



CAREER AND TECHNICAL EDUCATION COURSE STATE EQUIVALENCY FRAMEWORKS PROCESS & FRAMEWORKS

Policy Considerations

The 2019 Legislature required school districts to provide access to a statewide equivalency from a list of approved courses and transcribe those courses as meeting academic credit and fulfilling a graduation requirement. Until September 1, 2021 districts must provide high school students with the opportunity to access at least one career and technical education course that is considered a statewide equivalency course. On or after September 1, 2021, statewide equivalency course offered by the district or assessed at a skill center must be offered for academic credit. A school district with fewer than two thousand students may apply for a waiver to the superintendent of public instruction.

Background

School districts have been able to adopt local Career and Technical Education (CTE) equivalencies in all graduation requirement areas for more than 20 years. The use of CTE equivalencies to achieve required graduation credit supports students' flexibility and choice while they are on their path to obtain a meaningful diploma.

In 2014, the legislature directed OSPI to develop curriculum frameworks of CTE courses that could be offered by high schools or skills centers considered equivalent in science or mathematics courses that meet high school graduation requirements. The first list of courses was developed and approved by the 2015-16 school year.

The 2018 Legislature amended RCW 28A.700.070 to expand the academic content areas eligible for statewide equivalency frameworks beyond science and mathematics to include English language arts, social studies, arts, world language, and health and physical education. OSPI now has the authority to develop state equivalency course frameworks in all academic areas.

OSPI has created an approval and development process for state equivalencies that invites stakeholders to suggest development of additional course frameworks where the state superintendent approves. Currently OSPI offers 41 course state equivalency frameworks as shown in Figure 1.

Figure 1: Current Statewide Equivalency Frameworks

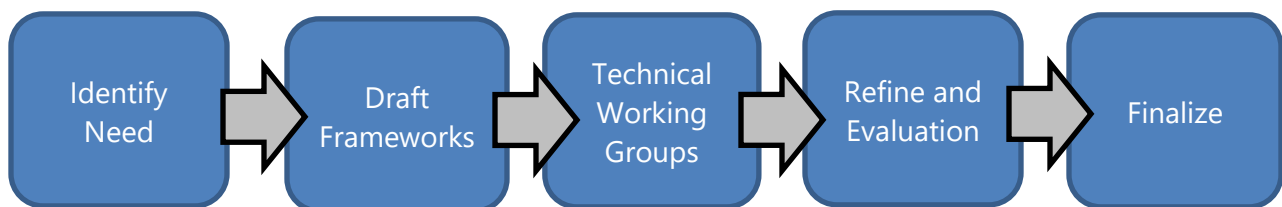
Type of Equivalency Credit	Number of Frameworks
Math Equivalency	11
Science Equivalency	25
English Language Arts	1
Combination (Sci/Math/ELA)	4

Program Area	Number of Frameworks
STEM	4
Agriculture	13
Business & Marketing	4
Family & Consumer Science	4
Health Science	4
Skilled & Technical Science	12

Action

OSPI is developing new statewide framework CTE course equivalencies in all academic areas based on the requests from teachers, districts, educational and industry partners and will give guidance and support in the development of course equivalency frameworks. The development of proposed framework process is shown in Figure 2. RCW 28A.700.070 directs that approval of statewide equivalencies involve review and the opportunity for public comment. Upon initial approval of draft CTE course equivalency frameworks, the frameworks are posted on the OSPI website. The CTE Course Equivalency Program Coordinator solicited review and comments on the frameworks from February 21, 2020 through March 6, 2020.

Figure 2: Development of Proposed Frameworks



Proposed Frameworks and Pathways:

- 460000 - Core Plus Construction (Skilled and Technical Sciences)
- 150406 - Robotics (STEM)
- 512208 - Systems Medicine (Health Sciences)
- 030506 - Forest Management (Agriculture, Food & Natural Resources)

For more information, please contact Lisa Fish, OSPI Course Equivalency Program Coordinator at lisa.fish@k12.wa.us.

460000 Core Plus Construction - 540 hours

Equivalency: 3rd Year Math Credit, Science Credit and English Language Arts Credit.

