

## **Aerospace Manufacturing and Engineering**

8/29/24

### **Course Description:**

Core Plus program is training specific to manufacturing aircraft and was developed by the aerospace industry and supported by industry leaders like Boeing.

The aerospace manufacturing and engineering industries need you in their workforce. Companies are now hiring qualified high school interns and skills center graduates directly from our campus. Opportunities for amazing careers in industry, and many companies will provide subsidies to continue your education after employment.

At PSSC, you will learn in a fully equipped laboratory/classroom, using technology that reflects what you will find in manufacturing and engineering businesses nationwide. You will learn to meet industry standards and timelines that will best prepare you for your future career.

### **Course Overview:**

This class will cover aerospace, manufacturing, & engineering concepts including:

- Manufacturing, designing, prototyping, producing, inspecting, and testing to complete a final product.
- Engineering and reverse engineering products and processes as well as problem solving.
- 3-D CAD/CAM design, prototyping, 3-D printing, and 2-D laser cutting
- Hands-on lab, project building, electronics and redesigning using hand-tools, and machining equipment.
- Designing and building robotics

Additionally, the training is designed to provide students with fundamental basic skills needed in aerospace and manufacturing industries to help the student earn very important lifelong trade skills to meet the current industry's needs:

- Mechanics
- Electronics
- Robotics
- Blueprint reading
- Measurement
- Mathematics
- LEAN Manufacturing (5-S)
- CPR Certification
- OSHA 10 Certification
- Hazardous Communications

- Critical thinking and problem solving
- Riveting
- Building a portfolio for future employment and/or continuing education
  - Resume
  - Cover Letter
  - Thank You Letter and Email
  - Job Reference List
  - Letter of Recommendation
  - Essay of Introduction
  - High School and Beyond Essay
- Team concepts, team development
- Product design
- Project projected cost and budgeting
- Autodesk Inventor (CAD/CAM Software)
- 3-D Printing
- Laser Cutting

**Culture of Learning:**

This class re-enforces PSSC’s school wide agreements: Be Present, Be Respectful, Be Engaged and Be Professional. These agreements will be upheld through a positive, progressive support system including individual check-ins with students, positive reinforcement strategies, contact with families, interventions from Dean/Counselor, etc.

Uphold the highest standard of academic honesty and integrity.

Respect the rights of others in the classroom, online and in all other school activities.

Attend class regularly, complete assignments on time and effectively participate in classroom and online discussions, group work and other class-related projects and activities.

Abide by appropriate safety rules in laboratories, shops, and classrooms.

The following items are components of a professional working environment and show respect for all.

**Body Odor:**

Personal grooming and daily cleanliness is required. Maintain good personal hygiene daily.

**Hair:**

Hair should be neat and orderly to not interfere with work safety in the shop environment. Hair longer than shoulder needs to be confined by a clasp, or band, and ponytails tucked under shirt or put in a bun when required to ensure safety to be able to work effectively/efficiently. Appropriate hair confinement must be practiced in industrial shop areas as required by law.

**Listening Devices:**

(Including earbuds) are not acceptable in an industrial work environment or classroom settings.

### **Student Learning Outcomes:**

- Develop ideas, engineer, design and build projects
- Demonstrate troubleshooting skills
- Learn and adapt new technologies
- Provide support and guidance to peers
- Develop programs using programming code
- Demonstrate circuit and programming analyst skills
- Demonstrate problem solving skills for hands-on in-class projects

### **Instructor Contact Information:**

Name:	<b>Steve Buck (Mr. Buck)</b>
Phone and Text:	206 965-9801 (Preferred contact method)
Classroom Phone (no text):	206 631-7313
Email:	<a href="mailto:steve.buck@g.highlineschools.org">steve.buck@g.highlineschools.org</a>
Office hours:	<b>Monday – Friday</b> <b>7:30 AM - 2:30 PM</b>

### **Credits Offered:**

#### **Credits per Semester:**

- 1.5 CTE Credits per semester
- Total of 3 Credits per year

### **Equivalency Credits available:**

(Check with your home school counselor to see what is needed for your pacific pathway)

- 1.0 English
- 0.5 English Portfolio completion
- 1.0 Geometry
- 1.0 3rd Year Math
- 1.0 Science
- 0.5 Fine Arts

- 1.0 Fine Arts

### **College Credits:**

27 Credits (Renton Technical College)

### **Industry-Recognized Certifications:**

#### **Certifications Available:**

- CPR/First Aid/AED
- OSHA 10

### **Grading Policies:**

We use Standards-Based Grading to assess student learning as per Highline Public Schools.

