

WASHINGTON AEROSPACE & ADVANCED MATERIALS MANUFACTURING PIPELINE ADVISORY COMMITTEE

State Board for Community and Technical Colleges
Online Meeting

Advisory Committee Meeting: Wednesday, May 19, 2021, 2:30-4:00 p.m.

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

Zoom Meeting Link: <https://us02web.zoom.us/j/89813750388>

Meeting ID: 898 1375 0388

Join by Phone: (253) 215-8782

May 19 Advisory Committee Meeting Agenda

Time	Item	
2:30 p.m.	Call to Order, Welcome and Introductions <i>Jackie Davis, Chair</i> Adopt Minutes, February 18, 2021 minutes	(action)
	<ul style="list-style-type: none">• Call for correspondence to be entered into the record• Are there members of the public wishing to make public comments? (If so, the public comment period will be at 3:55 p.m.)	
2:40 p.m.	Director's Report <i>Jan Yoshiwara, Executive Director</i> <ul style="list-style-type: none">• SBCTC and Legislative Updates	
2:50 p.m.	NSF Needed Math Grant Award & Next Steps <i>Dr. Paul Horwitz, Co-Principal Investigator, Senior Scientist, The Concord Consortium, Massachusetts</i>	
3:20 p.m.	Aerospace 1000 FTES – Temporary Suspension of Redistribution Policy <i>Carolyn McKinnon, Policy Associate, SBCTC</i>	(action)

3:35 p.m. Ask a Researcher (discussion)
Get a pulse-read about the labor market and higher education from our researchers and share with them what you most want to know about aerospace & advanced manufacturing workforce topics.
Dave Wallace, Research Director, Workforce Board
Travis Dulany, Policy Research Associate, SBCTC

Public comment period, if any – 3:55 p.m.

4:00 p.m. Adjourn

PLEASE NOTE: Times above are estimates only. The SBCTC reserves the right to alter the order of the agenda. Reasonable accommodations will be made for persons with disabilities if requests are made at least seven days in advance. Efforts will be made to accommodate late requests. Please contact the Workforce Education Office at 360-704-4336.

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WASHINGTON AEROSPACE & ADVANCED MATERIALS MANUFACTURING PIPELINE ADVISORY COMMITTEE

State Board for Community and Technical Colleges Online Meeting

Advisory Committee Meeting: Thursday, February 18, 2021, 10:00 AM – 12:00 PM

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

Advisory Committee Meeting Minutes

Call to Order: 10:02 am

Adopt Minutes, October 26th, 2020 minutes

- Rosemary moved to adopt (with no changes)
- Lin seconded the motion
- Minutes adopted at 10:04 am with no objections

Guest on file:

- William Stuffick, Everett Community College (sitting in for Dr. Willis)
- Brandon Anderson, Legislative Director, SPEEA IFPTE Local 2001

Director's Report -

Jan Yoshiwara, Executive Director, provided updates about the State Board's strategic plan and goals for the college system. She then shared updates from the current legislative session and a look forward to the May 2021 budget and revenue forecast.

Staff Report -

Marie Bruin, Director, Workforce Education Department and Carolyn McKinnon, Policy Associate, provided information about two bills that are of particular interest to the Committee:

- House Bill 1170: Building economic strength through manufacturing
- Senate Bill 5061: Concerning unemployment insurance (signed into law & effective Feb. 8, 2021)
 - Tax rate cut for business unemployment insurance.
 - Benefits for jobless workers during the pandemic.

Industry Updates -

Members shared observations about the state of the aerospace and advanced manufacturing sector, including demand for supplier goods, workforce demand, commercial travel demand, and the outlook for the sector as Washington recovers from both the pandemic and the recession.

Professional/Technical Enrollment Trends during COVID-19

Becky Wood, Program Administrator, provided an overview about recent college enrollment trends and the impacts of the pandemic on enrollment in professional and technical programs.

Aerospace 1000 FTES – Enrollment Updates

Carolyn McKinnon, Policy Associate, provided an update about enrollment in Aero1000 instructional programs, and noted that the impacts of the pandemic are greater on professional/technical programs and working-age adult students, especially those ages 30+.

Aerospace Education & Training Updates

Members from organized labor provided information about new aerospace apprenticeship expansion grants funded by the state legislature through the Department of Labor and Industries. Members from The Boeing Company provided a year-end report about Core Plus-Aerospace.

- Aerospace Apprenticeship Expansion Grants,
 - Shana Peschek, Machinists Institute
 - Brandon Anderson, SPEEA
- Core Plus Year End Report,
 - Justin McCaffree, The Boeing Company

Adjourn: 11:59am

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2021 Needed Math NSF Abstract

Targeted Research to Identify Mathematics Competencies and Align Mathematics Education for Skilled Technicians in Advanced Manufacturing—Award # 2100062

Concerned with the misalignment of the mathematics taught at community colleges for advanced manufacturing technicians and workplace needs, the research team will conduct a three-year full-scale research and development project based upon the findings and recommendations of the Needed Math Conference held in 2018 supported by the National Science Foundation's Advanced Technological Education program.

