
2022
REC FOUNDATION
COACH
SUMMIT
Student Resources for Success
Dan Troy
Brandi Bolinger
Emily Bruning


JULY 12-13
REC Foundation Coach Summit 2022
Join us for training and discussions so that you can learn more about us, and we can learn how to better support you!
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20 22 REC FOUNDATION COACH SUMMIT

BEFORE WE BEGIN

BEST PRACTICES

This is for YOU - the Coaches. Please ask questions when you have them.

Utilize the Chat
Share Pro Tips

Take Breaks

Ask Questions in the Chat

Be Respectful

2022 REC FOUNDATION COACH SUMMIT

Student Resources for Success

Resources that Coaches have available to help current students and alumni become more successful

YOUR PRESENTERS

Dan Troy

Team Engagement Manager
CT, DC, DE, MA, MD, NH, NJ, NY, PA, RI AND VT

Over 16 years of Competitive robotics experience
VRC, VIQC, VEXU, FLL, Sea Perch and FRC

Certified Educator in VEX GO, VEX IQ, VEX V5, and CS with VEXcode VR.

Certified Volunteer in Head Referee (VIQC/VRC), Judge, and Event Partner

Favorite Role Emcee/Play by Play

Born and raised in Philadelphia

dan_troy@roboticseducation.org

Brandi Bolinger

Team Engagement Manager
MI,IL,WI, MN, ND, SD, IA, AND NE

Robotics Coach, Mentor, Volunteer, and Event Partner
Over 16 Years of Experience Coaching Competitive Robotics
Co-Head Mentor for Team 2337 - The EngiNERDs
VRC, VIQ Camps, FLL, FTC, FRC, OCCRA
Certified Referee, Event Partner, and Judge

