



*Office of Postsecondary Pathways & Planning
Career and Technical Education*

**Resources for Schools:
Planning and Developing a CTE Program of Study**

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What is a Career and Technical Education (CTE) Program of Study?

A CTE Program of Study is a formalized program in a specific industry area that prepares students for direct pathways into postsecondary opportunities, be it in continued education toward a two- or four-year degree, further training, or workforce entry. Students in a CTE Program fulfill rigorous and integrated instruction of academic and industry-specific content as well as workforce readiness training and applied work-based learning experiences. By completion of a CTE Program of Study, students are expected to successfully pass a technical assessment, including industry-recognized certification or licensing examinations that lead to credentials, as evidence of their readiness for postsecondary employment, training, and/or education. Close engagement between the school and industry, postsecondary, community, and other external partners is critical to inform and validate the integrity of the program’s design and content to prepare students for such opportunities upon high school graduation.

Elements of a CTE Program of Study

All CTE Programs of Study will differ across schools and industry focus but are expected to share the following fundamental features:

- ❖ Curriculum & Sequence of Courses Relevant to Specific Career Pathway
 - Combines rigorous academic and technical content
 - Align to industry standards and NYS Learning Standards
- ❖ Work-based Learning activities
 - Includes career exploratory activities & job-readiness training
 - Internships in work setting
- ❖ Qualified instructors
 - Industry experience & CTE certification
- ❖ Technical assessment/Industry certification exam
 - End-of-program examination
 - Leads to industry-recognized certification, licensing or credential
- ❖ Post-secondary articulated agreement with partner institution
 - Provide smooth transition to continued education, training or entry into workforce based on completed CTE program of study
- ❖ External Partners
 - Help develop, review and validate program design and content
 - Support work-based learning efforts

Strategizing Around the Elements of a CTE Program of Study

As the school considers the factors involved in developing and implementing a CTE Program of Study, it is critical to engage school-wide staff—school leader, assistant principals (organization, ISS, PPS, etc), academic and CTE faculty, guidance personnel, data specialist, etc.— so that the CTE program is positioned to advance the school’s goals for student achievement.

The following are examples of organizational and instructional planning to consider for developing and implementing a CTE Program of Study.

- ❖ Identify your school’s objectives for the CTE Program of Study
 - What will this program prepare students for? Does this align with the school’s overall mission and goal for its students? Is there a demand for the program by students?
 - What industry-specific competencies and skills should students be able to demonstrate by completion of program?

- ❖ Consider the postsecondary pathways and opportunities available for students from this program
 - Is the school aware of the industry demand/job outlook for this industry area?
 - What are the career pathways and options?
 - What training and/or educational requirements are expected?

- ❖ Engage external partners in the design and implementation of the CTE Program of Study
 - Are there local business and community networks that the school can tap into?
 - What specific input does the school need from external partners, and what type of partner(s) would be best suited for this?
 - E.g.: give advice on industry trends/employment requirements, review course syllabus, serve as guest speakers, help identify or create a technical assessment, share postsecondary-level syllabi to help plan out curriculum or identify tie-in vs. overlap with CTE program, establish a postsecondary articulation opportunity, offer teacher training or externships, identify or host student internships
 - What specific *benefits for the external partners* (both tangible and intrinsic) can the school demonstrate so that they see value in their contribution and support to the school’s program?
 - What formal and informal forms of contact with external partners can be set up to ensure regular and relevant interaction?

- ❖ Plan out the program sequence that will allow students to achieve the program’s objectives
 - What progressive and set sequence of academic & technical coursework is needed to prepare students to meet these objectives?
 - Where is it possible/makes sense to offer integrated courses so that students can meet both academic and technical curricular requirements?
 - What Work-based Learning opportunities will be built into the students’ experiences beginning in grade 9 through graduation?
 - What exploratory (career day, job shadowing, mentoring, competitions, etc) and formal internship will allow for practical application of skills in a work setting?

- What industry-recognized technical exam or certification will students be prepared to take by end of program to validate their knowledge and competencies?
 - What articulation opportunity can the school and external partner provide students so that their CTE accomplishments carries over into postsecondary education, further training, or employment as value-added benefits, such as advanced standing or credit/tuition waivers?
- ❖ Ensure a school-wide approach toward implementing a CTE Program of Study
- Consider organizational factors that play into CTE planning. As examples:
 - How many courses are required to complete the program sequence? For an average CTE student to fulfill both academic and CTE requirements, what will their schedule look like? How about staffing? Class and space scheduling?
 - What budgetary considerations are needed in light of start-up versus ongoing equipment or facility and material needs?
 - What staffing implications need to be considered (eg professional development, common planning time between academic & CTE faculty, work-based learning coordinator's time, etc.)?
 - Students' ability to accumulate/recover credits toward graduation?
 - Consider instructional implications for CTE. For example:
 - How will students consistently know what they are expected to achieve by end of their grade vs program sequence? How might they be able to gauge their own progress?
 - What goals will the school set to determine the effectiveness of the program and how will the school assess outcomes?
 - Where might there be overlaps between concepts covered in CTE and academic classes and how can teachers from both take advantage of this to reinforce learning?
 - What support structures are available to ensure that students with IEPs have the opportunity to complete the program?
 - What school-wide data practices are in place to look at students' performances and identify those who need extra support?
 - Consider resources available to the school. For example:
 - What guidance is needed from the school's support organization to set up or implement the school's CTE plan?
 - What technicalities around the CTE Program of Study (licensing, state requirements, etc) can the DOE clarify?
 - How are various funding sources being applied toward the CTE program (eg school's operational budget, any supplemental funding and grants including VTEA, in-kind support, etc)?