Through establishment of close professional connections with the American Mathematical Association of Two-Year Colleges and manufacturing educators and industrialists, the project aims to (1) develop and validate a set of scenarios that technicians in several manufacturing sectors would encounter in the workplace; (2) identify the mathematics competencies in those scenarios that the technicians are expected to possess; and (3) develop and test a replicable collaborative mechanism to enhance communication among industrialists and community college technical faculty to identify and align the mathematics needed by skilled technicians in manufacturing.

A series of Collaborative Working Group meetings will be held across the country to establish and sustain changes in the ways mathematics is taught for students pursuing certificates and degrees for careers in advanced manufacturing. Institutions and organizations involved in this project are Hofstra University, City University of New York, Holyoke Community College, Rhodes State College, American Mathematical Association of Two-Year Colleges, Consortium for Mathematics and its Applications, Florida Advanced Technological Education Center, Central Virginia Community College, Support Center for Microsystems Education, Gadsden State College, Ohlone College, Center for Supply Chain Automation.

The research and development project is designed to develop resources that inform the teaching of mathematics, which is coupled with a mixed methods research investigation. Drawing on work by Simon and Goes, a validation panel will review scenarios using the Validation Rubric for Expert Panels. The qualitative (grounded theory) and quantitative (descriptive, linear regression, ANOVA, cluster analysis) research design integrates data collection and analyses that are guided by a set of four research questions that focus on (1) the alignment of mathematics competencies for the technical workplace as defined by industry with the mathematics taught in technical programs; and (2) the effectiveness of collaborative working groups as mechanisms for change in the post-secondary mathematics education of skilled manufacturing technicians.

From: [Michael Hacker](#)
To: [Andrew Robertson](#); [Andy Robertson](#); [Carolyn McKinnon](#); [Gordon Snyder](#); [Jackie Davis](#); [Marcella Gale](#); [Matthias Pleil](#); [Ned Young](#); [Null, Rodney \(Null.R@rhodesstate.edu\)](#); [Rose-Margaret Itua](#); [Valerie Piper](#)
Cc: [Connie Della-Piana \(cdellapi@nsf.gov\)](mailto:cdellapi@nsf.gov)
Subject: Needed Math Advanced Technological Education Project
Date: Wednesday, April 7, 2021 10:47:17 AM
Attachments: [2021 Needed Math NSF Abstract.docx](#)

Dear Friends,

We would like to share the good news that our three-year **Needed Math** research on technician education proposal (Award # 2100062) was just funded by the Advanced Technological Education program at NSF.

Dr. Connie K. Della-Piana is the Cognizant NSF Program Officer.

All of the reviews we received were rated "Excellent." The work that we did collaboratively in preparing the proposal and in conceptualizing the design of the research project was critical to the way the proposal was received by the review panel.

The Project abstract is attached. Should you wish to read the actual reviews, we'll be happy to send them to you.

Our team would once again, like to express our gratitude to you all for the advice you gave us during the past year, for the time you spent with us in discussion, for your willingness to partner with us as coordinators of the Project's *Collaborative Working Groups*, and for your offer to help us develop and refine the surveys we would send to our two target study groups: manufacturing technicians and manufacturing educators.

The Project will officially launch on September 1, 2021, however our management team is meeting on April 23 to begin to plan next steps.

It is likely that our work with you and the Collaborative Working Groups would be in two phases:

1. initially we would ask you to help us construct the math-rich survey items (we're referring to them as workplace **Scenarios**) that we would send to the two survey groups.
2. The second phase would start later and would involve discussions that you'd have with your committees and advisory boards to reflect on Needed Math research findings once survey results are analyzed.

We would be happy to hear from you and get your thoughts about how best to manage our work together during the coming years.

We want to gain the benefit of your experience and expertise without placing unreasonable demands on already very busy schedules.

Our warmest regards and thanks to you all. We will be back to you shortly after our April 23 management team meeting.

