

WASHINGTON AEROSPACE & ADVANCED MATERIALS MANUFACTURING PIPELINE ADVISORY COMMITTEE

State Board for Community and Technical Colleges Online Meeting

Advisory Committee Meeting: Wednesday, June 7, 2023; 1:00-3:00pm

Statutory Authority Laws of 2012, Chapter 28B.50.903 Revised Code of Washington

Zoom Meeting Link: <https://us02web.zoom.us/j/83847496468>

June 7	Advisory Committee Meeting Agenda	
Time	Item	
1:00 p.m.	Call to Order, Welcome and Introductions <i>Ben Hempstead, Chair</i> Adopt Minutes, March 1, 2023 minutes <ul style="list-style-type: none"> ● <i>Call for correspondence to be entered into the record</i> ● <i>Are there members of the public wishing to make public comments? (If so, the public comment period will be at 2:55 p.m.)</i> 	<i>(action)</i>
1:15 p.m.	<ul style="list-style-type: none"> ● Aerospace 1000 Data Snapshot <ul style="list-style-type: none"> ○ Historical and current work 	<i>Karin</i>
1:25 p.m.	Aerospace 1000 FTE Upcoming funding opportunities <ul style="list-style-type: none"> ● Redistribution Policy and impacts ● Are there additions to the Eligible Programs list? 	<i>Genevieve</i>
1:45 p.m.	Director's Report <i>Paul Francis, Executive Director</i>	
2:00 p.m.	Industry Roundtable – Please come prepared to discuss the following. <ol style="list-style-type: none"> 1. What other industry skills are transferable to viable workforce programs? 2. Are you aware of industry recognized credentials that are in demand from employers? 3. How is the demand for supply chain expertise being met by our programs (specifically Aerospace supply chain)? 4. What is the current demand for composites (hand layup work, quality differences vs Marine, and needs for repair. Are there recognized credentials our programs should offer)? 	<i>(discussion)</i>

2:50 p.m.	<p>2023-2024 Meetings</p> <ol style="list-style-type: none"> 1. Fall 2023 - November 1, 2023 <ol style="list-style-type: none"> a. Time: 1:00 – 3:00 pm b. Mode: In-Person c. Location: Bates Technical College – South Campus, 2201 S. 78th, Tacoma WA 98409 2. Winter 2024 - February 28, 2024 <ol style="list-style-type: none"> a. Time: 1:00 – 3:00 pm b. Location: Zoom (https://us02web.zoom.us/j/84510274845) 3. Spring 2024 - May 15, 2024 <ol style="list-style-type: none"> a. Time: 1:00 – 3:00 pm b. Mode: In-Person c. Location: To Be Determined 	
<i>Public comment period, if any – 2:55 p.m.</i>		
3:00 p.m.	Adjourn	Chair

WASHINGTON AEROSPACE & ADVANCED MATERIALS MANUFACTURING PIPELINE ADVISORY COMMITTEE

State Board for Community and Technical Colleges Online Meeting

Minutes of the Advisory Committee Meeting held Wednesday, March 1, 2023; 1:00-3:00pm

Statutory Authority Laws of 2012, Chapter 28B.50.903 Revised Code of Washington

Attendees: Genevieve Howard; Kimberly Wheeler; Marie Bruin; Jackie Davis; Lin Zhou; Karin Gitchel; Rosemary Brester; Larry Cluphf; Ben Hempstead; Carli Schiffner; Travis Dulany; Lynn Strickland; Suzanne Johnson; Dave Wallace; Justin McCaffree; Kristina Young; Adam Grim; Carey Schroyer; Robin Toth; Hilevy Koger

