPROXIMATE TARGET DATES:

1. Learn how ultrasonic, color, and temperature sensors operate – including their internal makeup, how

they operate, how they're used in real-world applications, and how to program them in Python.

2. Learn how to program in Python using classes, sub-classes, inheritance, dictionaries, arrays, and files.

3. Learn how logic gates can be combined to build more complex computer chips.

4. Learn the internal mechanics of a game controller, as well as how to build and program one.

STUDENT ASSESSMENT - what will be used to evaluate student progress and/or end of semester pass/fail status?

All classes abide by the following:

1) Student agrees to attend at least 80% of class sessions/lessons offered. Attendance is kept online and tracked by Partnership staff. Failure to meet 80% or be on track to meet 80% may result in program discontinuation.
2) The Partnership Student Assessment or Performance Form is filled out by the teacher and turned in to Partnership staff. The link to this form is found on the web page for this class. Failing marks for lack of participation, behavior issues, practice time, etc. may result in program discontinuation.

Class-specific assessment:

Our instructor will evaluate each student using Berrien's evaluation form and passing criteria will be based solely on students attending and actively participating in the class sessions.

Additionally, students will take our course pre/post assessment in Moodle. (We can provide your teachers with non-editing accounts to see our virtual Moodle courses upon request).

ADDITIONAL RESOURCES: (online, books, video, etc.):

Each student will have their own login with access to our virtual Moodle course, Build & Program Your Own Computer II.

CLASS POLICIES: ATTENDANCE, BEHAVIOR, WEATHER, ETC.

Attendance: attendance is required, and students should notify the instructor in advance of any absence.

Behavior: any behavior issues will first be privately brought to the attention of the parent and, should the behavior persist, to the partnership staff.

Weather: the classes will be cancelled on any days when Berrien Springs Public Schools are closed. We will also contact families to remind them of this in the event of a weather-related cancellation. We will make up any canceled class meetings at a later date.