Born and Raised in Mid-Michigan

Specializing in Anything “Team” Related

brandi_bolinger@roboticseducation.org

OnShape
- Why OnShape?
- Advantages
- Parts Library

Certifications
- Referee
- Drive Team
- Micro
- Workforce

Scholarships
- Where to find them
- Internships

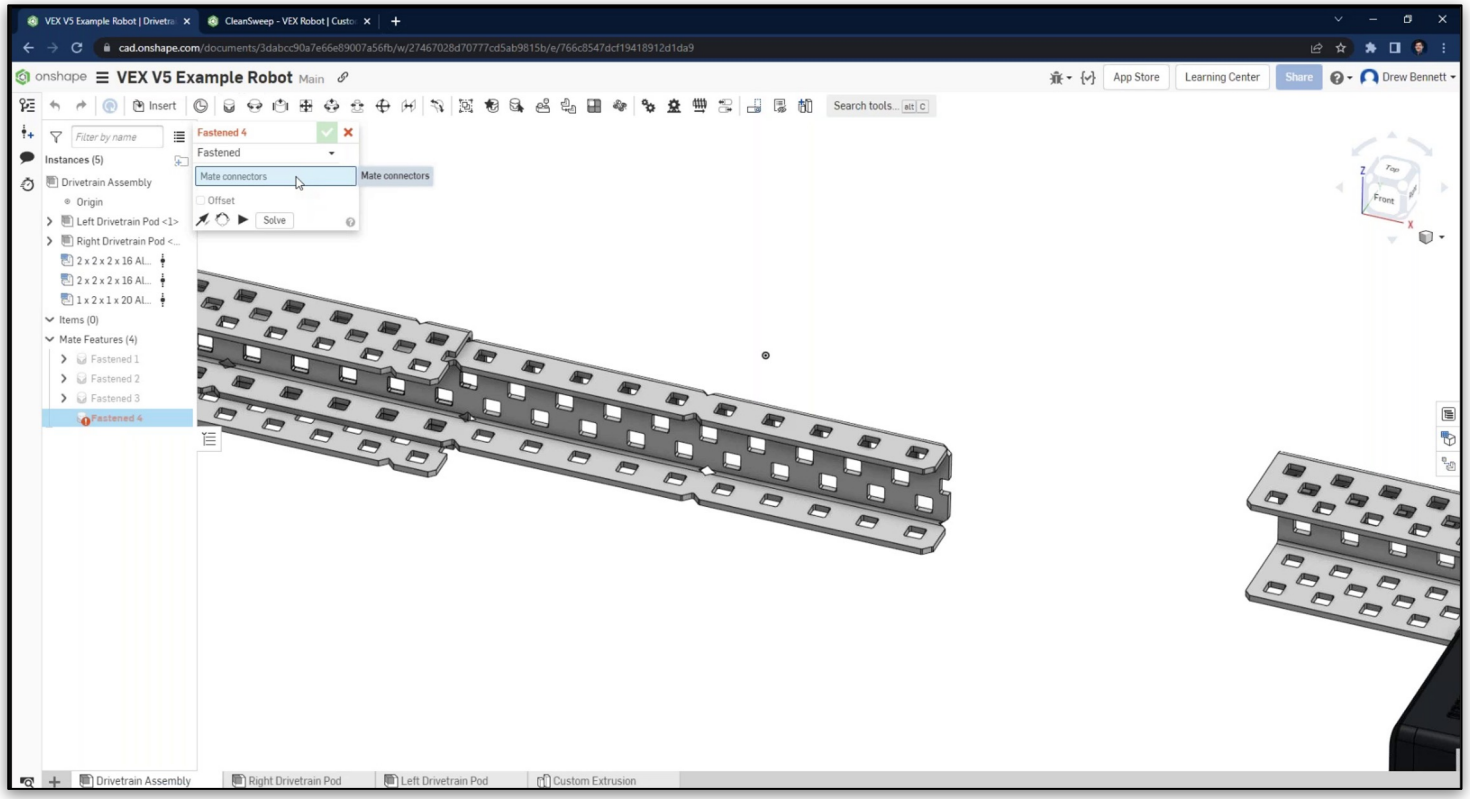
DESIGNING WITH ONSHAPE

WHAT IS ONSHAPE?

An online, browser-based CAD (Computer Aided Design) software used to create digital models of robots and mechanisms

WHY USE ONSHAPE?

- Free for Educators & Students
- Teacher/Coach Monitored
- Multiple users at once
- Version control
- Works on Chromebooks
- VEX Parts Libraries
- Great for Engineering Notebooks