END OF MESSAGE



Contact Information:

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NEEDED MATH MANAGEMENT TEAM

Dr. Marilyn Barger, Director, Florida ATE Center, FL
Ms. Rosemary Brester, CEO, Hobart Machined Products, WA
Dr. Solomon Garfunkel, Director, Consortium for Mathematics
and its Applications, MA
Dr. Bernard Gorman, Co-PI, Professor of Psychology, Hofstra University, NY
Dr. Michael Hacker, PI, Co-Director, Center for STEM Research,
Hofstra University, NY
Dr. Deborah Hecht, External Evaluator, City University of New York
Dr. Paul Horwitz, Co-PI, Senior Scientist, The Concord Consortium, MA
Professor (Emeritus) Rodney Null, Co-PI, Department of Mathematics,
Rhodes State College, OH
Dr. Gerhard Salinger, Co-PI, Former Lead Program Officer
and Founder, NSF ATE Program, Retired, NM
Professor Gordon Snyder, Department of Engineering, Holyoke College, MA

Discussion Brief

To: Aerospace and Advanced Materials Manufacturing Workforce Pipeline Advisory Committee
 From: Carolyn McKinnon, Policy Associate, SBCTC
 Date: May 11, 2021
 Re: Temporary Suspension of Aerospace 1000 FTES Take Back Policy

PURPOSE

This is to request the Committee's advice regarding SBCTC's recommendation to temporarily suspend the Aerospace 1000 FTES policy to take back enrollment funding from under-enrolled programs, given the impacts of COVID-19 on enrollments. The current policy is on the last page of this brief.

Moving forward, the State Board will need the Committee's input about how Washington's advanced manufacturing sector is growing and/or changing and what skills will be most important to economic recovery, both by subsector (e.g., aerospace, aviation, etc.) and by region.

ACTION REQUESTED

The section of the policy we're addressing is:

FY22: If targets are not achieved in FY21, and the college is on probation, college targets and funding are adjusted as a result of the take back policy. Take back will be the difference between target and actual FTES, not to exceed the amount provided in initial 1000 FTES funding.

State Board staff recommends pausing this policy for FY22 and requests the Committee's advice on this matter.

CURRENT STATUS

We estimate that around 230 FTES (44% of currently monitored FTES) would be subject to take-back and redistribution in FY22. Three programs have met their enrollment targets, moving 58 FTES (13%) into permanent allocation in FY22.

BACKGROUND

Of the original 1000 FTES:

- 523 are permanently allocated to programs that reached enrollment targets in the past.
- 455 are currently monitored against enrollment targets (FY21 is final year of monitoring).
- 22 are to be reallocated from SBCTC reserves to 3 programs that exceeded enrollment targets.

Over the past year and a half, staff has brought enrollment data and analyses to the Committee to provide a high-level view of enrollment trends in Aero1000 programs. Additionally, excerpts of semi-annual progress reports from programs funded by the Aero1000 FTEs have been presented in Committee packets. Taken in combination, this information has shown both the progress and challenges faced by these instructional programs.

Aerospace 1000 programs had 16% fewer full-time equivalent students (FTES) in Fall quarter 2020 than a year earlier. This is about on par with an overall enrollment decline of 17% across all professional and technical programs.

Fall-to-fall and annual enrollment numbers for monitored programs are attached.

The pandemic has caused significant disruption in people's ability to go to college. Challenges like child care for school aged children, inadequate broadband, and a reluctance to enroll in remote learning courses disproportionately impact "older" prospective students (ages 30+), who are also more likely to enroll in professional and technical training programs like those funded by Aero1000. Fall 2019 to fall 2020 enrollment headcounts fell by 21% for students aged 30-39, and a whopping 40% in the 40+ age group.

Take Back Policy for Aerospace 1000 FTES

Achieving target goals

If a college meets, or exceeds, 100% of their Aerospace 1000 FTES enrollment target in FY20 the funding will move into a permanent allocation for the college. FTES will still be tracked relative to the overall system goal, but the college will no longer be subject to future take back actions based on achieving the goals proposed and funded.

Probation

If a college falls short of 100% of their Aerospace 1000 FTES enrollment in FY20 they will enter probation status. They will be funded at the same amount for FY21. If they subsequently meet 100% of their target in FY21 probation status will be lifted.

Take Back

If a college falls short of 100% of their Aerospace 1000 FTE during the probation year, the college is subject to a reduction in FTES. The reduction will be equal to the difference between the target and actual FTES met during their probation year. If the difference between target and actual FTES is greater than the amount provided by the 1000 FTES the total reduction will not exceed the amount allocated.

Redistribution

Funding and FTES recaptured as a result of the take back policy will be offered to the college system for a new round of competitive proposals.

Annual Allocations

The projected allocation numbers provided for planning purposes do not include enforcement of the take back policy. SBCTC staff will contact districts that may be subject to the take-back policy to discuss potential impacts on allocations. The take back policy is enforced **after** annual enrollments are reported, usually in late-July.

Implementation:

FY19: First year of funding.

FY20: Colleges who received funding in FY19 to receive the same dollar amount in FY20. Workforce staff requested a multi-year budget submittal and brief narrative from colleges regarding long term planning for the programs funded with 1000 FTES.

