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**A Report on Research and a Proposal to Enhance Integration of Academics  
in New York State Career & Technical Education**

**by**

**Career & Technical Education Technical Assistance Center (CTE TAC) of NY**

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## I. BACKGROUND

In 2001, the New York State Board of Regents revised its policy on career & technical education (CTE) and modified the graduation requirements for students who completed a New York State Education Department (NYSED) approved CTE program. The policy provided for the following:

- A program approval process
- Flexibility in the delivery of core academic courses
- A work skills employability profile
- Technical assessments based on industry standards
- Technical endorsement on the Regents diploma and the Regents Diploma with Advanced Designation

A second element regarding flexibility in the delivery of core academic courses allowed for the creation of specialized and integrated courses in CTE. These courses would be designed to link specified core academic content to CTE content. This concept is more universally known as integrated academics. Integrated academics has become an accepted and expected strategy in high quality CTE programming, and the Perkins Act has placed considerable focus on it.

Integration of academics when leading to earning academic credit, includes a curriculum planning process to document the cross-reference of academic skills/knowledge and the related CTE course or program. Integration also includes the selection of an instructional model and definition of instructor roles. Integration instructional models include team teaching, parallel instruction, consulting teacher, and academic reinforcement.

The CTE Technical Assistance Center of New York (CTE TAC) has conducted over 70 reviews of CTE approved programs. Integrated academics was a salient part of the reviews, and the 2015 interim report concluded:

All of the leaders in the programs reviewed were strong proponents of CTE. However, in the higher performing programs, there was consistent and persistent attention to integrated academics, with literacy a particular focus. This focus was not lost on students, many of whom were clear about how the CTE program provided a context and need to master academic skills and dispositions. The BOCES centers and other shared-time programs (were especially attuned to this and used several models for the integration of academics into their CTE programs.

Unfortunately, integrated academics and awarding of credit credits are not common in LEA programs. In BOCES programs there is great variability in the awarding of earned credit. This ranges from component districts that will not award the credit or use it only as a safety net for graduation to districts that accept the credit and use the time for remediation or participation in advanced placement or other elective courses.<sup>1</sup>

The mixed use and variable outcomes of this proven strategy to prepare students for college and career readiness required a thoughtful review of the results achieved, a determination of the roadblocks to full implementation and realization of the potential of the strategy, and identification of proven models and

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<sup>1</sup> Interim Report II: Review of CTE Approved Programs in New York State, 2015

professional development to expand the capacity of teachers (core and CTE) to design and deliver effective integrated academic opportunities for students. This study, conducted by the CTE TAC, details promising academic integration practices in programs at 13 BOCES and LEAs .

## II. OBJECTIVE

This study intended to identify current and best practices in integrated academics and to establish a set of concentrated activities, supports, and resources to assist schools, districts, and BOCES in the implementation of effective academic integration strategies to assist CTE programs in achieving college and career readiness for their secondary school graduates.

## III. METHODOLOGY

Using the experiences and findings of the CTE TAC field team associates in conducting Approved Program reviews, 13 schools, districts, and BOCES (Appendix A) were identified for further study of their systems, procedures, resources, and instructional strategies for providing academic integration.

Two retired BOCES CTE directors were contracted to serve as consultants and assist in the development and execution of a survey and visitation protocol. The survey (Appendix B) was designed to elicit responses on:

- a) **Program Model**-Roles of CTE and academic teachers in integrated academics, models for academic instruction, access to advanced academics, and the definition of integrated academics.
- b) **Planning for Instruction**-Use of external resource providers, strategies for teacher planning, support for CTE teachers in academic pedagogy, curriculum, unit and lesson resources, role of post-secondary and industry partners in planning and design, and functions of academic teachers.
- c) **Implementation of Instruction**-Academic teachers' student load, role and provision of separate courses, support for students with disabilities, and teacher time by delivery model (direct, co-teaching, and consultation).
- d) **Post Instruction**-Honoring of earned academic credit from an integrated academic CTE program.
- e) **Program Assessment**-Types of integrated credit awarded, measurement of academic teacher effectiveness, academic teacher turnover, and the primary obstacles to success.
- f) **Comments and Suggestions**-Open dialogue about the concept of academic integration.

With support from the NYSED office of CTE, all 13 BOCES and LEAs responded to the survey. The consultants followed up with phone conferences and visitations to all agencies and engaged in extended conversations with key CTE leaders and faculty. As a result, the consultants completed a report on each agency. Looking across all reports, they also organized the survey results into (1) System Elements of Academic Integration — Curriculum, Implementation, and Effectiveness, and (2) Teacher Elements of Academic Integration — Co-Planning, Co-Teaching, and Co-Assessing (Appendix C). Strengths, weakness, and the potential for professional development were identified for each element. From this work, the study team of the consultants and the CTE TAC Center Specialist identified key findings of academic

integration design that served as enhancers or inhibitors to successful implementation across both system and teacher elements of academic integration.

#### **IV. KEY FINDINGS**

All 13 agencies exhibited strengths in the delivery and effectiveness of integrated academics. As expected, programs in some agencies were stronger than others, and findings cannot be universally attributed to all programs in an individual agency. Here are the major findings. A more nuanced picture is provided in Responses to Academic Integration Survey (Appendix C).

#### **C. System Elements of Academic Integration**

##### **1. Definition of Academic Integration**

- a) What constitutes “integration” and the methods for integrating academic subjects into CTE vary significantly, as does the definition.
- b) Little is offered on the topic of academic integration procedures and practices by NYSED or other outside sources, leaving organizations to identify their own definition, strategies, and approaches.
- c) Survey respondents often defined integration through the lens of credit acquisition and not as a delivery method.

##### **2. Curriculum**

- a) Curriculum is the basis of the integrated model. It is impacted by several elements in the approval process, including the involvement of academic teachers in the crosswalk of the academic and CTE content, meeting the requirements for program approval, and the support for CTE teachers in the implementation.
- b) The involvement of academic teachers has resulted those teachers developing an understanding of the CTE curriculum elements over their years of service.
- c) Some CTE teachers lack an understating of the rigor/commencement level academics, so the utilization of academic integration supports can be marginalized.
- d) The dynamics of involving academic teachers plays out differently in the various agencies. This ranges from deep participation to difficulty recruiting and engaging academic teachers in the approval process. Where this process works well, it helps to develop awareness of academic integration and how it is deployed in CTE programs.
- e) In some programs, the curriculum is a static product that does not see adequate use in implementation of the program or the supervision process. References to curriculum development are often made when speaking about the re-approval process but not when discussing the program implementation. This suggests that curriculum exists to meet a requirement of the NYSED and not to as a guide to program implementation.
- f) Collaboration between academic and CTE teachers and constant revision of the curriculum through the use of a curriculum management tool are voiced as the keys to successful integration.
- g) It was frequently reported that academic content is embedded into CTE curriculum when the help/expertise of an academic integration teacher is available.
- h) Continual planning and curriculum development improve the quality of programs; the re-approval process also helps to keep things current. Although reported in many individual

reviews, the extent to which continual planning and curriculum development happen beyond the re-approval process is in question.

- i) There are some questions about how far respondents go to lay out the academic skills and knowledge to be taught. The use of standards and performance indicators appears to be the predominant approach to arraying academic curriculum.

### **3. Academic Integration Subjects**

- a) ELA is the most frequent academic area that is integrated into CTE programs. Math and science are implemented less frequently, and social studies is the least integrated in CTE programs.
- b) The use of the math or science curriculum is often dependent how each “naturally” fits into a particular CTE content area.
- c) Where literacy is a focus across all CTE programs, there seem to be more effective ELA outcomes that match industry expectations.
- d) Math can be problematic, as there is often a mismatch between the need to teach “functional” math in the CTE program and integration of commencement level math. Mastery of CTE content and functional math applications are often seen as critical to meeting technical competency.

### **4. External Resources**

- a) Support from external resources generally appears to go “unused” as a method to ensure rigor of program or fidelity of delivery.
- b) Where external support was indicated, it was through mechanisms such as the CTE Technical Assistance Center of NY, SREB High Schools/Tech Centers that Work, and online resources which covered a wide range of topics, from curriculum mapping to assessment strategies.

### **5. Partnerships**

- a) The collaboration with post-secondary and business partners occurs through district/BOCES advisory councils and committees. The focus of these committees is primarily on the CTE content, trends, and “soft skills” and not on the academic outcomes, unless it is for dual credit purposes.
- b) At advisory council meetings and meetings of individual CTE program/craft committees, partners provide ideas and feedback that teachers can use to create new learning experiences that will help students succeed in post-secondary and employment settings. While this is what was reported, there are questions about how universal this work is and the extent to which feedback is used to drive program curriculum and instruction.

### **6. Awarding of Credit**

- a) In LEA settings, academic integration for credit is not frequently used, as the students can take required courses in addition to their CTE major. Where available the academic credit is used as a safety net in most cases. In addition, most offer traditional academic programs with an occasional “reverse integration” event.
- b) LEAs see the importance of enhancing the CTE curriculum with integrated learning activities, but it is more for improving the rigor of the CTE program than for meeting graduation requirements.
- c) There are varying levels of support from the BOCES component school districts for using the academic credit to help students meet graduation requirements. Some accept all approved units for academic credit, some have local requirements in addition to the integrated academic credit,

some identify only certain students for academic credit, and some use the integrated credit as a safety net.