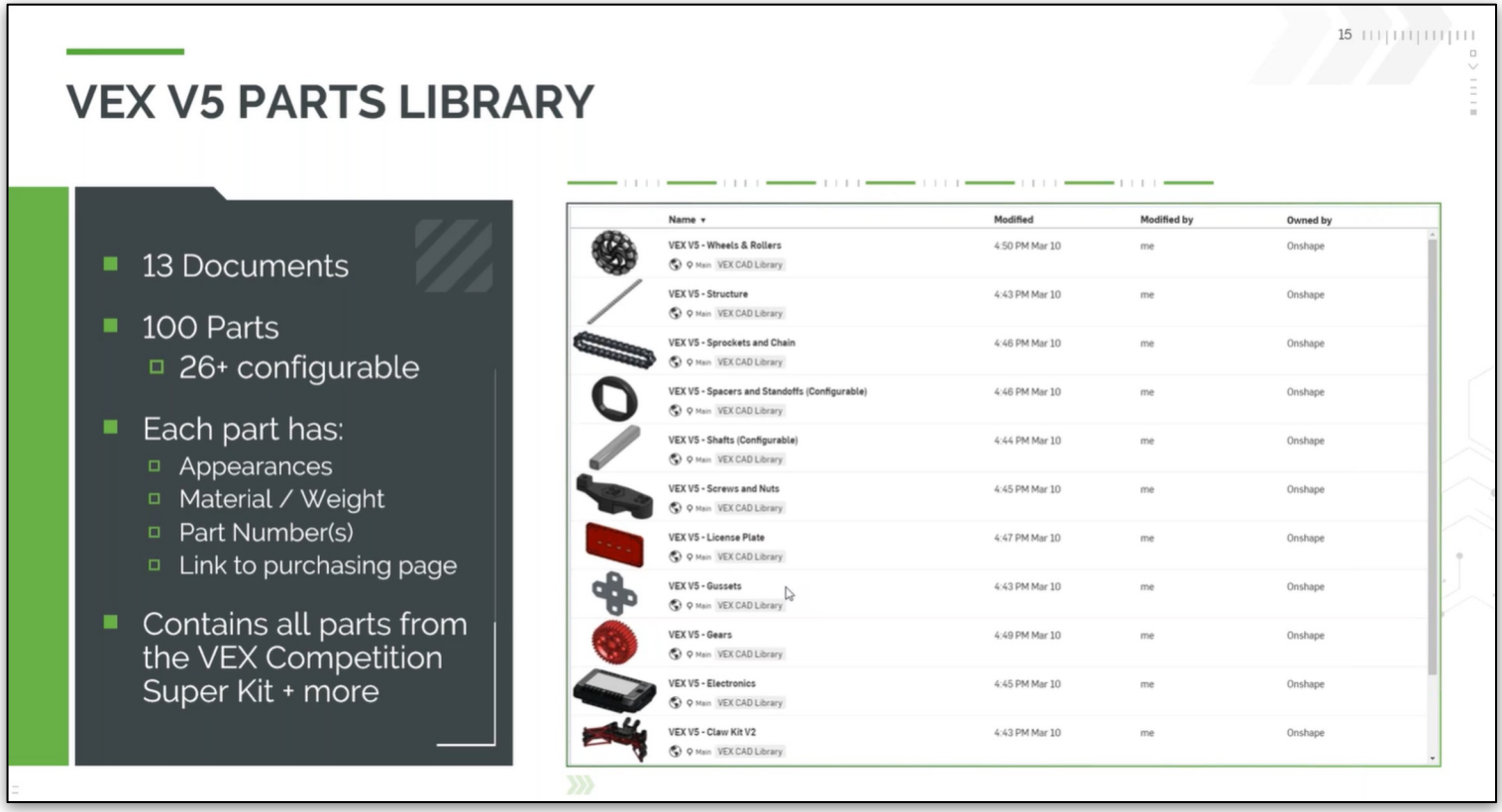
ADVANTAGES OF USING ONSHAPE

DIGITAL PARTS ARE FREE

- Test proof of concept before purchasing
- Adjusting digital designs saves time
- Designs can be shared easily

CREATING NO-CUT POLICY

- Students MUST share an OnShape design
- Cutting marks MUST match the drawing
- Part should match part file
- Engineering Notebook entries made easy!