Course Summary: 89% of General Contractors in Washington State report difficulty filling high wage jobs in the construction industry. Core Plus Construction will provide Washington State high school students with the knowledge, skills, and abilities to pursue construction careers that provide rewarding careers with excellent wages and benefits while receiving credit equivalencies for high school graduation requirements.

Units of Instruction/(Hours)	
Introduction to Construction (15)	Materials Science (140)
Construction Tools (25)	Construction Safety (35)
Construction Measurement (20)	Introduction to Drawings, Print Reading, and Layout (40)
Construction Math (40)	Applied Physics (30)
Construction Rigging (20)	Hydraulics (30)
Fasteners (15)	Electricity in Construction (40)
Company Organization and Operations (5)	Planning and Scheduling (30)
Estimating (40)	Capstone Project (15)

Process Overview:

- Core Plus Construction helps students across Washington learn to prepare high school graduates for an entry level career in Construction and post-secondary education. The framework introduces high school students to the high wage and benefits of available jobs in the construction industry while allowing these students to receive credit equivalencies in Math, Science and English.
- Associated General Contractors Education Foundation (AGC), in conjunction with Associated General Contractors of Washington submitted the original draft framework. Partners in the curriculum and framework development included Construction Center of Excellence, University of Washington College of Built Environment, industry experts and other construction related organizations.
- Draft reviewed and revised with direct input from OSPI academic and industry partners.
- Academic content directors in Math, Science and ELA attended field trips to on-site construction locations arranged by AGC. The on-site observations reinforced the connections between Performance Assessments and Academic Standards for statewide equivalencies.
- AGC Education Foundation managed a pilot launch of the curriculum and framework for the 2019-2020 school year at a sampling of schools throughout the state.
- Instructor vetting of the framework was done with over 30 teachers across the state.
- Industry vetting of the framework was done through work groups in Seattle, Bellingham, Yakima and Fife.
- OSPI final review by Science, Math and English Language Arts Directors from Learning & Teaching and CTE Skilled & Technical Science and Core Plus staff.

For more information, please contact Lisa Fish, OSPI Course Equivalency Program Coordinator at lisa.fish@k12.wa.us.

150406 Robotics - 180 hours

Equivalency: Lab Science Credit

Course Summary: This course will introduce students to engineering concepts and technology design through a robotics system. Students learn and apply principles of Mechanical Engineering, Software Engineering, Electrical Engineering, Computer Science and Systems Design Engineering. Working in engineering teams, students use applied math and science along with their newfound technology and computer science skills to design, build and program a variety of robots to meet challenging specifications. No prior programming experience is required.

After mastering the data logging capabilities of the robot platform, students will also learn to capture and analyze sensor data from a variety of probes/sensors to explore not only physical science, but also environmental science, chemistry, etc. Integrating this capability with their robotics skills, student will design interactive robots capable of autonomously gathering scientific data for subsequent analysis.

Units of Instruction/(Hours)	
Safety, Community Outreach & STEM Career Awareness (10)	Introduction to Robotics (10)
Circuits & Computers: Hardware, Software, Firmware (15)	Get Moving (20)
Precision Movement (20)	See, Touch, Repeat (20)
Decisions, Decisions (20)	Wired for Data (20)
Advanced Sensor Use (45)	

Process Overview:

- Increased demand for creating a framework that applies engineering concepts and technology to receive a science equivalency credit. Washington enrolled 12865 students in 92 school districts in a Robotics Foundation course for the 2019-20 school year.
- Teacher from Olympia School District submitted draft framework that provides students the foundational technical skills of Robotics.
- Draft framework reviewed by technical working group, which includes South Sound STEM Council, *FIRST* Washington and other industry partners.
- Framework was amended by a work group consisting of educational partners from Olympia and Port Townsend School Districts and Robotics Education Competition Foundation who all have a different view of the course with using a variety of robot platforms/components and specifications.
- OSPI final review by Science Director from Learning & Teaching and CTE STEM staff.