- d) Several agencies reported that many of the students do not need the additional credit that can be distributed by participation in CTE programs; their graduation requirements are already being met through their local course loads.

## **7. Workload for Academic Integration Teachers**

- a) The student load for academic integration teachers can be very large, ranging from 60 to over 1,000 students in some cases. This directly impacts their ability to provide direct instruction in the CTE classrooms for their specific content.
- b) While there are some situations where academic integration is scheduled in a formal manner, integration support is generally being provided on an “as needed” basis and is driven by the CTE teachers. This may mean that there are sizeable differences in what students receive.

## **8. Students with Disabilities**

- a) There is differential treatment of students with disabilities. In some programs, instructional and other supports are provided to assist students to master the content in other agencies, students with disabilities are treated the same as general education students; however, if a student cannot complete the program, he or she is often placed in a special CDOS program.
- b) Another outcome widely used is that the student gets a “reduced” program and is not expected to meet all of the same requirements as the other students.
- c) The support of a special education consultant teacher is extremely beneficial. That individual is familiar with differentiation strategies and testing modifications, which can greatly enhance the CTE teacher’s effectiveness with students with disabilities.

## **9. Instruction**

- a) Regardless of whether an academic teacher is present to provide a lesson in a CTE classroom, academic integration is taking place all the time in CTE programs.
- b) This inclusion of academics is generally a positive occurrence, but it does bring into question the expertise of those teaching academic content and whether or not students are getting commencement level instruction.

## **10. Academic Integration Teacher Effectiveness**

- a) The measurement of the effectiveness of academic integration teachers is generally consistent with APPR agreements in the BOCES centers and LEAs.
- b) There is no systematic way to measure academic integration teacher effectiveness, no self-assessments used, and no external partnerships to measure teacher effectiveness.
- c) In some instances, the rubric used for evaluation of academic integration teachers is not a good match for the collaborative work they typically do.
- d) In cases where there is more direct instruction (push-in), they have a better match to the rubrics.
- e) Additional observations on academic integration teacher effectiveness include:
  - Data on program effectiveness, grades, attendance, etc. is used to evaluate program effectiveness, along with other measures that do not directly address the effectiveness of the work that an academic integration teacher does.

- Component districts in the BOCES model are not fully aware of how effective the integration process is and how little support there has been from NYSED to push the integration of academics within their own school structure.
- CTE teachers develop more confidence with academic content as they continue to teach concepts that have been identified in the co-planning process.
- Measurement of academic integration teacher effectiveness needs to be more fully developed and used universally across all organizations if possible.

## 11. System Effectiveness

- a) An element that program leaders had difficulty defining and defending was system effectiveness. This is the ability of programs to demonstrate that the academic integration model in place yielded gains in student academic skills, knowledge, and dispositions.
- b) As noted earlier, the primary focus of the process was for students to obtain credit.
- c) While the industry assessments in approved programs are evidence of students meeting technical and workplace standards, they do not reference academic growth.
- d) Likewise, Perkins standards in many programs are met by referencing the outcomes on Regents examinations and graduation rates.
- e) The central question that needs to be addressed is: What is the academic value-added for students of CTE's academic integration efforts? Causality is elusive.

## D. Teacher Elements of Academic Integration

### 12. Co-Planning

Strong programs embrace co-planning with the following elements:

- a) Regularly scheduled and required common planning time to align crosswalks to academic, technical, and industry standards; create units and lessons; share ideas; assess student progress; and design differentiated learning strategies are critical to successful integration. Effective programs have time available daily for planning and developing lessons and curriculum, assessment strategies, calibration to using rubrics, discussion of problem-based learning activities, and approaches to supporting special needs learners.
- b) CTE teachers lead with their curricular goals, and academic teachers follow with core content and standards that aligned with the learning activity or unit plan.
- c) Academic teachers gather and share academic materials to support the instruction of academics by CTE teachers.
- d) Academic and CTE teachers initiate ideas for learning activities. The CTE teacher identifies the industry standards, and the academic teacher discerns the academic content. The team then co-plans the lessons and how to deliver them.
- e) Both the CTE and academic integration teachers are part of the re-approval process and work together to review lessons, units, and curriculum maps and update the standards and crosswalks.
- f) Frequently, projects are discussed that end up in a collaboration of multiple CTE program areas.

Some of the inhibitors to strong co-planning include:

- a) Limitations on time, schedules, and academic integration teacher staffing and the lack of a prescribe set of staff deliverables work against developing strong integrated programs.

- b) CTE teachers are still not well versed in or familiar enough with the state academic learning standards.
- c) In LEAs, CTE teachers provide the academic teachers with content awareness, but the relationship between them is very limited do to time constraints in the academic teachers' schedules.
- d) There is a lack of collaboration between academic integration teachers across the ACTEA Zones and the state.

Co-planning tends to be the strongest element of the relationships between the CTE and academic integration teachers, but it is not universally done.

### **13. Co-Teaching**

- a) Co-teaching is an under-developed and under-utilized strategy. This is a function of time, staffing, comfort of the teachers involved, and the lack of administrative direction and protocols.
- b) Pull-out and direct instruction are frequently used and in some instances preferred by CTE and academic teachers and where seat time is a factor in the granting of credit.
- c) In some BOCES settings, co-teaching is typically described is a push-in model; the academic integration teacher comes into the CTE setting and delivers a lesson, sometimes related to the learning activity and sometimes addressing academic standards that are not directly related to the current learning focus.
- d) In many BOCES settings, special education teachers support CTE teachers in working with students with disabilities, but there are few instances of co-teaching in the CTE instructional areas. Rather, instruction by the special education teacher takes place in resource room settings.
- e) In some LEAs, academic intervention services are provided to students who are identified as needing support. A pull-out and push-in schedule is created at the beginning of the year by dedicated Title I teachers. This is not a co-teaching approach but rather an AIS response.

### **14. Co-Assessing**

- a) There are many variations on assessment strategies. Some involve a separate grade for assignments that focus on academic content, some are graded by the CTE teacher, some use both CTE and academic integration teachers to grade the same activity, and others still rely on push-in or pull-out activities and grading for academic content. These various methods of assessment make it difficult to determine the degree to which students are really showing academic growth.
- b) Differentiated assessment strategies for students with disabilities were not generally in place; the learning activities are somewhat differentiated, but not the assessments.
- c) In strong programs:
  - Academic integration teachers provide assessment support for CTE teachers related to academic integration learning activities (i.e., development of rubrics and rating sheets).
  - CTE teachers seek the support of the academic integration teachers regularly for assessment strategies and evaluation of achievement of the standards.
  - Grading sometimes occurs using "split rubrics" that cover both CTE and academic expectations.

- CTE lessons have been cross-walked with NYS learning standards for ELA. ELA activities and written tasks have been developed and are completed either individually or in small groups with the ELA integration teacher. Each activity is graded per the developed rubric. Activities that require CTE specific knowledge are jointly graded.

## **V. PRODUCT**

To help program leaders address these findings, the consultants, in collaboration with CTE TAC Center Specialist Richard Jones, developed the CTE and Academic Integration Self-Assessment Rubric (Appendix D). The rubric is informed by the study findings and intended for use by CTE leaders to self-assess their academic integration efforts against a set of informed standards and to assist them in strengthening and affirming their strategies and protocols.

## **VI. BEST PRACTICES**

Based upon the surveys, visitations, and the Self-Assessment Rubric, the consultants have identified an agency that exhibits a solid, comprehensive process for development and implementation of academic integration strategies and recommend it as an example of best practices. In addition, four agencies were identified for specific aspects of their academic integration effort. These five agencies are listed below. Appendix E provides overviews of these best practices.

### **Comprehensive Integration Model**

Cayuga-Onondaga BOCES  
 Steve Woodard, Director of CTE  
 (315) 253-0361  
[swoodard@cayboces.org](mailto:swoodard@cayboces.org)

### **Co-Planning/Co-Teaching**

Tompkins-Seneca-Tioga BOCES  
 Diahann Hesler, Director of CTE & Adult Ed  
 (607) 257-1555  
[dhesler@tstboces.org](mailto:dhesler@tstboces.org)

### **System for Curriculum Design and Self-Study Review**

Washington-Saratoga-Warren-Hamilton-Essex BOCES  
 Nancy DeStefano, Director of Programs  
[ndestefano@wswheboces.org](mailto:ndestefano@wswheboces.org)

### **Measurement of Program Effectiveness**

Ulster BOCES  
 Marita Kitchell, Director of CTE  
 (845) 331-8017  
[mkitchel@ulsterboces.org](mailto:mkitchel@ulsterboces.org)

### **Standardized Curriculum Template**

Madison-Oneida BOCES  
 Kathryn Allen, Director of CTE  
 (315) 361-5700  
[kallen@moboces.org](mailto:kallen@moboces.org)

## VII. ACTIONS FOR GOING FORWARD: PROFESSIONAL DEVELOPMENT, CONTENT DEVELOPMENT, AND RESOURCE AGGREGATION

The study team recommends the following actions on professional development, content/model development, and resource aggregation to meet the needs of CTE and academic integration leaders and faculty.