March 1	Advisory Committee Meeting Minutes
Time	Item
1:00 p.m.	<p>Call to Order (1:01pm) <i>Ben Hempstead, Chair</i> Adopt Minutes, October 5, 2022, minutes.</p> <ul style="list-style-type: none"> • <i>Motion to approve minutes: Lin Zhou</i> • <i>Seconded motion: Jackie</i> • <i>Minutes adopted with no changes.</i>
1:15 p.m.	<p>Aerospace FTEs Update – Edmonds College, Engineering Technology Program - Dean Carey Schroyer</p> <ul style="list-style-type: none"> ○ Phase 1 – What was done: <ul style="list-style-type: none"> ○ There was an extensive revision to the ETEC and Mechatronics programs. They have worked to embed industry safety certificates into the programs and do a broad-based curriculum that is applicable to multiple industry sectors. ○ Some of the changes were taking the students to the field to see what they are learning into practical practice and to bring industry speakers into the classrooms. ○ The outreach was extensive, it identified those students early on to introduce them to the program and talk about what the student needed and where they could go for those needs and who to contact for more information on the program. ○ Was found that 25-45% were not being coded in the system properly to count towards the end goal numbers and that was corrected. ○ They targeted students that indicated that they wanted to be engineers through an online survey. They also focused on the tech forces that were already at the school. Really try to promote and support the students that were already in the programs and assist them if they ran into any troubles. ○ STEM and MESA programs were big contributors; they were helpful for student who might not have known what the electronic programs they are taking can progress to, or for student who are on the what’s next path in the STEM pathways.

	<ul style="list-style-type: none"> ○ However, the high school outreach was not as successful due to how it was broadcast to them, and it did not seem to resonate with the high school students. That is a path they are still working on improving for the future. ○ Phase 2 – What is being done: <ul style="list-style-type: none"> ○ There are currently 12 students enrolled in the new pathways program with a capacity for 24 students to fill those slots – was meant to be launched earlier than Fall 2022 but COVID took a toll on the launch date of the new programs. ○ The new pathways that the students are in are building upon the existing AAS-T (Material Science) degree and focuses on industry skills needed to be successful. ○ There is an emphasis on hands-on learning, with classes taught by experienced industry workers, this allows the graduates from these programs to be competitive at entry level positions. ○ Phase 3 – Looking forward: <ul style="list-style-type: none"> ○ In Fall 2024, they are projecting a launch of a robotics program, focusing on AI. ○ Continue to build on the AAS-T; Robotics and Automation Technology, that is currently under development. ○ Focus on industrial automation that is currently out in the fields today and bring that knowledge back into the classrooms. ○ Some challenges that Edmonds has faced while implementing this 3-phase program: <ul style="list-style-type: none"> ▪ COVID continues to bring new challenges to the table, while working through the original barriers that COVID brought on. ▪ Supply chain issues ▪ Industry partnerships ▪ Internships/apprenticeships ▪ Recruitment of qualified staff and faculty that will accept the college wages; messaging on getting those positions filled.
1:35 p.m.	<p>Aerospace 1000 FTE Mid-Year report</p> <ul style="list-style-type: none"> ○ Redistribution Policy and impacts <ul style="list-style-type: none"> ○ The redistribution policy will be re-instated in FY23. ○ There are 16 programs across 11 colleges and 407 Aerospace FTEs; the programs range from welding, mechanical engineering technology, precision machining, aircraft mechanic and avionics technician, and electronics. ○ There are about 407 probationary aerospace FTEs at this time and are being actively monitored. We are looking at them quarterly and measuring their annual FTE generation. ○ Goals moving forward: <ul style="list-style-type: none"> ○ FY23 75% of target enrollments (121 FTEs will be redistributed out to the system in FY24) ○ FY24 90% of target enrollments ○ FY25 100% of target enrollments ○ We are currently in the process of looking at past reports to better track where we are now and where we are going when it comes to FTE status, redistribution, and what programs are currently funded (permanent FTEs and ones we are still watching to see if they can make the move to permanent)
1:50 p.m.	<p>Director’s Report – <i>Carli Schiffner, Deputy Executive Director of Education</i></p> <p>We are halfway through this 2023 legislative session, just past the first policy and fiscal cutoff deadlines and the key theme for this session is Workforce Development.</p> <ul style="list-style-type: none"> ○ One of the decision packages that we requested as a system was focused predominantly on Workforce. <ul style="list-style-type: none"> • The request submitted is for \$77 million dollars to stabilize our high-cost Workforce programs across the system and to think about growth and capacity building for the future.