ACCESSING THE OFFICIAL PARTS LIBRARY

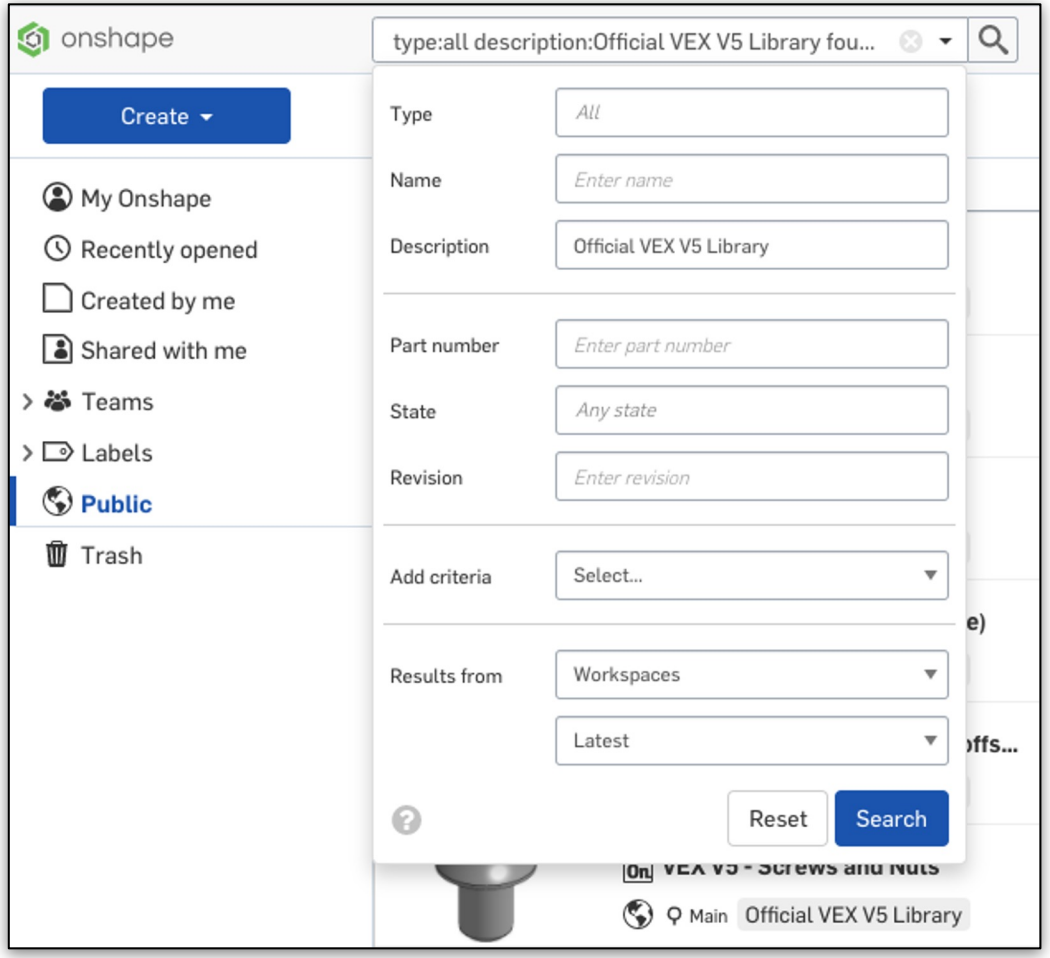
WHAT IS A PUBLIC PARTS LIBRARY?

- Pre-created items that are already designed
- Free to use and incorporate
- No need to recreate the wheel
- Official and Public Libraries available

ADDING THE PARTS LIBRARY

Watch this time stamped VIDEO for a tutorial!

- Click on Public Section
- Advanced Search
- Official VEX V5 Library
- Select All
- Create your own label for quick access



Certifications

The REC Foundation Certifications Program responds to a global need for more students in the Science, Technology, Engineering, and Mathematics (STEM) fields.

Judge/Event Partner

Drive Team/Referee

Industry/WorkForce

CMU - Micro

Head Referee & Drive Team

This certification is for students to test the student of their knowledge and to understand what the Head Referees are looking for.

Current Students

Can be used to train team members

After graduation

Can be used to help run/support/volunteer at events

Judge

The purpose of Judge Certification is to ensure a consistent judging process is followed at all VEX Robotics Competitions. The Judge Guide describes the judged award criteria and informs the Judges, Judge Advisor, and Event Partner on their roles and responsibilities in the judging process.

Current Students

Can be used to teach students the judging process and aid notebook development

After graduation

Can be used to help run/support/volunteer at events

SMART Micro-Certifications

There are 4 SMART Robotics Technician Micro-Certifications available that focus on different foundational competencies. Participants can opt to complete any number of them, based on their roles within their robotics team.

https://www.cmu.edu/roboticsacademy/roboticscurriculum/smart-microcertification-vrc.html

SMART Micro-Certifications

The **Fabrication Foundations** Micro-Certification covers cutting, measuring, drilling, and 3D printing which are commonly performed by technicians on robotics systems.

The **Mechanical Foundations** Micro-Certification covers structural design, weight distribution, drivetrains, fastening, and speed and torque which are common concepts robotics technicians need to understand.

The **Robotics Integration** Micro-Certification covers situations where technicians may receive a large industrial system that requires assembly and installation. Learners must provide evidence of unpacking and testing, testing navigation programming, and vision system integration.

The **Software Foundations** Micro-Certification covers all of the concepts that were covered in Robotics Integrations as well as programming sensors, and a vision system (or camera).