For more information, please contact Lisa Fish, OSPI Course Equivalency Program Coordinator at lisa.fish@k12.wa.us.

030506 Forest Management - 180 hours

Equivalency: Lab Science Credit

Course Summary: A program that applies scientific and forestry principles to the management of Washington's forests. Includes instruction in tree and tool identification, timber cruising and valuation, timber stand management and silviculture, diseases, pest and fire ecology, mapping and land measurement, forest practice laws. Students prepare and submit a forest management plan to the landowner. A Supervised Agriculture Experience is incorporated to place students in a position where they learn the practices of entrepreneurship and the fundamentals of research and experimentation in the forestry field. Participants in the SAE will conduct exploratory projects with the purpose of learning about and improving forest practices in their surroundings.

Units of Instruction/(Hours)	
Tree and Tool Identification (20)	Timber Cruising & Valuation (20)
Diseases and Pests (20)	Timber Stand Management and Silviculture (30)
Fire Ecology & Management (20)	Mapping and Land Measurement (20)
Forest Practice Laws and Government Agencies (35)	Supervised Agricultural Experience (SAE) Project/Record Keeping (5)
Forestry/Natural Resources Careers (10)	

Process Overview:

- Pacific Educational Institute (PEI) recognized the potential for a state credit equivalency within the Forestry industry, based upon forestry jobs in demand and growth potential in the industry.
- PEI created the draft framework with a work group gathered from educational partners which includes K12 teachers from Aberdeen High School, Kalama High School, South Bend School District, Muckleshoot Tribal School, and Shelton School District. Also included were Grays Harbor Professor of Forestry and Dean of Workforce Development.
- Draft framework was reviewed by a technical working group from external industry partners Sierra Pacific Industries, Rayonier, Port Blakely and Green Diamond Resource Company.
- Framework was amended by teachers from Oroville High School, Taholah High School and Tonasket High School plus OSPI CTE Agriculture Education Program Supervisor and Science Director.
- OSPI final review by Science Director from Learning & Teaching and CTE Agriculture staff.

For more information, please contact Lisa Fish, OSPI Course Equivalency Program Coordinator at lisa.fish@k12.wa.us.

512208 Systems Medicine - 180 hours

Equivalency: Lab Science Credit

Course Summary: This course is designed for students to actively engage in a series of hands-on laboratory, computer-, and community-based units involving medical systems that aim to be participatory, personalized, predictive, and preventative. Systems-driven medicine - focused on optimizing an individual's wellness and identifying the earliest opportunities to reverse or even prevent disease - will soon be transforming the U.S. healthcare system. This course will focus on building and deepening interdisciplinary skills for applying biotechnology, biological sciences, biochemistry, genetics, history, technology, engineering, statistics, mathematics, bioinformatics, ethics, systems thinking, and patient-driven advocacy to learn about and explore careers and participation in the health and medical systems in our communities. This course will culminate in a capstone project that will be presented to community stakeholders.

Units of Instruction/(Hours)	
History (20)	Models of Systems (20)
Factors that Affect Health and Wellness (50)	Personal Perspective – Patient-driven Advocacy (self and others) (20)
Communal Perspective – Issues of Health from a Communal View (25)	Capstone Proposal for the Future System of Healthcare (45)

Process Overview:

- Increased demand for patient centered healthcare that applies to occupations and functions that optimize an individual's wellness with laboratory, computer and community medical systems.
- Educational group consisting of teachers from Edmonds, Everett, Evergreen and Lake Washington School Districts plus OSPI CTE Health Science Program Supervisor and Science Director, created a framework that provides students the foundational technical skills of Health Sciences, Biotechnology and integrates subject matter in science to move to advanced Health Science and Medical Technology. Focus is on instructional practices in science, and applications through Systems Medicine.
- Draft reviewed by technical working group, the Biotechnology Advisory Board, and other industry partners including the Institute of Systems Biology.
- Amended framework sent to science/CTE experts for review electronically.
- Framework was introduced to CTE teachers who attended WA-ACTE Summer Conference.
- OSPI final review by Science Director from Learning & Teaching and CTE Health Science staff.

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