

APPROACHES TO INTEGRATING ACADEMIC AND TECHNICAL STUDIES

States are increasingly interested in finding ways to deliver and teach college- and career-ready content beyond traditional academic sequences. In a number of the states with college- and career-ready graduation requirements, their legislative or regulatory language explicitly requires students to complete certain academic courses (such as Algebra II) or their equivalents to ensure all students have multiple – but equally rigorous – pathways to completing the raised graduation requirements. It is within this context that "integration" has become a buzzword for the blending of academic and technical content. Beyond developing "partially" or "fully" integrated CTE/academic courses that offer credit towards CTE, elective and/or academic requirements, there are other ways in which states can begin to integrate academic and technical coursework – without sacrificing the rigor or the relevance of either. Below are four strategies for integrating CTE and academics, each of which has its own implications for students, teachers and education systems.

COORDINATED

COORDINATED PEDAGOGY

PARTIAL INTEGRATION

FULL INTEGRATION

POTENTIAL STRATEGIES:

- Programs of Study
- Interdisciplinary
 Assignments/ Activities

EXAMPLE:

A Health Science Career
Academy that requires
students to complete
sequences of both CTE and
academic courses that takes
advantage of interdisciplinary
lessons and assignments(such
as a presentation that relies on
knowledge and skills drawn
from a student's English, math
social studies, and health
science classes) to connect
academic and technical
instruction and learning.

POTENTIAL STRATEGIES:

- Crosswalk of CTE and academic standards to identify and increase overlap in content/expectations
- Curriculum mapping

EXAMPLE:

Math-in-CTE is a program that brings together CTE and math teachers to identify, enhance and teach the math that is naturally embedded within CTE content through:

- Mapping the curriculum;
- Creating math-enhanced lessons;
- Developing a scope and sequence;
- Teaching the lessons and revising them as necessary;
- Utilizing technical assistance along the way.

POTENTIAL STRATEGIES:

- Double courses
- Blended instruction
- Team teaching
- Transcripted ELECTIVE credit

EXAMPLE:

An engineering course that awards students credit in either or both CTE and an academic elective (rather than counting towards a specific science requirement, such as Physics). The credit(s) may be accepted for graduation and admissions to postsecondary institutions. Most Project Lead the Way courses meet this definition.

POTENTIAL STRATEGIES:

- Double courses
- Blended instruction
- Team teaching
- Transcripted ACADEMIC credit

EXAMPLE:

A construction/geometry class that awards students credits in both CTE and mathematics (counting towards a specific geometry requirement). Both credits may be accepted for graduation and admissions to postsecondary institutions. The UC System has validated over 9,000 high school CTE courses as meeting their admissions requirements in the core academic areas or as an academic elective.



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COORDINATED COURSES

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PARTIAL INTEGRATION

FULL INTEGRATION

BARRIERS:

- Requires substantial coplanning between and across disciplines
- Requires deliberate scheduling to ensure students are taking complementary academic and technical courses.

SUPPORTIVE STATE ACTIVITIES:

- Support for Career Academies, including model curricula, supportive legislation
- Collect and disseminate best practices for teacher planning time

BARRIERS:

- Requires substantial professional development/ training to ensure reinforcement is understood by all teachers and occurring in classrooms
- Requires systemic implementation to ensure full commitment across and within disciplines

SUPPORTIVE STATE ACTIVITIES:

- Coordinated professional development opportunities for both CTE and academic teachers
- Model lesson plans that demonstrate how CTE concepts relate to academic concepts and vice versa
- Develop/support the creation of a "glossary" that crosswalks common CTE and academic terms

BARRIERS:

- The sheer volume of CTE courses and programs of study
- Requires articulation agreements with higher education
- Bringing courses to scale

SUPPORTIVE STATE ACTIVITIES:

- Develop model integrated courses/curriculum (at the state level or by validating locally-developed courses)
- Create common transcripts, with support from higher education system
- Create processes by which higher education validates integrated courses

BARRIERS:

- The sheer volume of CTE courses and programs of study
- Requires articulation agreements with higher education
- Teacher certification (e.g., lack of dual certification in academic and CTE disciplines)
- Bringing courses to scale

SUPPORTIVE STATE ACTIVITIES:

- Develop model integrated courses/curriculum (at the state level or by validating locally-developed courses)
- Create common transcripts, with support from higher education system
- Create processes by which higher education validates integrated courses
- Create teacher prep programs that offer in dual certifications (e.g., applied math).