	<ul style="list-style-type: none"> • Our request has gained a great deal of bipartisan support in both chambers and the Governor has included \$60 million towards this request in the biennial budget proposal. ○ The Governor’s proposal in his budget funds us only at 83% with the rest of the declining tuition revenue, and that is a concern that we may not be able to close that gap or fully fund the composition request, that’s 17% that the colleges must make up and would result in colleges having layoffs of staff and/or faculty. <ul style="list-style-type: none"> • We are also advocating for our capital construction needs and advocating a few bills regarding Dual Credit, basic needs, and student financial aid. ○ This current legislative session is due to adjourn on April 20, 2023.
2:05 p.m.	<p>Industry Roundtable – Please be prepared to discuss the following.</p> <ol style="list-style-type: none"> 1. What are the top 3 hardest positions to fill at your company? <ol style="list-style-type: none"> a. Creative Directors: companies are looking for technical talent that can do the work, but also bring in some creativity and vision, and look for opportunities to change the industry. b. Entry level packers/entry level inspectors, manual machine workers; saw operators; machine operators for the machine shop. c. There is competition with larger corporations such as Amazon for the entry level positions. They provide competitive wages and benefits. d. Remote hire – sales, contracts, quality teams, compliance administrator; training and hiring those positions remotely have proven to have their own set of challenges. e. Qualified facilitators for training in the education division. Finding people to teach a skill that they are passionate about and will work on a college salary is a challenge. f. Equipment service type roles – mechatronics, maintenance technician roles, entry-level mechatronics role to grade-6 positions g. Non-destructive inspectors/test h. Composite repairmen 2. What skills are missing from new hires? <ol style="list-style-type: none"> a. Soft skills, such as interview skills, people interactions, customer interactions b. Timeliness is an issue, showing up to work on time is an ongoing issue. c. Problem solving and critical thinking – how do you engage people to look at more problem solving, and how can they see the issue coming from a different perspective? d. CMC requirements and knowledge is lacking in new hires. e. Supply chain experience and knowledge – government contracting knowledge. f. Equipment services and mechatronics roles knowledge beyond the basics learned in a college course. g. Cyber security h. Mastercam – one of the systems that are used for CC machining. 3. What schools/programs do you hire from the most? <ol style="list-style-type: none"> a. Advertisements get good responses for the technical positions in a shop. b. Teague hires mostly from Western Washington University and University of Cincinnati and are mostly industrial designers and mechanical engineers. c. Family/friend connections – they know someone who needs work, and the position is advertised via word of mouth from current employees. d. Local high schools and colleges – career days and career fairs for the smaller companies recruiting. e. Straight out of the military for technician roles 4. Some things we see are challenges or opportunities:

	<ul style="list-style-type: none"> a. Workplace environment conditions – larger companies look shinier and newer than the smaller companies in the industry. b. Wages that the public sector cannot compete with private sector or even some out of state vendors are willing to pay more for a similar job done. c. It is not a demand issue we are facing currently; it is a supply issue. Experienced workers are the supplies that we are lacking, the demand is there, but it is the supply to that demand that is lacking. d. Investing in continued education to allow individual to promote within the company, but retaining the personnel who are willing to go to school and come back to the company to promote within. e. Apprenticeships within the industry to retain individuals with hands-on experience. (Including youth apprenticeships and pre-apprenticeship programs)
2:40 p.m.	Adjourn