RECF Industry Certifications

The REC Foundation provides **two** industry certifications (**Pre-Engineering** and **Robotics**) for schools, students in engineering related programs, and robotics clubs. These certifications were designed by a team of accomplished professionals composed of engineers, college professors, and high school teachers.

Along with a team of professional engineers, college professors, and high school teachers, the REC Foundation created two industry certifications for students in engineering or robotics-related programs.

https://www.roboticseducation.org/educational-resources/industry-certifications/

Industry Certifications Benefits

01. Workforce Development

Prepare Students for Industry before they graduate high school

02. School/Program Funding

Many states provide funding for student-earned Industry Certifications

03. CTE Instruction Validation

Used as the end-of-course assessment for engineering, technology and robotics classes.

PATH TO CERTIFICATION

Pre-Engineering Certification

1. Fundamentals of Engineering

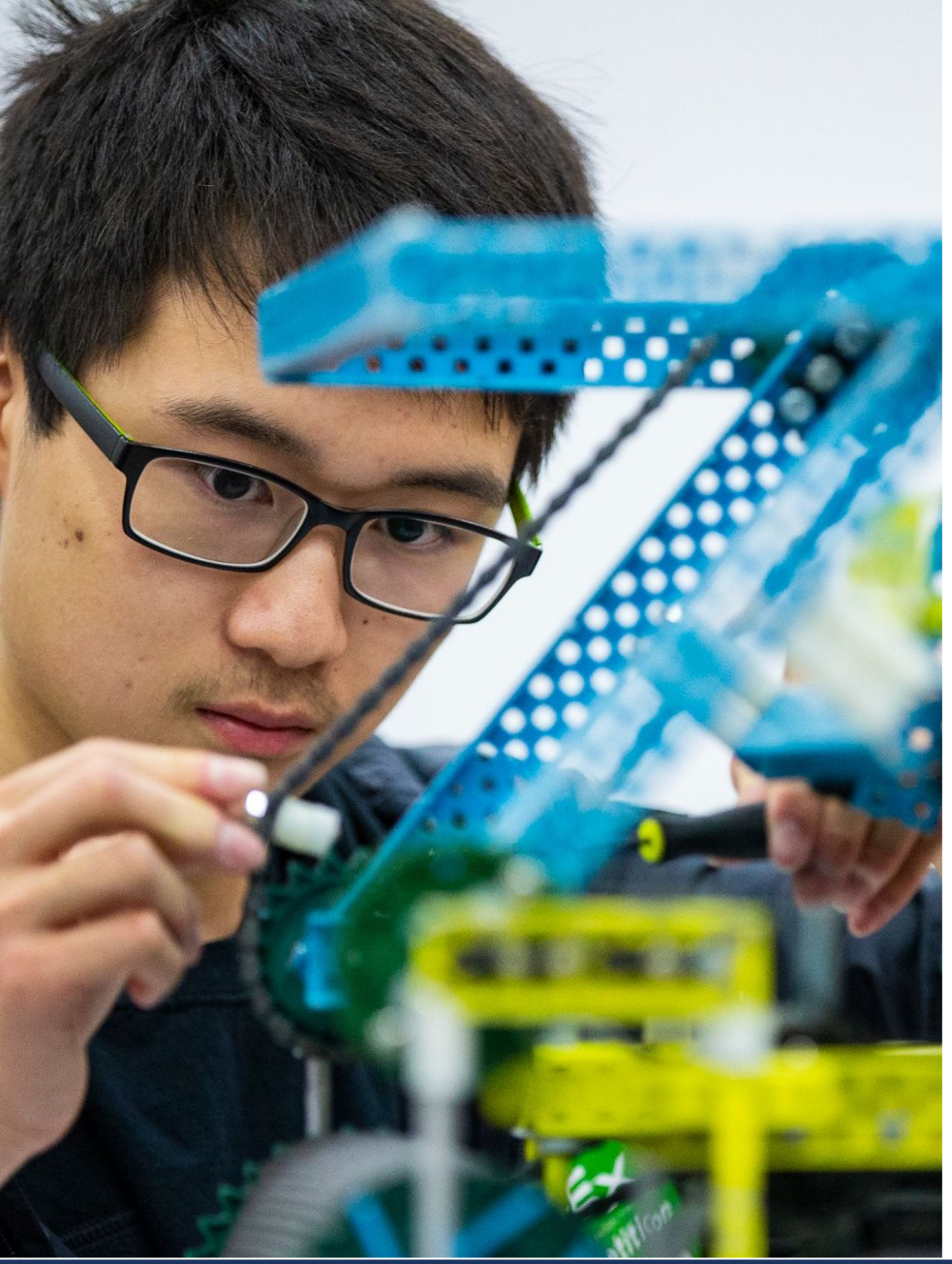
Requires 70% or higher to pass.