<b>Professional Development</b>	<b>Priority</b>	<b>Develop/Consultation</b>	<b>Delivery</b>
Sharing and discussing the study, its findings, and the self-assessment tool with the field		<ul style="list-style-type: none"> <li>• CTE TAC staff &amp; consultants</li> <li>• ACTEA</li> <li>• Professional organizations</li> <li>• NYSED</li> <li>• SCDN</li> <li>• Third party: SREB, Learning Focused Schools, etc.</li> <li>• Vendors</li> <li>• Best practice agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Webinars</li> <li>• Regional on staff development days</li> <li>• Special sessions</li> <li>• State conference</li> <li>• Agency request</li> </ul>
Engaging CTE program leaders in a think tank on program effectiveness and developing strategies to demonstrate academic gains of students in CTE programs			
Literacy strategies for CTE teachers			
NYS learning standards in ELA and math for CTE teachers			
Use of curriculum management tools			
Curriculum design for CTE/academic blended courses (crosswalks, units, lessons, anchor activities with maps and pacing charts)			
Constructing integrated learning activities			
Assessment strategies for project-based grading and assessment of writing in CTE programs			
Development, implementation, and assessment of quality integrated learning activities			
Joint PD and sharing session for CTE and academic integration teachers across the region or state			

<b>Content/Model Development Needs</b>	<b>Priority</b>	<b>Develop/Consultation</b>
Models of practice for agency-wide academic integration support, implementation, and assessment of effectiveness		<ul style="list-style-type: none"> <li>• CTE TAC staff &amp; consultants</li> <li>• ACTEA</li> <li>• Professional organizations</li> <li>• Third party: SREB, Learning Focused Schools, etc.</li> <li>• Best practice agencies</li> </ul>
A construct for co-development of curriculum and assessment strategies (a model for working together)		
A construct for evaluation of academic integration teacher effectiveness (how to evaluate and value this professional position)		
Assessment strategies for integrated learning activities		
Co-planning models of practice		
Co-teaching models of practice		
Co-assessment models of practice		

<b>Resource Aggregation</b>	<b>Priority</b>	<b>Aggregator</b>
Examples of fully developed curriculum with crosswalks, units, lessons, and anchor activities, with maps and pacing charts		CTE TAC Center Specialist/Senior Consultant
Documented models of practice from strongly performing agencies for: <ul style="list-style-type: none"> <li>○ co-planning</li> <li>○ co-teaching</li> <li>○ co-assessment</li> <li>○ agency-wide academic integration</li> </ul>		

**Appendix A**  
**Participating Agencies/Schools**

1. Cayuga-Onondaga BOCES
2. Champlain Valley Educational Services - CV-TEC
3. Emerson High School, Buffalo City Schools
4. Herkimer-Fulton-Hamilton-Otsego BOCES
5. Jefferson-Lewis-Hamilton-Herkimer-Oneida BOCES
6. Madison-Oneida BOCES
7. Oswego BOCES
8. Saunders High School, Yonkers Public Schools
9. Southern Westchester BOCES
10. Tompkins-Seneca-Tioga BOCES
11. Ulster BOCES
12. Walton Central School District
13. Washington-Saratoga-Warren-Hamilton-Essex BOCES

**Appendix B**  
**Academic Integration Survey**

Questions for School Interviews on Integration Best Practices

**School:**

**District:**

**Person being interviewed:**

**Job title of person being interviewed:**

**Interviewer:**

**Date of Interview:**

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**I. Program Model:**

1. In your school, what role do academic teachers' play related to the development of academic proficiency?
  
  
  
  
  
  
  
  
  
  
2. In your school, what role do CTE teachers play related to the development of academic proficiency?
  
  
  
  
  
  
  
  
  
  
3. What models do you use to deliver academic instruction to students in CTE programs? For each model on the chart below, mark "Y" if the model is used or "N" if the model is not used. For each model marked "Y" please provide a description of how the model works in your school.

Integrated courses	Model	Y/N	Description of how it works
		CTE Teacher only	
	Academic Teacher Consult		
	Academic and CTE Teacher Co-plan and Co-Teach		
Specialized courses	Academic Teacher only		
Team teaching with CTE and Academic teachers	Model	Y/N	Description
Projects with integrated academic components	CTE Teacher only		
	Academic Teacher Consult		
Separate academic courses	Academic Teacher Only		
Pull out or other forms of direct instruction	Academic Teacher Only		
Other			

4. Do students in Approved CTE programs have access to and participate in AP, IB, dual credit or other advanced academic courses as either a separate curriculum or part of the CTE curriculum?  
       \_\_\_\_\_ **Yes**                      \_\_\_\_\_ **No**

If **yes**, please describe what is available and how each works in your school. Add additional rows if necessary.

Advanced Academic Course Title (i.e. AP, IB, dual credit, etc.)	Separate Curriculum (SC) or part of CTE (CTE) Circle one	How the course works
	SC CTE	

5. In brief, how do you define the phrase “Academic Integration” when asked by your component schools?

**II. Planning for Instruction**

6. Have you used any external resource providers or organizations (SREB, Linked Learning, etc.) to assist you in, or provide strategies for, developing your academic integration practices?  
       \_\_\_\_\_ **Yes**                      \_\_\_\_\_ **No**

If **yes**, who are they? What types of support did you receive from these external resource providers? What was the overall purpose of using an external resource? Complete the chart below.

External Resource Provider	Support Received	Purpose of Using the External Resource

7. Are you able to provide your CTE and academic core teachers with common planning time and the opportunity to review and discuss student work in ELA, Mathematics, Science and Social Studies?  **Yes**                       **No**

**If yes,** please describe how this common planning time and student work review occurs?

8. What are the primary supports provided to CTE teachers to enhance their ability to integrate academics into their instruction (Check all that apply)? For each support listed on the chart below, mark “Y” if it is provided or “N” if it is not provided. For each support marked “Y” please provide a description of how the support works in your school.

Support for CTE Teachers to Integrate Academics	Y or N	Description/Specifics
<ul style="list-style-type: none"> <li>Concentrated professional development</li> </ul>		
<ul style="list-style-type: none"> <li>Opportunities to review student work in conjunction with academic teachers</li> </ul>		
<ul style="list-style-type: none"> <li>Academic teacher participation in development of CTE curriculum, pacing and instructional design and assessments</li> </ul>		
<ul style="list-style-type: none"> <li>Co-planning of lessons with academic and CTE teachers</li> </ul>		
<ul style="list-style-type: none"> <li>Coaching by academic faculty</li> </ul>		
<ul style="list-style-type: none"> <li>Coaching by outside academic consultants</li> </ul>		
<ul style="list-style-type: none"> <li>Other</li> </ul>		

9. Do you have a school wide archive of curriculum and integrated units, pacing charts, and academic cross-walks that articulate what you what students be know and be able to do once they exit a program? \_\_\_\_\_ **Yes** \_\_\_\_\_ **No**

**If yes**, would you be willing to share some of these curricular items to illustrate the way your curriculum is documented? \_\_\_\_\_ **Yes** \_\_\_\_\_ **No**

10. What role do your post-secondary partners play in identifying the academic skills necessary for success in a CTE pathway and helping your CTE teachers to incorporate them into instruction?

Please describe the process used to complete this work

11. What role do your industry partners play in identifying the academic skills necessary for success in a CTE pathway and helping your CTE teachers to incorporate them into instruction?

Please describe the process used to complete this work

12. What percentage of time is allocated to your academic teachers for following functions?

Function of Academic Teachers	% of time Allocated for Function
<ul style="list-style-type: none"> <li>• Coaching CTE teachers</li> </ul>	
<ul style="list-style-type: none"> <li>• Unit and lesson plan development</li> </ul>	
<ul style="list-style-type: none"> <li>• Assessment of student work</li> </ul>	
<ul style="list-style-type: none"> <li>• Other</li> </ul>	

**III. Implementation of Instruction**

13. How many CTE students do your academic teachers serve each semester? \_\_\_\_\_

\_\_\_\_\_ **Directly?** \_\_\_\_\_ **Indirectly?**

14. When providing separate academic courses, do you schedule CTE students by program or pathway?      **by program** \_\_\_\_\_ **yes**    \_\_\_\_\_ **no**

**by pathway** \_\_\_\_\_ **yes**    \_\_\_\_\_ **no**

**If not,** what limits you from doing this?

15. How are students with disabilities addressed in the delivery of academic instruction to ensure their success?

16. What percentage of time is allocated to your academic teachers for following functions?

Function of Academic Teachers	% of time Allocated for Function
• Direct student instruction	
• Co-teaching with CTE teachers	
• Other	

**IV. Post Implementation of Instruction**

17. In a shared time, program, do your participating districts/schools honor and award the credit for the integrated academics in each of your Approved CTE programs?  **Yes**  **No**

**If yes**, to what degree are these credits universally used for every student that participates?

**If no**, what reasons do the districts/schools give for not accepting this credit and placing it on student transcripts?

**V. Program Assessment**

18. Is your CTE program approved by SED to offer academic credit for academics integrated into your CTE programs?  **Yes**  **No**

**If yes**, please provide a list (or fill in the chart below) of those approved programs and the academic credit that is offered.

Approved Program Title	CTE Course title that integrates academic credit	Academic Course title for which credit is being awarded

19. Explain how you measure the effectiveness of your academic teachers in supporting integrated academics to enhance student learning?

20. Do you experience high turnover in academic integration specialists and/or consulting teachers?  
 \_\_\_\_\_ **Yes**                      \_\_\_\_\_ **No**

**If yes**, why do you feel this occurs?

21. Explain what the primary obstacles are to effectively implementing academic integration programs and enhancing student achievement?

