

CENTERS OF  
EXCELLENCE

## STEM SKILLS INNOVATION, COMPETITION AND SHOWCASE



August 1, 2013  
Competitive Proposal K12

# STEM Skills INNOVATION COMPETITION AND SHOWCASE

## *Centers of Excellence* Competitive Showcase

### **The Background:**

Washington State's economy is shaped by innovative industries. Industries like **Aerospace & Advanced Manufacturing**, and **Construction** – are evolving with cool technological and environmental advances, particularly in renewable and sustainable processes that make the world a better place. As these industries evolve, they continue to offer new and exciting career paths.

These industries offer STEM opportunities. High School students are training for cutting-edge careers in these high demand industries. YOU can take the skills you gain in your program and be well prepared for college, an apprenticeship, or a job when you graduate.

Yet, many other young people don't know about the exciting training and jobs they could pursue in these industries after high school. They may associate an industry with outdated stereotypes or misinformation. In some cases, they may think they can't learn or apply the STEM skills that are used every day in these industries, especially math and science. Still more students just haven't considered what they want to do professionally later in life.

This poses a big problem for these industries. Businesses can't find enough people to fill jobs, and in turn, projects can't be done. This puts a strain not only on these industries, but nearly all of the state's economy.

In Washington, **Centers of Excellence** are working on innovative tools to solve this problem. Centers connect businesses and education to make sure top-notch training for high demand jobs is available, and to promote jobs to people of all ages and backgrounds.

Recently, the Centers of Excellence representing **Aerospace & Advanced Manufacturing** and **Construction** produced videos highlighting careers and training in their respective industries, and want to use these videos to inspire student-led, student-developed demonstration projects.

YOU can help these Centers spread the word about these cool industries to your friends and classmates, and compete for **statewide recognition and scholarships** at the same time!

How? Read on and find out!

## The Competition:

Two Centers of Excellence have joined forces to launch a two-part statewide competition with the high school programs located in Washington State.

First, teams of 3 to 5 high school aged students, their program instructor, and the program's industry partners will submit project description to show your use of STEM skills to design an innovative, renewable/sustainable STEM **demonstration\*** project in one of these industries:

- ☆ Aerospace and Advanced Manufacturing
- ☆ Construction

→ \*A **demonstration** is a planned project completed in a given period of time. The team members all fulfill roles to get their project done accurately and cooperatively. The steps to complete the project are documented by the team while they are completing the project. The team also prepares a presentation using tools, materials, and multi-media. When the project is complete, the team "demonstrates" their project's purpose or concept to an audience.

A proposal review committee will select three of the student-led team proposed projects from Construction and three from Aerospace and Advanced Manufacturing. These teams will then use their stipends to design, develop and present their project at the **STEM Innovation Competition and Showcase**, which will take place at the Washington State Apprenticeship Conference in Spring 2014. This will be a fun and interactive showcase, and the teams will be honored in conference materials and promotion.

Second, the teams will be judged at the conference for project creativity, clarity in presentation, and promotion of both technical and academic skills. One team from Construction and one from Aerospace and Advanced Materials Manufacturing will receive the **2014 STEM Skills and Innovation Award**, and members of the final winning team will each receive a maximum of **\$500 in scholarship funds**. This scholarship can be used for further post-secondary education at a 2-year college, 4-year college or university, or be applied towards tools and related supplemental instruction with a registered apprenticeship.

**Winning applications for the first round of this competition will push creative and innovative boundaries.**

**The proposal should address a current OR future renewable or sustainable technology or process for a single industry.**

**Non-traditional teams (members representing an underrepresented gender in the workforce) are encouraged to apply.**

Some examples of projects that teams can review and then develop their *own original green, renewable or sustainable* team demonstration project include:

- ☆ Robotics
- ☆ Advanced materials
- ☆ Unmanned vehicles or drones
- ☆ Sustainable construction principles

**Your student team can be formed in any high school program, as long as the proposal fits one of the stated industries. For instance, a Business & Marketing team could design a proposal focusing on business practices for the Aerospace sector, or a Health Care program could design a proposal for safe practices for Construction – get creative!**

The two Centers sponsoring this competition are:

- ☆ The [Center of Excellence in Aerospace & Advanced Manufacturing](#) located at Everett Community College
- ☆ The [Construction Center of Excellence](#) located at Renton Technical College

Before you apply for this competition, you should learn more about each Center and watch their cool videos by visiting their websites.