FY21: If a college meets, or exceeds, their 1000 FTES target in FY20 the funding will move into a permanent allocation. FTES will still be tracked but the college will no longer be eligible for 1000 FTES take back.

If a college missed their 1000 FTES target in FY20 they are in probation for FY21.

FY22: If targets are not achieved in FY21, and the college is on probation, college targets and funding are adjusted as a result of the take back policy. Take back will be the difference between target and actual FTES, not to exceed the amount provided in initial 1000 FTES funding.

Aerospace 1000 FTES - FY20 enrollments were down 14% from FY20 at hit 70% of performance targets.

These are the FTES that are actively being monitored for target attainment. In this table we're looking at year-end enrollments compared to both the previous year and target enrollments.

**Allocation Monitoring Report
For Academic Year 2019-20, which is Fiscal Year 20 (FY20)**

College	Program	Baseline	2019-20	2018-19	2019-20	FY19 to FY20	% of Target
			Target**	Actual	Actual	Difference	Attained
Bates	Mechanical Engineering Technology	37	41	30	20	(10)	49%
Bates	Welding	56	67	66	47	(19)	70%
Bellingham	Machining Expansion	40	46	44	39	(5)	85%
Bellingham	Mechatronics	27	51	6	-	(6)	0%
Bellingham	Welding	42	66	55	51	(5)	77%
Big Bend	AMT Program	38	40	22	39	16	96%
Clark	Machine Technology PROGRAM CLOSED	45	62	47	5	(42)	8%
Clover Park	Avionics	-	20	1	15	13	73%
Everett	Aircraft Mechanic (AMT) & Avionics	131	186	151	180	29	97%
Everett	Engineering	346	350	316	278	(37)	80%
Green River	Aero. Engineering	99	103	74	53	(21)	51%
Green River	Mechatronics	-	10	18	20	1	198%
Lake Washington	Engineering Transfer	22	85	21	35	14	41%
Lake Washington	Welding	100	112	86	62	(24)	56%
Olympic	Engineering Technology	20	65	74	22	(53)	34%
Peninsula	CNC Mach/Composites PROGRAM CLOSED	12	17	13	4	(10)	21%
Renton	Mechatronics	15	23	33	25	(7)	110%
Seattle North	Avionics/Electronics	21	61	64	55	(9)	90%
Seattle North	Electronics	21	41	37	26	(11)	62%
Seattle South	AMT Program	173	215	164	119	(45)	55%
Tacoma	Engineering	264	285	239	220	(18)	77%
Whatcom	Engineering Transfer	70	110	114	131	18	119%
System Total		1,579	2,056	1,675	1,445	(230)	70%

Source: SBCTC Data Warehouse

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

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

Aerospace 1000 FTES Winter-to-Winter Enrollment Trend: An indicator of COVID-19 impacts on enrollment

These are the FTES that are actively being monitored for target attainment. In this table we're looking at over-the-year changes in enrollment as an indicator of performance and to understand how the pandemic has impacted programs.

College	Program	2020-21		Winter 20	Winter 21	Winter-to-Winter	Winter-to-Winter
		Baseline	Target**	Actual	Actual	Difference (FTES)	Percent Change
Bates	Mechanical Engineering Technology	37	41	17	20	3	15%
Bates	Welding	56	67	33	28	(5)	-16%
Bellingham	Machining Expansion	40	46	38	28	(10)	-37%
Bellingham	Mechatronics	27	51	coding issue			
Bellingham	Welding	42	66	61	33	(28)	-84%
Big Bend	AMT Program	38	40	38	-	(38)	100%
Clover Park	Avionics	-	20	4	11	7	66%
Everett	Aircraft Mechanic (AMT) & Avionics	131	186	135	141	6	4%
Everett	Engineering	346	350	243	211	(33)	-15%
Green River	Aero. Engineering	99	103	46	39	(7)	-19%
Green River	Mechatronics	-	10	16	24	7	31%
Lake Washington	Engineering Transfer	22	85	33	36	2	6%
Lake Washington	Welding	100	112	53	47	(6)	-12%
Olympic	Engineering Technology	20	65	42	25	(16)	-65%
Renton	Mechatronics	15	23	17	8	(9)	-118%
Seattle North	Avionics/Electronics	21	61	43	coding issue		
Seattle North	Electronics	21	41	22	coding issue		
Seattle South	AMT Program	173	215	124	94	(29)	-31%
Tacoma	Engineering	264	285	211	153	(58)	-38%
Whatcom	Engineering Transfer	70	110	137	79	(58)	-74%
SBCTC Reserves	(from closed programs)	22	22				
System Total		1,544	1,999	1,314	977	(273)	-35%

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 tl

5/10/2021

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

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).

Due to a coding issue, Seattle South's 718 (updated plan code = AFPATAPT) figures entered manually for summer and fall 2020