



**Principles of Engineering**  
**Vex Robotics Competition Team**  
**Course Syllabus**  
**Prerequisite: Teacher approval**

John Cooper, Instructor  
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**Course Description:** This course is designed to introduce students to the fundamentals of robotics. It emphasizes the fundamentals of electrical current, digital circuits, electronic control systems, and the design and operation of robotic systems. This class section is specifically geared toward students interested in participating in robotics competitions. All students must attend at least three Vex Robotics competitions with their teams and the state tournament if their team qualifies. **Tournaments are held on Saturdays.**

**Required Materials:**

- Standard earbuds, not Bluetooth
- Composition book for notes
- Pocket folder for handouts
- Black or blue ink pen (fine tip preferred)
- Pink eraser or art gum eraser
- All other materials provided using class fees.
- Course & TSA Fee

**Course Fee:** \$150 total by the end of the third week of school

- \$125 for computer lab supplies fee. This also helps pay for team registrations, team shirts, entry fees and PPE.
- \$25 for TSA membership.
- Cash or checks made to ACTC.

**TSA:** Technology Student Association is a co-curricular component of POE. Students are encouraged to participate in the organization as it enhances classroom instruction, helps develop leadership skills, and provides opportunities for growth and service. TSA dues are \$25.

**Course Objectives:** The student will be able to:

- Work safely and in cooperation with others
- Successfully complete academic concepts related to engineering topics
- Work independently as well as in team situations to complete projects
- Incorporate a real-world work ethic and attitude in completing all tasks.

**Instructional Methods:** PowerPoint presentations, cooperative group activities, class discussions, demonstrations, note-taking, robotics competitions, role-playing, online coursework, pictures and videos, and others as needed.

## Course Outline:

|                              |
|------------------------------|
| 1. Energy and Power          |
| 2. Materials and Structures  |
| 3. Control Systems           |
| 4. Statistics and Kinematics |

**Assessment Procedures:** Daily assignments (such as bell ringers), tests and quizzes, performance assessments, laboratory work, project reports, assignment completion, class discussion/participation, and project presentation are used in assessing student learning and progress throughout the course. Work not turned in or attempted will receive a zero for the assignment. Students with excused absences will have 3 days to make up work.

## Grading:

|                       |            |  |
|-----------------------|------------|--|
| <b>Major Grades</b>   | <b>65%</b> | Tests, projects, portfolio                         |
| <b>Minor Grades</b>   | <b>35%</b> | Daily work, class assignments, employability grade |
| <b>Grading Scale:</b> | 100-90 A   | 89-80 B 79-70 C 69-60 D 59-0 F                     |

## Class Rules & Expectations:

1. The student will adhere to the guidelines of student conduct outlined in the school handbook.
2. Students will be seated when tardy bell rings.
3. Tardies are dealt with according to ACTC policy.
4. A zero is earned under the following conditions:
  - cheating (ex. talking during a test, cheat sheets, etc.)
  - failure to make-up missed work due to an excused absence within 3 days
  - an unexcused absence

| <b>Expectations</b> | <b>Consequences</b>                     |
|---------------------|---|
| 1. Be Respectful    | 1. Student/Teacher conference           |
| 2. Be Responsible   | 2. Parent contact                       |
| 3. Be Resourceful   | 3. Parent/Teacher Conference with admin |
|                     | 4. Office referral                      |

\*A severely disruptive student will be immediately sent to the office.

**Make-up Work Procedure:** Attendance is required. You have three school days to turn in makeup work. **You are responsible for acquiring and completing your make-up work. Schoology has all assigned work.** However, you are welcome to ask questions and get help with any make-up work you don't understand.

**Cleanliness:** Please make sure the area around your desk is clean and neat before you leave each day. This will be part of your weekly grade.

**Personal Devices:** Cell phone, headphones, camera, and/or electronic device usage is prohibited in the classroom unless specified by the teacher. We have computers in the lab for classwork and research, so there is no need for you to have your phone out. The following system will ensure students adhere to this policy:

1. Student will receive a verbal warning.
2. Student will be required to keep phone in their backpack, and parents will be notified.
3. Parent/Teacher conference with Admin.
4. Student will receive a discipline referral, which may result in detention, ISS, or other punishment as the administration deems appropriate.

**Email:** Please make sure you have a personal Gmail account. This will be used to sign up for many accounts in our classroom.

**Social Media:** We have a class Instagram page documenting our journey through the year. You will be featured on it! Follow @actctsa on Instagram.

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Keep these 3 pages. Please return the fourth page.

It is the policy of ACBOE that no student shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination in any program on the basis of sex, race, color, religion, national origin, age, handicapping condition, belief, creed or ethnic group.

## Cooper's POE Syllabus Return Page

\*Your first assignment: Please read the attached information and sign below, have a parent/guardian read the information and sign below, and bring the contract back to class to receive credit. Thank you for your cooperation! I am looking forward to a great year. Parents, please feel free to contact me if you have any questions.

I (we) have read the information about the Engineering curriculum, grading policy, student responsibility, and classroom procedures for Mr. Cooper. I understand my image may be featured on the ACTC website and social media, lobby TV or ACTC social media pages.

I have read the classroom management plan and agree to follow all rules and procedures.

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Student Signature

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Date

*Awesome! Now get your parents to sign this paper, give you the class fee, and bring this form and money to class.*

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Parent/Guardian Signature

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Date

Parent/Guardian preferred phone number: \_\_\_\_\_

Parent/Guardian preferred email address: \_\_\_\_\_