**VI. Suggestions/Comments**

22. If you offer integrated academic credit in CTE courses what advice do you have for other schools seeking to implement integrated academic credit services?

## Appendix C Responses to Academic Integration Survey

The responses to the survey are organized into two sections: System Elements of Academic Integration and Teachers Elements of Academic Integration.

### System Elements of Academic Integration

STRENGTHS	WEAKNESSES	POTENTIAL TOPICS FOR PD
<b>Curriculum</b>		
<p>Academic teachers act as consultants and planners with CTE teachers and interpret academic standards for CTE Teachers during the planning process.</p> <p>Academic integration teachers have developed a keen sense of the CTE curriculum over the past 10-15 years through the approval and re-approval processes as well as the ongoing planning with CTE teachers.</p> <p>Both academic integration teachers and CTE teachers collaborate on curriculum updating and management of curriculum. Rubicon Atlas online curriculum management tool is an example of a technology used to manage curriculum.</p> <p>ELA is the academic area most frequently integrated into CTE programs. Math and science are implemented less frequently, and social studies is the area least used by CTE programs. Use of the math or science curriculum is often dependent on how “naturally” it fits into a particular CTE content area.</p>	<p>In the majority of cases, the curriculum is a static product that does not see adequate use in the implementation of the program or in the supervision process. References to curriculum development are often made when speaking about the re-approval process and not when discussing the implementation of curriculum. This suggests that curriculum is done to meet a requirement of the NYSED and not to as a guide to implementation.</p> <p>Support from external resources generally appears to go “unused” as a method to ensure rigor of program or fidelity of delivery. Where support was indicated, it was through mechanisms such as the CTE TAC, SREB, and online resources that covered a wide range of topics from curriculum mapping to assessment strategies.</p> <p>Although literacy is a common theme in many cases, numeracy seems to not enjoy the same level of standardization or focus.</p>	<p>Literacy strategies for CTE teachers</p> <p>Online curriculum tools such as Rubicon/Atlas. Google, or Blackboard or Angel where no electronic process exists</p> <p>Planning academic integration</p> <p>Curriculum design, documents that represent a comprehensive curriculum, and implementation of the developed curriculum</p>

<p>In the LEA setting, students have the advantage of participating in CTE coursework over their entire 9-12 continuum.</p> <p>Post-secondary partners serve on advisory committees, which meet twice during the school year. They provide ideas and feedback, which teachers use to create new learning experiences that will help students in post-secondary settings. <i>While this is what has been reported, there are questions about how universal this work is and the extent to which post-secondary feedback is used to drive curriculum.</i></p> <p>In dual-credit courses, there is a strong partnership between the college and the CTE faculty to ensure that the curriculum is delivered as developed by the college.</p> <p>Approval for “specialized” credits is relatively rare, with most centers focusing on the approval for integrated credits only, and in some cases, only approval for the English integrated credit is defined.</p> <p>In several locations, a pull-out model is used either in concert with or exclusive of integrated coursework. In general, students must express an interest in a dual credit course and meet certain qualifications, such as good attendance, CTE class average of 75%, district approval, and being in good standing to be eligible to participate.</p> <p>Academic content is seamlessly embedded into CTE curriculum more often with the help and expertise of an academic integration teacher.</p>	<p>The collaboration with post-secondary partners focuses primarily on the CTE content and not on the academic outcomes, unless it is for dual credit purposes.</p> <p>The participation of academic teachers in the review process for program approval and re-approval varies significantly. The working relationships and/or the politics between the districts and the BOCES appear to have the greatest impact on the intended purpose of integration. In many cases, academic teachers are reluctant to engage due to the politics.</p> <p>The importance of functional math far outweighs the need to “teach” math beyond the Regents exam. In general terms, there appears to be a mismatch between what a curriculum says is to be taught and what actually happens.</p> <p>Since the CTE programs drive the master schedule, it is important that the CTE teachers focus as much on reading, writing, math, and science skills to enhance the learning environment; however, no academic credit is awarded.</p> <p>Dual credit options are not always offered in an integrated format.</p> <p>In the LEAs, SWDs are treated the same as general education students; however, if a student cannot complete the CTE program, he/or she is often placed in a special CDOS program. Another outcome widely seen is that students get a “reduced” program and are not expected to meet all of the same requirements as the other students.</p>	
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<p>Continual planning and development improve the quality of the curriculum, and the re-approval process also helps keep things current. While this is what has been reported in many of the individual reviews, there are questions about the extent to which continual planning and curriculum development happens beyond the re-approval process. There are also some questions about how far programs go to lay out the academic skills and knowledge to be taught. The use of standards and performance indicators appear to be the predominant approach to arraying academic curriculum.</p> <p>Each CTE program has an advisory committee that meets at least once a year. However, the provision of advice and guidance is ongoing throughout the year. While this is what has been reported, there are questions about how universal this is and the degree to which advisory committees have direct input into a CTE curriculum.</p> <p>Generally, SWDs are provided with the same academic content as their general education peers with the help of differentiated instructional strategies.</p> <p>In cases where literacy is a focus across all CTE programs, there seem to be more effective ELA outcomes that match industry expectations.</p> <p>CTE and academic integration teachers involved with dual credit courses meet with college faculty to review curricular alignment and discuss</p>	<p>Lack of CTE teacher understanding of rigor/commencement level academics is a concern in many cases and sometimes becomes a “political battle” between teachers or one side acquiesces to the other.</p>	
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<p>assignments that may be included in the dual credit course.</p> <p>One BOCES has established an Academic Consultant Committee that specifically is used to support the development and revision of integrated content across all program areas.</p> <p>CTE course curricula are developed to ensure that academic integration is consistent with the expectations of the districts. The approval process and the involvement of district personnel help in developing the awareness of academic integration and how it is deployed in CTE programs.</p> <p>In LEA settings, academic integration is less important as the students can take required courses in addition to their CTE major. The academic credit is used as a safety net in most cases. In addition, most offer traditional academic programs with an occasional “reverse integration” event. LEAs see the importance of enhancing the CTE curriculum with integrated learning activities for improving the rigor of the CTE program, rather than for meeting graduation requirements.</p> <p>The curriculum is cross-walked to academic standards in some approved CTE programs. However, the academic teachers in the district do not support the CTE teachers directly in the classroom.</p> <p>CTE teachers work with local industry to identify current and future trends for their trade or technical area on an ongoing basis. However, there is generally little discussion about the academic elements of the program.</p>		
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STRENGTHS	WEAKNESSES	POTENTIAL TOPICS FOR PD
<b>Implementation</b>		
<p>Students are engaged in learning at a much deeper level and see the value of the academic understandings to deal with real-world problems and scenarios.</p> <p>Collaboration and constant revision of the curriculum are often voiced as the keys to a successful integration process.</p> <p>At Advisory Committee meetings, industry partners may describe the skills (soft skills, communications skills, interviewing techniques, etc.) that they would like to see in their new employees.</p> <p>The support of a special education consultant teacher is extremely beneficial. It provides an individual who is familiar with differentiation strategies and testing modifications that can greatly enhance CTE teachers' effectiveness with SWDs.</p> <p>At one center, professional development is provided monthly on instructional strategies, development of learning targets, unit planning, etc.</p> <p>Through one BOCES dual enrollment program, some of the academic and CTE teachers are adjuncts for post-secondary institutions.</p> <p>In one instance, students take Financial Math (MA123) as part of their math requirements.</p>	<p>The student load for academic integration teachers ranges from 60 to over 1,000 students and is often large. This directly impacts teachers' ability to provide direct instruction in the CTE classrooms for their specific content.</p> <p>Little is offered on the topic of academic integration strategies by outside sources, leaving organizations to identify their own strategies and approaches. Also, respondents often defined integration through the lens of credit acquisition and not as a delivery method.</p> <p>What constitutes "integration" and the methods for integrating academic subjects into CTE vary significantly. There is little evidence that the philosophical underpinnings have been thought through at the system level.</p> <p>While there are some situations where academic integration is scheduled in a formal manner, integration support is generally provided on an as-needed basis and driven by the CTE teachers. This may mean that there are sizeable differences in what students get.</p> <p>Budgetary issues have created a challenge because teacher positions have been lost, overloading the remaining academic teachers and making it difficult to have a co-teaching implementation platform.</p> <p>In the LEA setting, very little direct instruction is provided by academic integration teachers; they</p>	<p>Assessment strategies, project-based grading, and assessment of writing in CTE programs</p> <p>Resources available from CTE-TAC, ACTEA, SREB, and online sites such as ACTE that support the academic integration process</p> <p>How to develop, implement, and assess quality integration activities</p> <p>Leadership development of a construct or structure for the entire enterprise that ensures academic integration and CTE teacher collaboration on curriculum development and assessment strategies</p>