## **The Benefits:**

There are several benefits to submitting an application and participating in this competition:

- ☆ Your team will receive statewide and national attention and recognition at events and through Centers of Excellence marketing
- ☆ If your team includes a high school senior, he or she could use his or her contributions to the project to fulfill part of their high school graduation requirements (such as student portfolio, presentations, or High School & Beyond plans)
- ☆ Your team members can list their project recognition and awards on resumes
- ☆ If your team wins the final competition in Spring 2014, each member will receive a \$500 scholarship

## **Here's How to Apply:**

Student teams must fill out the **STEM Skills Innovation Competition and Showcase** application (pages 7 - 11). Instructors may advise on content, budgets and timelines.

Only complete applications received before or by the deadline will be considered.

- ☆ All applicants will be notified of their award status by **Friday, December 13, 2013**. Projects will begin after Holiday Break (January 2014).
- ☆ Projects must be completed by **April 1, 2014**.

*It is advisable to use the “Reviewer’s Rating Scale” on page 10 to make sure your proposal would rate highly in this competition.*

This application has **TWO PARTS** for your team to complete:

1. **Project Elements:** This section persuasively explains your project idea. It should be clear, use proper language and grammar, and be limited to 4 pages. All the questions in this section must be answered for your project to be considered.
2. **Signatures:** Your student team members, Skills Center or CTE instructor, Skills Center Director or High School Principal, and industry mentors must sign off on the application. You can scan the signature page into a .pdf document to send it via email.

## **The Important Rules, Responsibilities and Notes:**

- ☆ **Eligibility:** This competition is open to any Skills Centers program or secondary-level Career Technical Education program in Washington State, but must address one of the two identified industries.
- ☆ Student team members need to be of high school age (no continuing education students).
- ☆ Student teams cannot be less than 3 and cannot exceed 5 members. There must be one instructor **and** at least one industry mentor per team.
- ☆ Attending and presenting the team’s project at the Spring 2014 Apprenticeship Conference is **mandatory**.
- ☆ Applications must be completed by students with advisement by instructors. Students, instructors AND industry mentors must sign the Signature page.
- ☆ A Skills Center program or High School CTE Program can submit applications from more than one team for consideration.
- ☆ No Skills Center or High School staff or persons directly connected to Skills Center or CTE programs will be part of the application review process.
- ☆ Teams must partner with at least one industry-related business representative, who can act as a project mentor or a resource.

Applications must be sent via email by **3pm on Friday, December 6, 2013**  
to Kairie Pierce  
[kpierce@wslc.org](mailto:kpierce@wslc.org)  
360-570-5167 (office)  
360-791-1583 (cell)

- ☆ All applicants will be notified of their award status by **Friday, December 13, 2013**.
- ☆ Projects must be completed by **April 1, 2014**

- ☆ Travel arrangements to the Spring Apprenticeship Conference must be made by the school.
- ☆ Questions regarding this application may be directed to:

Kairie Pierce  
[kpierce@wslc.org](mailto:kpierce@wslc.org)  
360-570-5167 (office)  
360-791-1583 (cell)

## THE STEM SKILLS INNOVATION COMPETITION AND SHOWCASE APPLICATION

---

### Part I: Project Elements

Please use this form to complete project elements. Type your responses under each numbered element using clear ideas, language and complete sentences, do not exceed 4 pages in writing.