Aerospace 1000 Data Snapshot – FY15 Grant Opening

First Cycle: Application and Allocation

- Spring 2014: Aerospace High Demand 1000 FTES Open for Application
 - The funding appropriated through EHB 2088 was provided solely for increasing high demand aerospace enrollments by an additional one thousand full-time equivalent students.
 - The eligible programs include aerospace related professional-technical training programs. Programs were to demonstrate industry relationships, a strong return on investment, new capacity building, innovation, instructional quality, collaboration, and sustainability.
 - Selection Committee was made up of representatives from the Aerospace and Advanced Materials Manufacturing Pipeline Advisory Committee (Aerospace Pipeline Committee), Employment Security Department, the Workforce Training and Education Coordinating Board and Department of Commerce.
 - Eligible Programs 2014:
 - Aircraft Mechanics
 - Machining
 - Design
 - Electronics/Automation
 - Manufacturing Engineering and Planning
 - Maintenance Mechanic/Industrial Tech
 - Plastics/Composites
 - Sheet Metal/Welding
 - Quality Assurance
 - Tooling
 - Emerging Technologies
 - Grant Applications
 - 41 applications received; 35 applications approved.
 - 1000 FTES funding allocation went out successfully for FY15
 - FY15 Funded Grants
 - See Graph A

Graph A: FY15 - Aerospace High Demand 1000 FTES Active Grants

College	Program Name	FTES	College	Program Name	FTES
Bates	Welding	30	Lake Washington	Welding	20
Bates	Machining Expansion	32	Lake Washington	Machine Technology (CNC)	25
Bellingham Tech	Precision Machining	27	North Seattle	CATIA and CAAD	15
Bellingham Tech	Aero. Engineering	50	North Seattle	Avionics/Electronics	40
Big Bend	Composites Certificate	12	Olympic	Electronics	16
Big Bend	AMT Program	30	Olympic	Engineering Technology	45
Clark	Machine Technology	20	Peninsula	CNC Machining	10
Clark	CAD Drafting Tech	20	Peninsula	Composites Technology	28
Clover Park	Mechatronics Technician	24	Renton Tech	Precision Machining	39
Clover Park	Material Science	53	Shoreline	Aero. Machining	20
Edmonds	Engineering Technology	30	Skagit	Composites	10
Edmonds	Engineering Transfer	35	Skagit	Manufacturing Technology	17
Everett	Engineering	35	South Puget Sound	Computerized Manufacturing	15
Everett	Machine Tool Tech.	108	South Seattle	Composites	43
Green River	Aero. Engineering	18	South Seattle	AMT Program	76
Green River	Aero. Machining	21	Spokane	AMT and CNC	40
Highline	Engineering	20	Tacoma	Engineering	25
			Wenatchee Valley	Machining	20

Aerospace 1000 Data Snapshot – FY18 through FY23

Second Cycle: Redistribution and Application

- Winter 2018 - Redistribution Grant Open for Application
 - Based on FY18 data, 347 FTES were returned for redistribution.
 - Grant Applications were submitted January 2018
 - Eligible Programs 2018:
 - Per the recommendations from the Aerospace Pipeline Committee the programs to be considered for proposal must fall within the following categories and relate to aerospace and aerospace related needs in Washington State. Please note that the eligible programs listed below are in order of industry priority.
 - Machining
 - Electronics/Automation
 - Robotics/Pneumatics
 - Manufacturing Engineering and Planning
 - Maintenance Mechanic/Industrial Technicians
 - Sheet Metal/Welding
 - Tooling
 - Mechatronics
 - Avionics
 - Unmanned Aerial Systems
 - Pilot training
 - Note: *The program for which funding was requested must have had: 1.) Existing program approval; 2.) An endorsed Notice of Intent (NOI); and 3.) Be registered with the State Board office (only applies for program of less than 20 credits)*
- FY18 Data Snapshot
 - 18 Programs had FTE (347 FTES) removed or dropped out of grant program. (Graph B)
 - 12 Programs dropped out.
 - 12 New Programs were added.
 - 15 Programs were made permanent. (Graph C)
- FY22 Data Snapshot
 - 4 additional programs become permanent. (Graph C)
 - Note: Base allocations were rebalanced to get close to \$8K per FTE
- FY23
 - 35 Active Aerospace High Demand 1000 FTES Grants. (Graph D)
 - 585 FTES are permanent as of May 2023 - 19 Permanent Programs
 - 415 FTES are probationary as of May 2023
 - Total FTE for all grants 1000