<p>Those wanting College Now credit can pay tuition and complete additional assignments.</p> <p>Academic integration is taking place all the time in CTE programs, whether an academic teacher is present or not. While this is generally a positive occurrence, it does bring into question the expertise of those teaching the academic content and whether students are getting commencement level instruction.</p> <p>Curriculum coaching and mentoring for all teachers through a curriculum coordinator does occur, but it is not the rule.</p>	<p>are primarily responsible for co-planning and co-assessing learning activities. While this situation is a little better at the BOCES, there are a sizeable number where it is also true.</p> <p>In one LEA, there are separate CTE courses for <u>SWDs</u> that provide the necessary supports to ensure student success in the skill-based learning activities, but they are not responsible for integrated academics.</p> <p>Professional development from outside sources is not consistent, and multiple providers are used based on the choices of the administrative team. PD is often based on either individuals or peripheral issues within a program and not universally applied.</p>	
<b>STRENGTHS</b>	<b>WEAKNESSES</b>	<b>POTENTIAL TOPICS FOR PD</b>
<b>Effectiveness</b>		
<p>Rubrics are created by academic teachers in some cases and either used by CTE Teachers or academic teachers for grading purposes.</p> <p>Students complete the ACCUPLACER exams. If they receive a qualifying score, they can complete work to earn college credit.</p> <p>Students have access to dual credit college coursework in many cases, especially in such areas as English composition and freshman math.</p> <p>The learning process focuses on the “why” more than the “what” or “how.” This forces teachers</p>	<p>There are varying levels of support from school districts for using the academic credit to help students meet graduation requirements. Some accept all approved units for academic credit. Some have local requirements in addition to the integrated academic credit, some identify only certain students for academic credit, and some use the integrated credit as a safety net.</p> <p>Measurement of academic integration teacher effectiveness needs to be more fully developed and used universally across all organizations if possible.</p> <p>In most instances, the rubric evaluation for academic integration teachers is not a good</p>	<p>Development of measurements related to academic integration teacher effectiveness</p> <p>Building the capacity for CTE and academic integration teachers to work together to contextualize academic content, which will help to develop consistency across multiple centers.</p> <p>Development of universal assessment strategies to ensure the quality of the integrated learning activities being implemented</p>

<p>and students to participate in a learning environment that is focuses on developing thinking skills than on earning Carnegie units for seat time.</p> <p>There are many variations on how districts award credit for students in approved CTE programs, and the consensus is that they are typically accepted and frequently used. In LEAs, they are generally used as a safety net for students who do not pass the regular academic courses.</p> <p>The measurement of the effectiveness of academic integration teachers is generally consistent with APPR agreements in the centers and LEAs.</p> <p>Administrative oversight of the level of rigor in the curriculum happens during preparation for re-approval and as an ongoing process in the evaluation of program effectiveness.</p> <p>In some cases, it does serve as a safety valve, but for the majority, they are here because the academic integration approach simply works</p> <p>At one BOCES separate committees (access committees) meet quarterly with representatives from each district including principals, coordinators, counselors, and others to brainstorm ideas for improvement.</p> <p>Students who meet mastery requirements in English 11 can participate in a dual credit college course in EN101 through the local community college; however, tuition (\$180) is charged for this course.</p>	<p>match for the collaborative work they typically do. In cases where there is more direct instruction (push-in), they have a better match to the rubrics.</p> <p>Although Perkins indicators are used in some cases to point to the effectiveness of the integration of academics in CTE programs, there is no direct connection that can be used to demonstrate effectiveness.</p> <p>There is no systematic way to measure academic integration teacher effectiveness, no self-assessments used, and no external partnerships to measure teacher effectiveness.</p> <p>Districts in the BOCES model are not fully aware of how effective the Integration process is and how little support there has been from NYSED to push the integration of academics within their own school structure.</p> <p>Data on program effectiveness, grades, attendance, etc. is used to evaluate programs as well as other measures that do not directly address the effectiveness of the work that an academic integration teacher does.</p> <p>Most districts still consider awarding of academic credit as a “safety valve” for students who don’t succeed in academic courses in the home school.</p> <p>The challenge has been to develop integrated academics that are still related to the outcomes for the technical area/trade and meet commencement level standards. Many students have difficulty with basic math concepts and arithmetic; therefore, teaching at the commencement level while contextualizing is a</p>	
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<p>CTE teachers develop more confidence with academic content as they continue to teach the concepts that have been identified in the co-planning process.</p>	<p>tremendous challenge, which programs are working to address.</p> <p>In LEAs, there is a perception by the academic teachers that academic integration is not rigorous and comprehensive enough, and therefore they do not fully endorse the model. They see their model of delivery as the only way to hold students accountable to commencement level standards.</p> <p>Often, make dual credit is only available to certain students in specific programs where a teacher has the credentials to become an adjunct with the college involved.</p>	
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## Teacher Elements of Academic Integration

STRENGTHS	WEAKNESSES	POTENTIAL TOPICS FOR PD
<b>Co-Planning</b>		
<p>Academic teachers gather and materials to support the instruction of academics by CTE teachers (videos, books, periodicals, guest speakers, post-secondary partners).</p> <p>The CTE teachers make academic integration teachers aware of their curricular goals and then the academic teachers identify the core content and academic standards that are aligned with the learning activity or unit plan.</p> <p>Teachers in some cases do not work on a rigid schedule, rather a flexible schedule that allows for meetings before and after school, during the break between student instruction times and through working lunches.</p> <p>Academic integration teachers meet with CTE teachers to create lesson plans and share ideas regarding how to teach certain topics, assess student progress, and develop differentiated learning strategies.</p> <p>Academic integration teachers discern which academic standards are present in CTE curriculum and then co-plan lessons with the CTE teacher and co-delivering them.</p> <p>Both the academic and CTE teachers initiate ideas for the development of integrated learning activities; the academic integration teacher</p>	<p>There is very little evidence that formal curriculum maps play a role in daily planning.</p> <p>There are many variations on the theme of scheduling co-planning and co-teaching across the sites visited.</p> <p>CTE teachers are still not familiar enough with the NYS Learning Standards for ELA and math.</p> <p>There seems to be a lack of collaboration between teachers across the zones and state.</p> <p>In most cases, a small number of academic integration teachers (sometimes only one in each content areas) support 15-20 CTE teachers and program areas.</p> <p>No “preps” are built into the CTE teachers’ schedules. Some have time after students have left at the end of the day, but there simply is not enough planning time in many cases.</p> <p>BOCES tend to be at the mercy of the districts with respect to conference days. Asking districts to hold their BOCES students at school to allow for a planning day does not typically happen.</p> <p>There is no formal process to identify the importance of academic proficiency that cross-walks between the CTE curricula and the college coursework.</p>	<p>Developing and implementing best practices in co-planning strategies, intended outcomes for the planning sessions, and assessment strategies</p> <p>For CTE teachers, understanding the NYS Learning Standards in ELA and math</p> <p>Purposeful techniques and structures that can enhance the outcomes of the planning process and can be documented</p> <p>Using summer recess to support the curriculum development process in all settings</p> <p>Developing a structure that promotes and supports collaboration between teachers from different BOCES and LEAs</p> <p>Developing common planning time and providing multiple ways in which the planning process can take place</p>

<p>generally decides what the crosswalks to the common core standards are.</p> <p>CTE teachers ensure that the program is meeting the technical and industry standards and align curriculum and lessons to technical and industry standards for CTE lessons.</p> <p>Crosswalks and curriculum maps are aligned to technical and industry standards.</p> <p>Academic integration teachers develop lessons, co-plan, and solicit CTE teachers' feedback and recommendations for enhancement of relevance and application to the technical standards.</p> <p>CTE instructors develop lessons, co-plan, and solicit academic teachers' feedback and recommendations for enhancement of rigor and relevance.</p> <p>Programs are more effective where time is available daily for planning and development of lessons, curriculum, and assessment strategies; discussion of PBL learning activities; and approaches to supporting SWDs.</p> <p>Common planning time is provided for CTE and integrated academic teachers to meet, collaborate, and plan lessons and units. Both the CTE and academic teachers are part of the re-approval process and work together to review lessons, units, and curriculum maps and update the standards and crosswalks.</p> <p>Academic and CTE teachers plan informally and formally on almost a daily basis.</p>	<p>In the LEAs, CTE teachers provide the academic teachers with content awareness, but the relationship between them and the academic teachers is very limited.</p> <p>At the LEAs, the CTE teachers provide integrated academic content which naturally occurs in their CTE area, but no formal co-planning is.</p> <p>No common planning time is identified in the schedule as there are no integrated academic courses identified in approved CTE programs.</p>	
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<p>Academic teachers provide suggestions for increasing academic rigor in CTE content areas.</p> <p>Where common planning time is available and required, the quality of the integrated learning activities is typically enhanced.</p> <p>The CTE teacher assists the academic teacher to give perspective on the “natural fit” of academic content in the CTE program.</p> <p>Even with separate grading, the academic content is frequently embedded into the CTE curriculum. The co-planning process is key in the development of learning activities.</p> <p>Projects are frequently discussed that end up in a collaboration of multiple CTE program areas.</p>		
<b>STRENGTHS</b>	<b>WEAKNESSES</b>	<b>POTENTIAL TOPICS FOR PD</b>
<b>Co-Teaching</b>		
<p>Academic integration teachers do push-in and occasionally work with students needing additional support through pull-out sessions.</p> <p>Teachers provide direct instruction to students who are challenged by the rigor of the content and support for them with differentiated assignments.</p> <p>SWDs are expected to meet the same academic outcomes as other students; however, there are many differentiated learning activities that help support the learners. Resource teachers assist</p>	<p>In many BOCES settings, special education teachers support CTE teachers in working with SWDs, but there are few instances of co-teaching in the CTE instructional area.</p> <p>Co-teaching is typically described as a push-in model where the academic integration teachers come into the CTE setting and deliver a lesson, sometimes related to the learning activity and sometimes addressing academic standards that are not directly related to the current learning focus.</p>	<p>Developing effective co-teaching strategies</p>