#### **The grade scale is as follows:**

4 (A; 3.2 - 4.0): EXCEEDING standard

3 (B; 2.4 - 3.19): MEETING standard

2 (C; 1.6 - 2.39): APPROACHING standard

1 (D; 1.2 - 1.59): BEGINNING standard

NC (NC; 0 - 1.19): NO EVIDENCE. The NC does not earn credit for a course.

### **Reassessment Opportunities:**

Reassessments opportunities will be clearly published and determined by the instructor. Not all assignments and assessments are eligible for reassessment. Communication with your instructor is critical if you are missing days of instruction. Written assessments and Online Canvas Classroom work may be made up and/or reassessed up to two weeks before the end of any semester. Please let your instructor know with an email when you complete late work. Every effort will be made to provide that opportunity to complete Hands-on daily labs. However, we are not able to recreate every hands-on lab skill as you learn. If you do not complete a lab or an assessment you will not earn credit for that prospective assignment or lab.

### **Required Materials:**

- School provided uniform
- Engineering notebook provided by the school
- Personal Protective Equipment (PPE) safe clothing for shop environment.
  - No exposed skin on legs and stomach
  - Full length pants
  - Shirt covering Torso
  - Closed toe shoes

### **Program Costs:**

There will no longer be any classroom fees and uniforms will be provided. If you want your uniform customized then students may need to pay.

**Professional Attire & Uniform Requirements:**

Students must wear a lanyard with their student ID and PSSC provided attire and/or program-specific uniform as required by the instructor and listed above.

**Course Technology:**

This course utilizes Google Classroom, with some links to external tools like Canvas.

**Work-Based Learning (WBL):**

WBL is an instructional strategy that provides students with career exploration opportunities and hands-on learning where knowledge gained in CTE courses can be applied to real-life work experiences. The goal of every work-based learning program is to prepare students for the next generation of the workforce. PSSC students will participate in Work Based Learning through their CTE program and may earn elective credits.

**Common WBL opportunities**

- Job placement in career pathway
- Internships
- Clinicals
- Externships

All PSSC students will participate in Work Based Learning.

**Leadership:**

Leadership is a key component of Aerospace Manufacturing Engineering, where your student can be a member of SkillsUSA. The purpose of SkillsUSA is to encourage the development of vocational understanding, leadership qualities, social awareness, and a sense of responsibility to school and community. It is each student's choice as to how active they will become in SkillsUSA.

List of opportunities:

- SkillsUSA conferences, competitions
- Community Service
- PSSC Program Leader
- Serve as an ASB officer

**Cell Phone Policy:**

Cell phones should be used for educational purposes only as directed by the instructor.

**Your cell phone may not be used:**

- During Lecture
- During lab demonstrations
- Texting with friends in class
- Gaming in class

- Social media in class

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**Your cell phone may be used:**

- Medical emergency
- Looking up instructional videos
- Looking up assembly instructions
- Repair and troubleshooting

Your instructor will let students know when cell phone usage is acceptable.

**Attendance Policy:**

The seat time mandate for CTE courses in Washington ensures students receive sufficient instructional hours and hands-on training time to master necessary technical skills. Prescribed minimum seat time safeguards the quality of CTE programs by allowing for in-depth classroom learning, adequate lab practice on equipment, and fulfillment of certification requirements. Upholding seat time standards is crucial for preparing a workforce with job-ready expertise meeting industry needs.

Therefore, it is critical that students are present. Whether excused or unexcused, missed time is missed time.

1. If a student is tardy, they must complete the QR code in their classroom. It is their responsibility as a student to complete the QR code so their absence can be corrected to a tardy. If they do not complete the QR code, the student will be marked absent.
2. As a professional courtesy, please contact the course instructor via email, Google voice text or phone call.
3. Absences may be excused by any of the following methods within 48 hours of the absence:
  - a. Phone call to PSSC Attendance Specialist, Kelsey Gomez (206-631-7353)
  - b. Email to PSSC Attendance Specialist, Kelsey Gomez (kelsey.gomez@highlineschools.org)
  - c. Hand-written note turned into PSSC Attendance Specialist Kelsey Gomez
4. Please include the following information in the note, call or email:
  - a. Student Name
  - b. Parent Name
  - c. Date of the absence
  - d. Reason for the absence
5. Prearranged absence forms are in the office. The form must be completed with all required signatures before departure date. This form will be shared with your home school as well.
6. Reassessments opportunities will be clearly published and determined by the instructor. Not all assignments and assessments are eligible for reassessment.

**Student Handbook:** [CLICK HERE TO VIEW](#)

**Year 2 Eligibility:**

All Year 1 PSSC students will have quarterly check-ins with their PSSC teachers, student success dean, counselor, and families to assess performance in their program, needed supports, and progress towards mastery of content and skills necessary for Year 2 programming. All information will be shared with the home school support staff.