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Graph B: Take Back FTE - Aerospace HD 1000 FY18

College	Program Name	FTEs	College	Program Name	FTEs
Bates	Machining Expansion	-32	Lake Washington	Welding	-8
Bates	Welding	-19	Lake Washington	Machine Technology (CNC)	-25
Big Bend	AMT Program	-28	North Seattle	CATIA and CAAD	-15
Big Bend	Composites Certificate.	-12	Olympic	Electronics	-16
Clark	Machine Technology	-3	Peninsula	CNC Machining	-10
Clark	CAD Drafting Tech	-20	Peninsula	Composites Technology	-23
Green River Aero.	Engineering	-14	South Seattle	AMT Program	-34
Green River Aero.	Machining	-21	South Seattle	Composites	-43
Highline	Engineering	-20	Tacoma	Engineering	-4

Graph C: Permanent Programs - Aerospace HD 1000

College	Program Name	FTES - FY18	FTES - FY22
Bellingham Tech	Aero. Engineering	50	
Bellingham Tech	Precision Machining	27	
Bellingham Tech	Welding		24
Clover Park	Avionics		20
Clover Park	Material Science	53	
Clover Park	Mechatronics Technician	24	
Edmonds	Engineering Technology	30	
Edmonds	Engineering Transfer	35	
Everett	Machine Tool Tech.	108	
Everett	Engineering	35	
Green River	Mechatronics		10
Renton Tech	Mechatronics		8
Renton Tech	Precision Machining	39	
Shoreline	Aero. Machining	20	
Skagit	Composites	10	
Skagit	Manufacturing Technology stackable	17	
South Puget Sound	Computerized Manufacturing	15	
Spokane	AMT and CNC	40	
Wenatchee Valley.	Machining	20	

Graph D: FY23 - Aerospace High Demand 1000 FTES

College	Program Name	FTES	College	Program Name	FTES
Bates	Mechanical Engineering Technology	4	Green River	Aero. Engineering	4
Bates	Welding	11	Green River	Mechatronics	17
Bellingham Tech	Aero. Engineering	50	Lake Washington	Engineering Transfer	63
Bellingham Tech	Precision Machining	27	Lake Washington	Welding	12
Bellingham Tech	Welding	24	North Seattle	Avionics/Electronics	40
Bellingham Tech	Machining Program Expansion	6	North Seattle	Electronics	20
Bellingham Tech	Mechatronics	24	Olympic	Engineering Technology	45
Big Bend	AMT Program	2	Renton Tech	Mechatronics	9
Clover Park	Avionics	20	Renton Tech	Precision Machining	39
Clover Park	Material Science	53	Shoreline	Aero. Machining	20
Clover Park	Mechatronics Technician	24	Skagit	Composites	10
Edmonds	Engineering Technology	30	Skagit	Manufacturing Technology	17
Edmonds	Engineering Transfer	35	South Puget Sound	Computerized Manufacturing	15
Everett	Machine Tool Tech.	108	South Seattle	AMT Program	42
Everett	Engineering	35	Spokane	AMT and CNC	40
Everett	Pre-Engineering Capacity	4	Tacoma	Engineering	21
Everett	Aircraft Mechanic	55	Wenatchee Valley	Machining	20
			Whatcom	Engineering Transfer	54

KEY: Bold = Permanent Funded.