<p>students in the acquisition of both CTE content and related academic skills.</p> <p>Projects are typically co-developed and occasionally co-delivered by both the academic and CTE teachers.</p> <p>In one LEA, the math teacher pushes into the CTE class to work on key math concepts to ensure students develop the skills to earn the Integrated Math credit. These are students who are not scheduled in the 3<sup>rd</sup> year of math and are repeating or have no room to repeat a class.</p>	<p>AIS services are provided to students identified as needing support. A pull-out and push-in schedule is created at the beginning of the year by dedicated Title I teachers. This is not a co-teaching approach but rather an AIS response.</p> <p>In one LEA, CTE teachers are left to provide the integrated academic content without academic teacher support, as the curriculum has been cross-walked and the academic content is considered naturally occurring. There is support for common planning time that provides input from the academic teachers for the review of student work.</p>	
<b>STRENGTHS</b>	<b>WEAKNESSES</b>	<b>POTENTIAL TOPICS FOR PD</b>
<b>Co-Assessing</b>		
<p>Academic integration teachers provide assessment support for CTE teachers related to academic integration learning activities (development of rubrics and rating sheets as well).</p> <p>The CTE teachers seek the support of the academic integration teachers now more for assessment strategies and evaluation of achievement of the standards than for identification of the standards.</p> <p>Grading sometimes occurs using “split rubrics” that cover both CTE and academic expectations.</p> <p>All math lessons have been cross-walked to state standards, and a rubric has been developed for all activities in each curriculum. The CTE and math teachers grade the students based on the rubric.</p>	<p>There are many assessment strategies; some give a separate grade for assignments that focus on academic content, some are graded by the CTE teacher, some use both CTE and academic teachers to grade the same activity, and still others rely on push-in or pull-out activities for grading academic content. These various methods of assessment make it difficult to determine the degree to which students are gaining academic skills and knowledge.</p> <p>Differentiated assessment strategies for SWDs were not generally observed. The learning activities were somewhat differentiated, but not the assessments.</p> <p>Assignments may be graded by the academic teacher, the CTE teacher, or both, with the teachers focusing on their content expertise.</p>	<p>Assessment strategies for integrated learning activities.</p> <p>Approaches to grading academics in CTE programs: who does what</p> <p>Assessment strategies for problem-based learning</p> <p>Assessments that explicitly document the achievement of academic concepts</p>

<p>Students who receive a 2.5/4 or above are eligible for the Integrated Math credit.</p> <p>CTE lessons have been cross-walked to the state standards for ELA. A series of ELA activities and written tasks have been developed and are completed either individually or in small groups with the ELA support teacher. Each activity is graded per the developed rubric. Activities that require CTE specific knowledge are jointly graded.</p>	<p>Multiple grades may be given for the same assignment.</p>	
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**Appendix D**  
**CTE and Academic Integration Self-Assessment Rubric**

<b>STANDARDS OF PRACTICE</b>	<b>INEFFECTIVE</b>	<b>DEVELOPING</b>	<b>ACCOMPLISHED</b>	<b>EXEMPLARY</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>

**Curriculum at the Systems Level**

<b>Standardized curriculum templates are developed and/or adopted that articulate a CTE program’s industry, academic, CDOS, CFM, and career readiness standards.</b>	There is no standardized curriculum template evident and/or there are NO connections to associated standards.	Standardized curriculum templates are developed but are NOT used by all and DO NOT FULLY articulate associated standards.	Standardized curriculum templates are developed, are used by all, and EFFECTIVELY articulate MOST but NOT ALL associated standards.	Standardized curriculum templates are developed, are used by all, and CLEARLY articulate ALL associated standards.
<b>Curriculum documents describe what skills, knowledge, behaviors, and competencies are to be learned and explicitly outline learning activities and assessment strategies.</b>	Curriculum documents DO NOT describe what competencies are to be learned and DO NOT outline learning activities and/or assessment strategies.	SOME Curriculum documents describe the skills, knowledge, competencies, and behaviors to be learned, but DO NOT describe learning activities AND/OR assessment strategies.	MOST curriculum documents describe the skills, knowledge, competencies, and behaviors to be learned AND outline learning activities BUT NOT ALL assessment strategies.	ALL curriculum documents describe the skills, knowledge, competencies, and behaviors to be learned and outline learning activities AND ALL assessment strategies.
<b>Curriculum documents include course descriptions, crosswalks, outlines, sequencing maps, unit plans, and assessment strategies.</b>	Curriculum documents DO NOT include anything more than scope and sequence, if developed at all.	Some curriculum documents are used and include course descriptions, outlines, and unit plans, but DO NOT include maps, crosswalks, and assessment strategies.	MOST curriculum documents are used by all and include all components, but some fail to include assessments or crosswalks in all areas.	ALL curriculum documents are used by all and include course descriptions, crosswalks, outlines, sequencing maps, unit plans, and assessment strategies.

<b>System-wide standardized approaches are used to assess the comprehensive use of the developed curriculum and its implementation with fidelity.</b>	There is NO standardized approach to assess whether the developed curriculum is the implemented curriculum.	There is a basic approach to assess the implementation of the developed curriculum, but it is NOT fully documented to determine fidelity of curriculum use.	There is a fully documented and standardized approach to assess if the developed curriculum is implemented BUT it is NOT used in ALL programs.	There is a fully documented system-wide approach to assessing the implementation of the developed curriculum in ALL programs by BOTH academic and CTE teachers.
<b>Curriculum development occurs using external partnerships (e.g., post-secondary, SREB, industry and zone/statewide educators).</b>	There is NO evidence that external partners are used to support the development of curriculum.	There is evidence that external partners are used to support the development of curriculum in SOME but not all program areas.	Documentation exists that external partners are used to support the development of curriculum in MOST but not all program areas.	Documentation exists that external partners are used to support the development of curriculum in ALL program areas without exception.
<b>Differentiation strategies for students with disabilities (SWDs) are identified in the curriculum.</b>	NO differentiation strategies are included in the curriculum documents.	Differentiation strategies MAY exist but are not formally identified in the curriculum.	Differentiation strategies are identified in MOST but not all curriculum documents that support SWDs.	Differentiation strategies for SWDs are identified in ALL curriculum in ALL program areas.
<b>Employability profiles include statements of competency related to academic proficiency in addition to industry, CDOS, and career readiness standards.</b>	Employability profiles ARE NOT developed and/or DO NOT include all components.	Employability profiles are developed for MOST but not all programs and may fail to include one or more of the identified components.	Employability profiles are developed for ALL programs but SOME fail to include academic proficiency statements.	ALL employability profiles include statements of competency related to academic proficiency in addition to industry, CDOS, and career readiness standards.

## Curriculum at the Teacher Level

STANDARDS OF PRACTICE	INEFFECTIVE 1	DEVELOPING 2	ACCOMPLISHED 3	EXEMPLARY 4
<b>Standardized curriculum templates are used to frame co-planning efforts and guide day-to-day planning for instruction.</b>	Curriculum is NOT based on the standardized template and does not effectively guide planning efforts.	The curriculum IS developed using the standardized template but DOES NOT effectively guide co-planning and/or daily plans.	The curriculum is WELL DEVELOPED using the standardized template and IS used to plan daily lessons but NOT co-planning efforts.	The curriculum is WELL DEVELOPED using the standardized templates and is used for planning lessons AND co-planning efforts with academic teachers.
<b>Co-planning time is productive and purposeful and drives instructional strategies.</b>	Co-planning time is NOT scheduled or used to support the planning of instructional strategies.	Co-planning time is RANDOM, not fully productive or purposeful, and NOT used to drive instructional strategies.	Co-planning time is MOSTLY scheduled, productive, and purposeful and IS USED to drive instructional strategies.	Co-planning time is explicitly scheduled, HIGHLY productive and purposeful, and USED to develop new instructional strategies.
<b>Integrated learning activities are co-planned and align with the industry-based knowledge and skills identified in the curriculum.</b>	There is NO evidence that co-planning takes place or, if it does, it may not align with industry standards.	Integrated learning activities are generally NOT co-planned but SOMETIMES align with the industry-based knowledge and skills identified in the curriculum.	Integrated learning activities are NOT ALWAYS co-planned and MOSTLY align with the industry-based standards in the curriculum.	Integrated learning activities ARE co-planned, documented, and FULLY aligned with the industry-based knowledge and skills identified in the curriculum.
<b>Assessment strategies are co-planned to routinely evaluate the acquisition of academic knowledge, skills, and proficiency.</b>	There is LITTLE or NO co-planning or use of assessment strategies to determine academic proficiency.	Assessment strategies are OCCASIONALLY co-planned, randomly documented, and NOT ALWAYS USED to evaluate academic knowledge and skills.	Assessment strategies are GENERALLY co-planned, documented, and USED to evaluate academic knowledge, skills, and proficiency.	Assessment strategies are ALWAYS co-planned and explicitly documented to evaluate academic knowledge, skills, and proficiency.

