CTE Course Equivalencies 2018 Update

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Current Implementation of ESSB 6552 Available Frameworks

Credit Type	Math Equivalency	Science Equivalency	Combination (Sci/Math/ELA)
Number of Frameworks	11	22	5

Program Area	STEM	Agriculture	Business & Marketing	Family & Consumer Science	Health Sciences	Skills & Technical Sciences
Number of Frameworks	4	13	4	4	3	10

2018 proposed frameworks:

- Biotechnology (HS)
- Automotive Technician 1 (STS)
- Automotive Technician 2 (STS)

Data

School District Reported Statewide Equivalency Course Data (2016-17)

High School Courses Offered	Skill Center Courses Offered	Number of Students
1,689	125	30,658

During school year 17-18 districts will be reporting local and state equivalencies, and OSPI will be utilizing course and program approval information for cross validation. Technical assistance related to reporting will be provided as OSPI anticipates errors in this data set.

Development of Proposed Frameworks

Biotechnology

- Increased demand for creating a framework that applies to occupations and functions in biotechnology research and development that apply primarily to human health
- Teacher group created a framework that provides students the foundational technical skills of Health Sciences and integrated subject matter in science and mathematics to move to advanced Health Science and Medical Technology. Focus on instructional practices in science, and applications through biotechnology research and development
- Draft created and 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
- OSPI final review by Science L&T and content CTE staff

Development of Proposed Frameworks

Automotive Technology 1 and 2:

- Instructor group recognized potential for state credit equivalencies within Automotive courses, based upon local equivalencies in place
- School districts supported instructor effort for state credit equivalency
- Draft created and reviewed by technical working group (6 total: 2 Science/3 CTE)
- Amended framework sent to science/CTE experts for review electronically
- OSPI final review by Learning and Teaching and CTE staff

Biotechnology (CIP 261202) 180 hr Science Credit

A program that focuses on the application of biological sciences, biochemistry, and genetics to health care. Includes instruction bioinformatics, gene identification, biochemistry, DNA sequencing, genetic engineering, industrial microbiology, drug and biologic developments, patent law, biotechnology management, marketing and ethic, and applicable regulations

Units of Instruction/Hours	
Introduction to Biotechnology (20)	Genetic Engineering (40)
Biotechnology Lab Basic Skills & Safety (30)	Immunology and Epidemiology (30)
DNA and DNA Analysis (40)	Bioethics (20)

Automotive Technology 1 (470604) 540hr Science Credit

Prepares individuals to engage in the specialized servicing and maintenance of all types of automobiles. This course includes instruction in the diagnosis of malfunctions in, the adjustment or repair of, and/or properly replacing of parts in, **4 of the 8** Nationally recognized NATEF/ASE units: Engine Repair, Manual Transmission & Axles, Brakes, and Electrical/Electronic Systems.

Units of Instruction/Hours	
Engine Repair (90)	Electrical/Electronics (180)
Manual Drive Train and Axles (90)	Leadership (15 embedded)
Brakes (180)	

Automotive Technology 2 (470604) 540hr Science Credit

Prepares individuals to engage in the specialized servicing and maintenance of all types of automobiles. This course includes instruction in the diagnosis of malfunctions in, the adjustment or repair of, and/or properly replacing of parts in, **4 of the 8** Nationally recognized NATEF/ASE units: Automatic Transmission and Trans Axle, Suspension and Steering, Heating and Air Conditioning, and engine Performance/Drivability.

Units of Instruction/Hours	
Automatic Transmission and Transaxle (90)	Engine Performance (180)
Suspension and Steering (180)	Leadership (15 embedded)
Heating and Air Conditioning (90)	

Educator Perspective

PETE MCCUE, AUTOMOTIVE

Automotive Technology
Vehicle Repair Procedures – Example

Performance Assessments: *These can be locally developed or use the suggested assessments below.*
Students will have the ability to plan and conduct an investigation using quantitative methods to model, design, evaluate and refine a solution to complex problems using the following vehicle diagnostic and repair process for electrical/electronics.

Vehicle Repair Procedures • Concern – Cause – Correction	**21st Century / Leadership correlations**	**NGSS Science Correlations**
Verify / Confirm - Condition / Problem	Reason Effectively, Think Creatively,	Plan and conduct an investigation to gather evidence to compare the structure… Evaluate the validity and reliability of multiple claims… verifying the data when possible. Scientific inquiry… include logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.
Analyze Data: Diagnose problem Data Notation: DTC's, Freeze Frame, Fuel Trim's, MAFs, measurements, mechanical and electronic testing.	Make Judgments and Decisions, Access and evaluate information, Apply technology effectively, Be self–directed learners, Be flexible,	Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence… Use quantitative methods to compare the potential of different solutions. Analyze data using tools, technologies, and/or models (e.g., computational, mathematical) in order to make valid and reliable scientific claims or determine an optimal design solution. Apply concepts of statistics and probability… to scientific and engineering questions and problems, using digital tools when feasible. Analyze data using computational models in order to make valid and reliable scientific claims.

Regarding: Biotechnology Framework

"The process was very collegial and collaborative. The combined wealth of knowledge the participants brought to the table was impressive and allowed for a high quality product to be created. I am looking forward to using the framework next year, and it was time well spent. I really appreciated the dedicated time we were provided to make this happen – I don't think the result would be what it is without the support."

Linda LaBard
National Board Certified Teacher
Henrietta Lacks Health and Bioscience High School
Science Department

Teacher/School District Acknowledgement

Biotechnology	Automotive Technology
Cynthia McIntyre, Everett School District	Pete McCue, Bellevue School District
Penny Lefavour, Edmonds School District	Richie del Puerto – Sno Isle Skill Center, Mukilteo School District
Linda LaBard, Evergreen School District	Pat McCue, Bothell School District
Laura Dean, Lake Washington School District	
Kristi Martinez. Sumner School District	

In Development

Culinary Arts: (Math) Draft framework reviewed by field, and amendments are planned

Food Production and Services: (Math) Draft framework reviewed by field, and amendments are planned

Robotics: (Science) Draft framework reviewed, and being amended by OSPI staff

Climate Solutions: (Science) Draft framework, revisions being made by field and OSPI

Applied Geometry: (Math) Draft framework, being reviewed by OSPI Math Director

Soil Chemistry & Physics: (Science) Draft framework, revisions being made by field and OSPI

Advanced Forestry: (Science) In development with partnership of PEI, GHCC, School Districts with planned articulation agreements, being reviewed and amended.

Systems in Medicine: (Science) Draft framework built in partnership with Institute of Systems Biology and Biotechnology Advisory Board, being reviewed.

In Development (cont)

Core Plus – Construction: (Combo) In development in partnership with AGC Education Foundation and the Manufacturing Industrial Council

Core Plus – Marine Technology: (Combo) In development in partnership with Manufacturing Industrial Council and the Port of Seattle

Automobile Technician: Expand equivalency to ELA

Equivalency Timeline – Expansion to all applicable credit areas (SSB 6133)

Leading questions:

- Do the CTE standards and the core content standards mesh well into a single course?
- Is the course likely to help students meet both academic and career goals?
- How is the course likely to be taught?— If taught by a CTE teacher, will the teacher get core subject area professional development? Will the course be team taught?
- Did the process for developing the course equivalencies support strong incorporation of math, science and CTE standards?
- Have the proposed CTE course equivalencies undergone appropriate review by both core and CTE content experts to help assure fidelity to math, science and CTE standards to meet graduation requirements?

Questions:

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