Curricular Information

❖ **Career and Financial Management**

As part of a CTE program of study curriculum, the New York State Education Department requires a one-credit Career and Financial Management (CFM) course. This may be offered as a stand-alone course or integrated into other courses of the CTE program sequence. Please see the NYSED “Career and Financial Management” document for an outline of the topics to be addressed.

❖ **Online Database for CTE Curriculum**

The **Atlas/Career and Technical Education Curriculum Consortium (CTECC)** is an online curriculum resource for schools offering CTE. This database provides sample curricula mapping developed by teachers for CTE subject areas. ACTEA (Association for Career and Technical Education Administrators) sponsors and updates the content for the various subject areas.

As a school in the New York City school district, you can register to access the database for free. If you wish to use it further to customize its content, an additional fee is required. To register for free access, please send an e-mail of your name and e-mail to rutsunomiya@schools.nyc.gov

A webinar walk-through of Atlas CTECC was conducted in April 2010. You may access this webinar for free at <http://tinyurl.com/CTECCwebinar>

❖ **Integrated and Specialized Courses**

Where appropriate, an interdisciplinary course that fulfills both the academic and CTE requirement provides an effective way to strengthen student learning and help alleviate issues related to students’ ability to accumulate necessary credit for graduation. Schools are encouraged to explore if developing and offering an integrated or specialized course is applicable for their CTE programs of study.

Approval of integrated or specialized CTE and core academic subject courses is done simultaneously as part of the program’s approval process. No additional application is required. For schools that have newly developed an integrated or specialized course for CTE programs that are already approved, please contact the CTE office to request an amendment to the program.

CTE specialized and integrated courses must be co-developed by a CTE teacher and an academic subject-area teacher based on the commencement-level learning standards in one of the four core subject areas (English, Mathematics, Science, or Economics and Government). A school will receive approval to award integrated or specialized course credit only through the CTE Program Approval Process.

- CTE integrated courses are those developed and approved specifically as part of a CTE Program of Study and includes academic content that is an integral part of the CTE program. Since

integrated courses are approved as part of the CTE program's sequence, the integrated credit can only be applied for students enrolled in the Program of Study, and it may not be as applied when taken as a stand-alone course. Integrated courses are only available in State-approved CTE programs and may be taken before or after students have passed the Regents examination in the integrated course subject area, as long as the teacher is certified in the academic subject area.

- CTE specialized courses are stand-alone courses developed in ELA, mathematics, science and economics and government that add academic course content to an existing CTE program. Specialized courses may be available through all CTE programs (State-approved or not). Students should take specialized courses only after passing the Regents examination in specialized course subject-area.
- A combined approach includes some specialized courses and some integrated courses.

CTE specialized or integrated courses may be used to satisfy up to four units of core course credit (one English, one Mathematics, one Science, and one Economics and Government) towards the fulfillment of a CTE-endorsed diploma. An interdisciplinary specialized or integrated CTE course counts as *one unit of credit*, but may be used to fulfill the distribution requirements in more than one subject area.

If a student who is not part of a CTE program successfully completes a CTE specialized course after passing the related core academic subject Regents examination, then s/he may use the unit of credit toward fulfilling a core subject area credit requirement. However, a student who completes a CTE integrated course but does not participate in a CTE program *may not use* that course to fulfill the related core academic subject credit.

An example of how integrated and specialized course credits may apply is provided on page 8 (note that the chart uses *SED units* rather than *DOE credits*; assume two DOE credits equal one SED unit).

❖ **Approved and Existing CTE Programs of Study**

Schools should not overlook existing CTE Programs of Study in their search for ideas and examples of how they might design their own programs. Our website provides a list of all programs to be on offer or development that you are encouraged to peruse (*see last page for our website address*). Feel free to contact our office if you are interested in a particular approved CTE Program of Study or need contact information for a school that has offerings that interest you.

Our office also supports program models that have been designed by organizations for specific career areas. If you are interested in developing or considering any of the following programs, please contact the program directors (*see last page for contact information*).