## Implementation at the Systems Level

STANDARDS OF PRACTICE	INEFFECTIVE 1	DEVELOPING 2	ACCOMPLISHED 3	EXEMPLARY 4
<p><b>The number of academic integration teachers is adequate to ensure commencement level standards are met equally well in all programs, by all students.</b></p>	<p>The number of certified academic teachers is NOT adequate to support the number of CTE students enrolled in all programs.</p>	<p>There are just enough certified academic teachers for the student enrollment, but they are NOT effectively used to support all programs equally well.</p>	<p>There is an adequate number of certified academic teachers to EFFECTIVELY support commencement level standards in all programs equally well</p>	<p>Academic teachers are assigned to support each career cluster individually to ENSURE that commencement level standards are met by ALL students in ALL programs.</p>
<p><b>The formal teacher evaluation process includes assessment of the implementation of the integrated curriculum developed.</b></p>	<p>There is NO formal or informal assessment of the implementation of the developed curriculum.</p>	<p>There is an INFORMAL assessment of the implementation of the developed curriculum.</p>	<p>There is a FORMAL assessment of the implementation of the developed curriculum.</p>	<p>FORMAL and INFORMAL assessments of the effectiveness of the implementation of the curriculum are used.</p>
<p><b>The organization establishes and utilizes outcome measures to determine integration effectiveness at the course/program level.</b></p>	<p>NO PROCESS is established or utilized to measure integration effectiveness.</p>	<p>A LOOSELY established process to measure integration effectiveness exists, but outcome measures have NOT been developed.</p>	<p>A process is established to determine integration effectiveness, outcome measures are developed and applied to MOST programs, and data is shared internally.</p>	<p>A formally documented process is established, developed outcome measures apply to ALL programs, and data is shared internally and externally.</p>
<p><b>Ongoing professional learning on integrating academics and CTE at local, regional, and state levels keeps staff current in best practices.</b></p>	<p>There is an ABSENCE of professional learning experiences on integrating academics and CTE.</p>	<p>Staff have participated in INITIAL professional learning on integrating academics and CTE, but none recently.</p>	<p>Staff participate in professional learning on integrating academics and CTE on an ONGOING basis.</p>	<p>Staff continually participate in and LEAD professional learning on integrating academics and CTE at all levels.</p>

<b>Instructional support staff are in place to assist SWDs meet expectations of established curriculum.</b>	NO additional staff have been identified to support learning strategies for SWDs.	Additional staff have been identified to support SWDs but generally are used as resource room support ONLY.	Additional special education staff assist SWDs by providing instructional support through BOTH push-in and pull-out approaches.	Special education teachers support SWDs in all program areas through COLLABORATIVE efforts with CTE teachers.
<b>A process is in place to routinely evaluate the implementation of the system-wide curriculum to ensure all curricular elements are included during the co-planning process</b>	NO PROCESS is established and/or used to determine if all curricular elements are included in co-planning	An evaluation process IS ESTABLISHED, used by some and may NOT be used to determine if ALL curricular elements are included during the co-planning process	There is an established evaluation process that is MOSTLY used to determine if ALL curricular elements are included during the co-planning process	The established evaluation process is ROUTINELY used to determine if ALL curricular elements are included during the co-planning process

## Implementation at the Teacher Level

STANDARDS OF PRACTICE	INEFFECTIVE 1	DEVELOPING 2	ACCOMPLISHED 3	EXEMPLARY 4
<b>The primary model used to support academic integration is a consistent push-in/co-teaching model, which ensures quality instruction based on the expertise of the academic and CTE teachers.</b>	The model for academic integration support does NOT ensure the quality of instruction due to lack of expertise or capacity.	Integration support relies heavily on RANDOMLY co-planned or co-taught lessons that are NOT connected to the industry standards within the CTE curriculum.	Integration support is provided through a co-planning and co-teaching approach that is MOSTLY scheduled and directly connected to the industry standards being taught.	Academic integration support is achieved through a CONSISTENTLY implemented and scheduled push-in/co-teaching model that ensures quality of instruction is based on teacher expertise.
<b>The co-planning process identifies and defines the co-teaching roles to ensure equitable and active involvement by both academic and CTE teachers</b>	The co-planning process FAILS to define the roles of both academic and CTE teachers to ensure active involvement.	The co-planning process identifies the co-teaching roles but does NOT define them well enough to ensure equitable and/or active involvement by both academic and CTE teachers.	The co-planning process IDENTIFIES and DEFINES the co-teaching roles to ensure equitable and active involvement by both academic and CTE teachers.	The co-planning process is used to IMPROVE co-teaching and ensure the equitable and active involvement by both academic and CTE teachers.

<b>Visual representations are evident in the learning environment that show a commitment to the integration process.</b>	Visual representations that show the importance of academic content in the CTE program area are FEW or ABSENT entirely in the learning environment.	Visual representations are present in the learning environment but DO NOT effectively demonstrate the importance of academic knowledge in CTE.	Visual representations in the learning environment CLEARLY demonstrate the importance of academic knowledge in CTE.	Visual representations in the learning environment demonstrate the COMMITMENT to academic knowledge in CTE.
<b>Student evaluation measures are established for implementation of co-planned activities to show the connection of technical and academic skills and knowledge.</b>	Student evaluation measures are NOT established that show the connection between technical and academic skills and knowledge.	Student evaluation measures are developed but DO NOT ALWAYS show the connection between technical and academic skills and knowledge.	Student evaluation measures are developed and IMPLEMENTED that show the connection between technical and academic skills and knowledge.	Student evaluation measures are developed through the CO-PLANNING process that show the connection between technical and academic skills and knowledge.
<b>Students perceive both academic and CTE teachers as equally important in the integrated learning environment.</b>	Students DO NOT perceive both academic and CTE teachers as equally important in the integrated learning environment.	Students typically perceive CTE teachers as MORE important in the integrated learning environment.	Students generally perceive both academic and CTE teachers as EQUALLY important in the integrated learning environment.	Students in ALL programs perceive both academic and CTE teachers as equally important in the integrated learning environment.
<b>Both CTE and academic integration teachers are involved in, and responsible for, co-assessment strategies designed to measure student performance.</b>	CTE teachers are SOLELY responsible for assessment strategies.	Both CTE and academic integration teachers are involved in assessment, but strategies are NOT typically co-planned.	Both CTE and academic integration teachers are involved in CO-ASSESSMENT of students in relation to integrated academics.	Both CTE and academic integration teachers are involved in co-planning and co-assessment strategies in ALL programs.

## Effectiveness at the Systems Level

STANDARDS OF PRACTICE	INEFFECTIVE 1	DEVELOPING 2	ACCOMPLISHED 3	EXEMPLARY 4
<b>Metrics are defined and developed that measure overall academic integration effectiveness at the organizational level.</b>	NO metrics are defined that measure overall organizational effectiveness for academic integration.	Metrics are developed to measure effectiveness but are NOT fully institutionalized and used consistently across all program areas.	Metrics have been defined that measure effectiveness of the academic integration process and are used in ALL programs.	Metrics have been defined that measure effectiveness of the academic integration process and are used to GUIDE program improvement.
<b>External partners/stakeholders are enlisted to provide input on strategies to measure program effectiveness.</b>	External stakeholders are NOT engaged in supplying input on measuring the effectiveness of integration efforts.	A loose process is in place to obtain input from external partners but NOT related to strategies for measuring program effectiveness.	A process is established to engage external partners to obtain input on strategies for measuring program effectiveness in ALL areas.	An explicitly documented system to solicit input from external partners is utilized by ALL program areas and guides efforts to improve academic integration.
<b>A system-wide approach exists that measures program effectiveness using qualitative and quantitative evidence with emphasis on quantitative evidence.</b>	NO system-wide approach is used to measure program effectiveness using qualitative or quantitative measures.	A system-wide approach is USED INCONSISTENTLY to measure program effectiveness using qualitative measures but NOT quantitative measures.	A system-wide approach is MOSTLY USED to measure program effectiveness through qualitative measures and some quantitative measures.	System-wide approaches CONSISTENTLY measure program effectiveness through BOTH qualitative and quantitative measures.
<b>Program effectiveness data is established and used with faculty and staff to drive goals and improvement targets.</b>	Program effectiveness data is NOT USED with faculty and staff if it is collected at all.	Program effectiveness data IS USED with faculty and staff to provide information but FAILS to drive improvement.	Program effectiveness data IS USED to provide information to faculty and staff that INFORMS program improvement initiatives.	Program effectiveness data IS USED to provide information to faculty and staff that DRIVES program improvement initiatives.

<b>Grading system parameters are established for co-teaching strategies to ensure performance standards for students are universally implemented by teaching staff.</b>	NO grading system is in place that guides co-assessment of co-teaching strategies.	Grading system parameters HAVE BEEN established for co-teaching strategies but are NOT universally implemented in all program areas.	Grading system parameters HAVE BEEN established for co-teaching strategies and are CONSISTENTLY implemented in all programs.	Grading system parameters established for co-teaching strategies have led to IMPROVEMENT in the co-planning and co-teaching process system-wide.
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## Effectiveness at the Teacher Level

<b>STANDARDS OF PRACTICE</b>	<b>INEFFECTIVE 1</b>	<b>DEVELOPING 2</b>	<b>ACCOMPLISHED 3</b>	<b>EXEMPLARY 4</b>
<b>Formative and summative assessments are co-developed and align with identified system metrics</b>	There is NO evidence that assessments are co-developed or are matched to system metrics.	Assessments have been co-developed in SOME programs but are NOT consistent with identified system metrics in all cases.	Assessments have been co-developed in ALL programs and MOSTLY align with identified system metrics.	Assessments have been co-developed in ALL programs that STRONGLY align and support identified system metrics.
<b>Collaborative evaluation strategies for measuring student academic learning outcomes are evident for integrated activities.</b>	There is NO collaboration between teachers for measuring student academic outcomes.	INCONSISTENT collaboration for the assessment of integrated academic outcomes is evident in most units or lesson plans.	There is a CONSISTENT commitment to collaboration for student assessment of academic proficiency in integrated learning activities.	Collaborative evaluation strategies for measuring student outcomes is CONSISTENTLY evident and demonstrably IMPROVES integrated academic learning activities.
<b>Project-based learning (PBL) assessment strategies include the use of rubrics that are developed and implemented collaboratively.</b>	NO rubrics are developed through collaborative efforts between academic and CTE teachers.	PBL assessment strategies frequently DO NOT include the use of rubrics developed through collaborative efforts.	PBL assessment strategies include the collaborative DEVELOPMENT of rubrics used separately by academic and CTE teachers.	PBL assessment strategies include the collaborative development and USE of rubrics by BOTH academic and CTE teachers.

