

# Berrien Springs Partnership Lab Syllabus and Instructor Qualifications

**COMMUNITY CLASS TITLE:** Machines and Engineering

**GRADE OR AGE LEVELS:** Age 12+

**FORMAT:** In-person

**DAY AND TIME OF THE WEEK:** Wednesdays 1pm-3pm

**TOTAL REQUIRED HRS:** 16      **ADD'L POSSIBLE HRS (OPTIONAL TIME):** 4

**TOTAL SEMESTER HOURS POSSIBLE:** 16

**LOCATION:** Homeschool Nexus - 1870 Union Ave, Benton Harbor

**INSTRUCTOR:** Jon Bunnell

**CONTACT INFORMATION:** phone: 269-308-2518 email:  
jbunnell2003@icloud.com

ADDITIONAL REGISTRATION AT SITE REQUIRED?

**INSTRUCTOR QUALIFICATIONS (may attach a separate page if necessary):**

BSAST Nuclear Engineering Technology

**COURSE DESCRIPTION (OVERVIEW):**

This course is intended to introduce students to fundamental engineering principals in a hands-on and demonstration-based course. We will explore mechanical and fluid systems, statics and dynamics, and many more higher-level concepts, but in an elementary setting that younger students can grasp.

**SYLLABUS/OUTLINE: WEEKLY BREAKDOWN OF PROJECT-BASED LEARNING LAB ACTIVITIES**

Week 1: Introduction to the laws of machines

Week 2: Mechanical Systems

Week 3: Fluid Systems

Week 4: Statics and Dynamics

Week 5: Metallurgy and other materials

Week 6: Invisible Systems

Week 7: Scientific Method

Week 8: Elemental and experimental design

*Describe activities that will reinforce the lesson. Include any work and time to be required outside of class: Students will be encouraged to review laws and formulas introduced.*

## **COURSE OBJECTIVES AND APPROXIMATE TARGET DATES:**

The goal of the course is to encourage students to pursue hard science degrees in college and give them an introduction to this field of study.

*Steps to check for student understanding, along with dates or # of weeks into class: Skills will be practiced and applied every week. Discussion quizzes will be given weekly.*

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

Students will complete discussion-based assessments throughout the course.

- 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.

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

## **CLASS POLICIES: ATTENDANCE, BEHAVIOR, WEATHER, ETC.**

**Attendance: Must meet the 16-hour requirement**

**Weather: No make-up classes for inclement weather**

**Required equipment: None**