1000 Aerospace Enrollments

Allocation Monitoring Report For Academic Year 2022-23

District	2022-23 Alloc #10	Base Allocation*	Monitored Allocation*	Baseline	2022-23 Target**	Summer 22 Actual	Fall 22 Actual	Winter 23 Actual	Spring 23 Actual	2022-23 Annual	2022-23 Earmark***	% of Target Attained
Bates	15	-	15	93	108	44	66	61	-	57	-	53%
Bellevue			-		-	-	-	-	-	-	-	-
Bellingham	131	77	54	109	163	21	135	125	-	94	77	57%
Big Bend	2	-	2	38	40	10	56	36	-	34	-	85%
Cascadia			-		-	-	-	-	-	-	-	-
Centralia			-		-	-	-	-	-	-	-	-
Clark		-	-	45	-	-	-	-	-	-	-	-
Clover Park	97	77	20	-	20	-	-	-	-	-	77	0%
Columbia Basin			-		-	-	-	-	-	-	-	-
Edmonds	65	65	-	-	-	-	-	-	-	-	65	-
Everett	202	143	59	477	536	169	332	302	-	268	143	50%
Grays Harbor			-		-	-	-	-	-	-	-	-
Green River	21	-	21	99	120	24	69	67	-	54	-	45%
Highline			-		-	-	-	-	-	-	-	-
Lake Washington	75	-	75	122	197	57	98	90	-	82	-	41%
Lower Columbia			-		-	-	-	-	-	-	-	-
Olympic Peninsula	45	-	45	20	65	9	19	20	-	16	-	24%
Pierce			-		-	-	-	-	-	-	-	-
Renton	48	39	9	15	24	-	-	-	-	-	39	0%
Seattle	102	-	102	215	317	129	199	164	-	164	-	52%
Shoreline	20	20	-	-	-	-	-	-	-	-	20	-
Skagit Valley	27	27	-	-	-	-	-	-	-	-	27	-
South Puget Sound	15	15	-	-	-	-	-	-	-	-	15	-
Spokane	40	40	-	-	-	-	-	-	-	-	40	-
Tacoma	21	-	21	264	285	58	169	155	-	127	-	45%
Walla Walla			-		-	-	-	-	-	-	-	-
Wenatchee Valley	20	20	-	-	-	-	-	-	-	-	20	-
Whatcom	54	-	54	70	124	17	73	78	-	56	-	45%
Yakima Valley			-		-	-	-	-	-	-	-	-
System Total	1,000	523	477	1,567	1,999	538	1,216	1,100	-	951	523	48%

Source: SBCTC Data Warehouse

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*The total 1000 aerospace allocations include base allocations for enrollment growth already demonstrated, and monitored allocations for those programs that are being monitored for new or ac 5/10/2023

**The target includes the baseline annualized FTE for the monitored programs plus the monitored allocation. The base allocation is not included in the target.

***Earmark FTE is subtracted from total State FTE when calculating District Enrollment Allocation Base (DEAB). Earmark FTE includes the base allocation number plus the number of monitored program enrollments above the baseline, up to the monitored allocation number.

FTE Criteria: all state-funded FTES for students with "F" or "B" INTENT and one of the approved program codes for the participating college (see list of program codes below).

**1000 Aerospace Enrollments
By College Within Multi-Campus Districts**

College	Base Allocation*	Monitored Allocation*	Baseline	2022-23 Target**	Summer 22 Actual	Fall 22 Actual	Winter 23 Actual	Spring 23 Actual	2022-23 Annual	2022-23 earmark***
Pierce Fort Steilacoom					-	-	-	-	-	-
Pierce Puyallup					-	-	-	-	-	-
Pierce District Total					-	-	-	-	-	-
Seattle Central					-	-	-	-	-	-
Seattle North	-	60	42	102	12	51	48	-	37	-
Seattle South	-	42	173	215	118	148	116	-	127	-
Seattle Vocational Institute					-	-	-	-	-	-
Seattle District Total					129	199	164	-	164	-
Spokane	40	-	-	-	-	-	-	-	-	40
Spokane Falls					-	-	-	-	-	-
Spokane District Total					-	-	-	-	-	-

* Actual earmark values are based on allocations set at the district level. The by-college earmark values are an estimate for reference purposes based on the ratio of total earmark FTE from each colleges within multi-campus districts.

[Click here to for a list of Aero 1000 program codes](#)