- 90 Minute Exam
- Approximately 100 questions

2. **Pass TWO Modules - Requires 70% or higher to pass.**

- 30 Minute Exam
- Approximately 25-30 questions

* No Point System, each exam is Pass/Fail with a passing score of 70%.



PATH TO CERTIFICATION

Robotics Certification

1. **Fundamentals of Engineering**

   Requires 70% or higher to pass.

   - 90 Minute Exam
   - Approximately 100 questions

2. **Pass THREE Specific Modules**

   Mechanical, Electrical, and Programming Modules

   - 30 Minute Exam
   - Approximately 25-30 questions

PATH TO CERTIFICATION

Preparing Students for Success in a Changing World

Modules	
1	Manufacturing Technology
2	Engineering Technology
3	Mechanical
4	Electrical
5	Computer Science and Engineering (Programming)
6	Chemical
7	Aerospace
8	Civil Engineering

STUDENT SUCCESS AFTER GRADUATING

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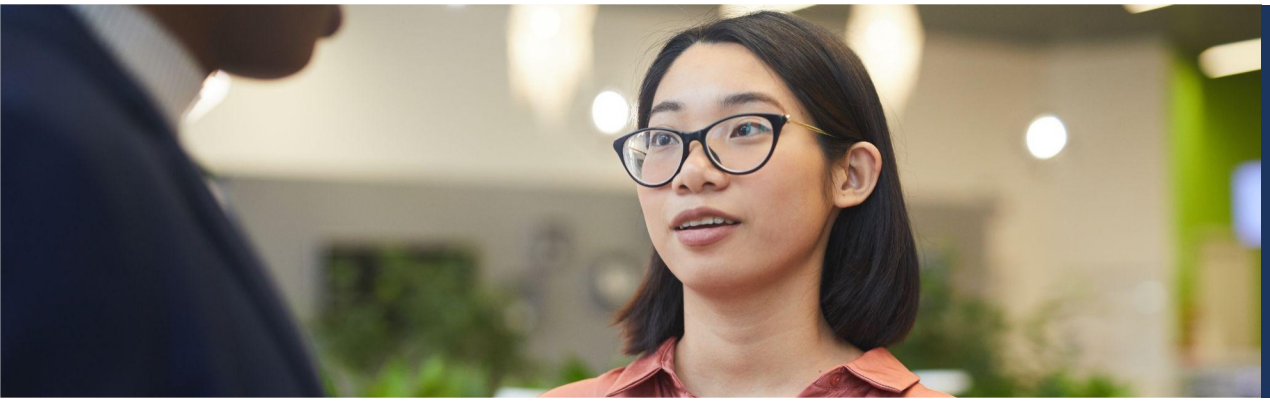
Scholarships

Over 500 Scholarships worth a combined total of $40 Million!

By partnering with over 50 organizations, universities, and colleges to offer a scholarship program, the REC Foundation hopes to encourage students in our programs to continue their education and pursue careers in STEM.

https://www.roboticseducation.org/educational-resources/scholarships/

Internship Program



The REC Foundation provides resources that can help students identify meaningful internship opportunities that put classroom and competition skills to use in today's workforce. Internships provide examples of what work in a particular field will be like and can help students build professional skills and network.

https://www.roboticseducation.org/internships/

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THANK YOU

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