<p><b>Co-assessment strategies include measuring additional outcomes, such as career readiness, CDOS, and CFM elements.</b></p>	<p>Additional outcomes such as career readiness, CDOS, and CFM elements are NOT typically assessed,</p>	<p>CDOS, career readiness, and CFM elements MAY BE measured but NOT through collaborative efforts.</p>	<p>CDOS, career readiness, and CFM elements ARE measured through collaborative efforts between CTE and academic teachers.</p>	<p>ALL co-assessment strategies include measuring additional outcomes, such as career readiness, CDOS, and CFM elements and are consistent with grading parameters.</p>
<p><b>Assessment strategies explicitly measure specific academic skills, knowledge, and content.</b></p>	<p>There are NO assessment strategies that measure specific academic skills.</p>	<p>Assessment strategies INCONSISTENTLY measure academic skills and/or knowledge documented in the formal curriculum.</p>	<p>Assessment strategies GENERALLY measure academic skills, knowledge, and content documented in the formal curriculum.</p>	<p>Assessment strategies EXPLICITLY measure specific academic skills, knowledge, and content documented in the formal curriculum.</p>
<p><b>Academic integration teachers participate in the evaluation of associated technical and academic skills, knowledge, and content within an assessment strategy.</b></p>	<p>Academic integration teachers DO NOT participate in the evaluation of technical and academic skills/knowledge.</p>	<p>Academic integration teachers participate in the evaluation of academic content ONLY.</p>	<p>Academic integration teachers MOSTLY participate in the evaluation of associated technical and academic content.</p>	<p>Academic integration teachers ALWAYS participate in the evaluation of associated technical and academic skills, knowledge, and content.</p>

## **Appendix E**

### **Best Practices for Academic Integration**

#### **Comprehensive Integration Model**

Cayuga-Onondaga BOCES

The Comprehensive Integration Model uses a standardized curriculum template that articulates industry, academic, CDOS, CFM, and career readiness standards. Curriculum documents include course descriptions, crosswalks, outlines, sequencing maps, and unit plans.

A unique component of the curriculum development process involves the use of external partnerships established for the specific purpose of reviewing and guiding the academic integration process. This Academic Consultant Committee meets with the academic integration teachers, just as typical CTE advisory committees provide input on the industry standards for CTE teachers. Integrated learning activities align with the industry-based knowledge and skills identified in the curriculum.

Co-planning is productive, purposeful and drives instructional strategies. The planning process identifies the co-teaching roles to ensure equitable and active involvement by both academic and CTE teachers within the daily program activities. The primary model used is a push-in/co-teaching model based on the expertise of the academic teachers. Evaluation measures clearly identify the connection between technical skills and academic knowledge.

Both CTE and academic integration teachers are involved in assessment strategies designed to measure student performance. Project-based learning assessment strategies include the development and use of rubrics that are implemented collaboratively. Academic integration teachers participate in the evaluation of integrated academic content within the scope of the project. Communication skills, problem solving, and real-world applications of math, science, and ELA are effectively embedded in project-based learning experiences. Employability profiles include statements of competency related to academic proficiency in addition to industry, CDOS, and career readiness standards.

In addition to the planning time provided during the school year, curriculum work is done during the summer to further enhance the integration process. Academic teachers are also involved with Regents testing and grading within their component school districts. This allows these teachers to remain current on Regents standards and provides an excellent opportunity to further enhance partnerships with district teachers.

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## **Co-Planning/Co-Teaching**

Tompkins-Seneca-Tioga BOCES

There has been significant effort to establish a standardized curriculum template that articulates industry, academic, CDOS, and CFM standards. Curriculum documents include course descriptions, crosswalks, outlines, sequencing maps, unit plans, and assessment strategies. At the BOCES, there are two academic integration teachers, one math and one science, who work with all approved programs to support the contextualization of academic content within the scope of the CTE program. Planning time is provided daily to ensure that the ongoing development and refinement of learning activities takes place in all programs.

These efforts have been supported by the addition of a part-time curriculum coordinator. This position has greatly enhanced the growth of the professional learning community, instructional strategies, unit planning, mentoring for new instructors, and updating of curriculum maps for each program.

Professional development is regularly scheduled throughout the year to provide support for the integration process. The academic and CTE teachers have time set aside to work with the curriculum coordinator for a full day about six times a year. Substitutes are secured to take over the classes to facilitate this work, which occurs during the school day.

Project-based learning assessment strategies include the development and use of rubrics that are implemented collaboratively. Academic teachers participate in the evaluation of associated academic knowledge within CTE learning activities, as well as senior projects and other project-based learning activities.

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## **Standardized Curriculum Template**

Madison-Oneida BOCES

A standardized curriculum template has been in place since the first round of program approvals more than 15 years ago. It has now been loaded into the Rubicon/Atlas online curriculum management tool, providing an electronically accessible resource for all stakeholders.

Unique to this BOCES is the integration of academics through both integrated and specialized options in all four content areas. The process has been heavily reliant on the team of academic teachers collaborating with the CTE teachers to develop rich, contextualized learning experience for students. The resulting curriculum documents describe the skills, knowledge, and competencies to be learned in both CTE and core academics and explicitly outline learning activities and assessment strategies.

“Integrating the integration” has come to characterize the planning process. Engaging all four academic teachers in the co-planning process with the CTE teacher to enhance learning activities that cut across all core disciplines is now the norm. Student assessment strategies are co-planned to routinely evaluate the acquisition of academic proficiency and are identified in the curriculum documentation. CTE teachers now seek the support of the academic teachers for evaluation of achievement of the standards embedded within their content.

The focus on literacy has been identified as one of the hallmarks of the academic integration team. All content teachers and a special education consultant teacher work together to integrate reading comprehension strategies in all programs.

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## **System for Curriculum Design and Self-Study Review**

Washington-Saratoga-Warren-Hamilton-Essex BOCES

A complete curriculum design has been generated to be used as the system level templates for all CTE program. It specifies the type of documents to be generated, their intended use by a classroom teacher, and the type of content to be located in them. The Atlas program is used as repository for all CTE and academic curricular elements developed for program approval and as the platform for reviews by business/industry along with component district academic teachers.

In addition, the same documented system outlines the basic self-study and external reviews that all programs utilize to become a CTE Approved Program. Internal and outside teams to rate the program in order to generate data around multiple documents and the content within them. In general, the system for each program review is made up of five sub-reviews: (1) an instructor/consultant committee review, (2) a two-day academic audit using component school ELA/math teachers, (3) a two-day business/industry audit, (4) an internal team audit, and (5) an external review as prescribed by the NYSED.

Academic audit reviews take place every year as part of the CTE approval process. In the external review process, post-secondary partners review the materials for comment, including advising about the rigor of the overall program. Industry partners are brought into an audit to confirm the academic concepts, skills, and knowledge that should be connected to the technical areas of the CTE curriculum. They also provide “real-world” applications for the academic concepts taught, including ideas for activities and problems to solve where the academic skills and knowledge are necessary.

Each industry member of the audit (non-consultant committee members) reviews and rates each CTE program using a developed rubric, in much the same manner as the academic audits. This provides a mechanism to obtain additional ideas for connecting technical content to academic skills and knowledge. In addition, industry scenarios are generated for classroom use (projects or assignments) to simulate actual work situations.

The complete document is available by request.

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## Measurement of Program Effectiveness

### Ulster BOCES

Ulster BOCES has some approaches to measuring program effectiveness that may spark additional thoughts about this important yet under-discussed concepts as it relates to integrated academics.

Ulster currently uses the pass rate on the English 11 Regents, pass rate for English 12 and the related Technical Communications (TCI) integrated course offered as part of the CTE program to judge academic integration effectiveness. Although the entire integration program does not utilize a system-wide approach to measuring effectiveness of all content areas, ELA is considered the area that most consistently measures effectiveness.

Currently, the “system” relies on anecdotal evidence as the basis of determining program effectiveness. The BOCES is working toward using the Qualtrics package to increase information obtained and lengthen how far out completers are asked questions.

Staff have already begun to more fully address program effectiveness and utilize other measures, including:

- tracking of graduates through the use of the completer study
- parent graduation surveys
- employability profiles

Additionally, year-end program data is generated, and teachers receive a copy of their specific results. The intention is to get teachers to think about what they do from the perspective of outcomes and not process.

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