<b>Project Title:</b>
<b>Team Member Names and Ages</b> (no less than three students and no more than 5):
<b>Skills Center or High School &amp; CTE Program Name:</b>
<b>Program Instructor Name:</b>
<b>Industry Mentor(s) Names and Company(ies):</b>

- 1. Project “Purpose”:** Please describe what green, lean, renewable or sustainable process you will demonstrate by completing this project and what STEM skills are used (math/engineering). Explain why this process is important or beneficial to the industry your project represents, your community and/or the world (including economic, social or environmental reasons). ***Strong answers will cite research. Recommended one page answer for this section.***

2. **Project Process:** Please describe the steps you will take to finish your project in areas bulleted below. ***Strong answers will correspond to the team's timeline in Part II of this application. Recommended one- two page answer for this section.***

- ☆ **Project Design & Development:** What will you build or produce that will demonstrate your project's purpose? What steps/tasks need to be accomplished? Who or what resources will you use to ensure your project is safe, accurate, and green/renewable/sustainable?  
(**Note:** include how your team will work with industry mentors and other experts, research, products)
  
- ☆ **Project Documentation:** How will you record/document your work through the phases of design and development? How often will you document your progress?  
(**Note:** Student teams can document each step of their project using a blog; a Facebook, MySpace, or Skills Center, School District, or High School web page; a video that can be posted online, such as YouTube; the school district's Student Portfolio format; journals or reports)
  
- ☆ **Project Demonstration:** ***Presentations at the Spring 2014 showcase will be 30 minutes in duration and may repeat during the day.*** What materials, documentation, lessons, or hands-on activities will be part of your presentation to an audience? Will you build or assemble something? Will you use multi-media? Explain.
  
- ☆ **Project Lesson:** What will someone attending your demonstration learn from you? How could that person apply what they learn in their own lives or work?

3. **Team Roles:** Please explain how your team will share responsibilities. Assign project roles such as managers, designers, documenters, or accountants, and identify the tasks you think that person will be expected to fulfill to keep your project on time, on budget, safe and creative. ***Strong answers will show how the team has fairly divided work and that they have a clear understanding of the project expectations. Recommended ½ page answer.***

## Part II: Signatures

By signing this proposal, team members agree to adhere to the project guidelines, including the timeline, budget, and noted rules, and to attend and present our demonstration project at the Spring 2014 Apprenticeship Conference.

---

Student Team Member	Date
---------------------	------

---

Student Team Member	Date
---------------------	------

---

Student Team Member	Date
---------------------	------

---

Student Team Member	Date
---------------------	------

---

Student Team Member	Date
---------------------	------

---

Skills Center or CTE Program Instructor	Date
---	------

---

Skills Center Program Director or High School Principal	Date
---	------

---

Industry Mentor (Required)	Date
----------------------------	------

---

Industry Mentor (Optional)	Date
----------------------------	------

---

Industry Mentor (Optional)	Date
----------------------------	------



# REVIEWER'S RATING SCALE

**Teams:** Reviewers will determine the winning **STEM Skills Innovation Competition and Showcase** proposals using this scale. Before you submit your application, use this tool to strengthen your proposal.

**Reviewer Instructions:** Please review Parts I & II of this proposal. Each section has a maximum point value totaling 100 points. Please award points not exceeding maximum and provide comments

Proposal Section	Max Point Value	Score	Comments
<b>Part I: Project Elements</b> Project idea is creative and focuses on one of the four stated industries. Project idea relates to a green, renewable or sustainable technology, and its importance is clearly stated. Project process steps are clear, thoughtful, and manageable within the scope of time and budget. Project roles are equitable and well planned.  <i>Maximum points can be awarded only if team cites research showing importance of project idea to industry and community; if team is comprised of non-traditional members or has a non-traditional focus; if the narrative is written using proper grammar and clear language, and does not exceed 4 pages.</i>	75		
<b>Part II: Signatures</b>  All signatures of identified team members, instructor, director and industry mentor must be obtained in order to receive any points in this section. There must be at least one industry mentor.	25		