Justice Resource Center (JRC) Program Director: Debra Lesser

JRC is New York City's leading provider of law-related and civic education programs and curricula. It offers a wide array of comprehensive programming, professional development, and curriculum materials, accompanied by school-level implementation support. JRC's dynamic, student-centered civic education programs cultivate future leaders, as students at the middle- and high-school levels take ownership of their rights and responsibilities as citizens. Its comprehensive law-related curricula, which

focus on the practical knowledge students will take with them into their post-secondary education, are ideal for both existing and start-up law academies. Student activities include “We the People” civic education competition, Project Citizen, and Mock Trials. Programs include Law Academy, Law Enforcement Academy, and Computer Forensics.

New York City Academies Program Director: Regina Flannery

The New York City Academies are a partnership with the public and private sectors committed to bring career-themed education to public high schools students. Founded in 1982, with the collaboration of the National Academy Foundation (NAF) and the New York City Department of Education, we are now in 30 high schools across our 5 boroughs serving over 3000 students. NYC Academies currently support Academies in the themes of Engineering (AOE), Finance (AOF), Hospitality & Tourism (AOHT) and Technology (AOIT). Students participate in an industry-validated curriculum in addition to their New York State Regents requirements. In addition, NYC Academies offer such enhancements as job shadowing, student conferences, theme-specific college courses, public speaking classes and internships. As part of a national network, NAF (www.naf.org) provides Academies with curriculum, partnerships and professional development. The NAF network connects alumni, teachers and business partners. Nationally, 90% of students graduate from high school and 4 or 5 go on to college.

Virtual Enterprise Program Director: Iris Blanc

Virtual Enterprises (VE) is a simulated business that is set up and run by students with the guidance of a teacher/facilitator and a business partner. This program allows students to experience all facets of being an employee in a firm in an actual business environment. Students are involved in every aspect of a running a business, including human resources, accounting, product development, production, distribution, marketing and sales, and they engage in trade with other practice firms (VEs) around the world. This simulation enables students to understand how employees, workgroup teams, and departments interact with each other and work together for the goal of the company. In addition, the simulation conveys the expectations of the workplace. By combining a rigorous curriculum with hands-on application of many academic skills, VE aims to prepare students for both careers and college. The task-based curriculum includes a strong academic component focused on writing, speaking, math and technology skills. The program seeks to motivate students by setting high expectations and showing them the relevance of their education. Students engage in various business activities throughout the year, including national and international trade fairs, which create authentic applied learning opportunities.

❖ **Other Recognized Industry Programs**

A school developing a CTE Program of Study is encouraged to take advantage of other city-wide and national organizations’ program models that align with its core objectives and industry area. Many of these programs are designed to lead to credentials recognized by industry. Examples include:

Culinary Arts: Careers in Culinary Arts Program [www.ccapinc.org]

Healthcare Services: Nurse’s Assisting [www.emsc.nysed.gov/cte/health/nurseassisting.html]

Technology: CISCO Networking Academy [cisco.netacad.net]

**MODIFIED GRADUATION REQUIREMENTS FOR CAREER AND TECHNICAL EDUCATION
(Career and Technical Education (CTE) Sample Approved Programs)**

Current Graduation Requirements (Students Entering Grade 9 in 2001)	Fully Integrated Approach	Specialized Course Approach (Maximum 4)	Combined Integrated and Specialized Course Approach
Assessments: 5 Regents Exams/Approved Alternatives	Assessments: 5 Regents Exams/Approved Alternatives	Assessments: 5 Regents Exams/Approved Alternatives	Assessments: 5 Regents Exams/Approved Alternatives
Core Course Requirements: English 4 Social Studies 4 Mathematics 3 Science 3 P.E. 2 Art/Music 1 Health 0.5 LOTE 1	Core Course Requirements: 3 3 2 2 2 1 0.5 1	Core Course Requirements: 3 3 2 2 2 1 0.5 1	Core Course Requirements: 3 3 2 2 2 1 0.5 1
Units of Credit 18.5	14.5	14.5	14.5
Additional Units of Credit: (Sequence/Electives) 3.5	Additional Units of Credit: (CTE Sequence) 3.5	Additional Units of Credit: (CTE Sequence) 3.5	Additional Units of Credit: (CTE Sequence) 3.5
CTE/Integrated Academic Courses *Curriculum map would document how, through a fully integrated program, students will fulfill the core requirements in English, Science, Mathematics and Economics and Government	CTE/Specialized Courses *1 specialized English *1 specialized Mathematics *1 specialized Science *1 specialized Economics and Government	CTE/Specialized Courses *1 specialized English *1 specialized Mathematics *1 specialized Science *1 specialized Economics and Government	CTE/Combined Integrated and Specialized Courses *1 specialized English *1 specialized Economics and Government *2 integrated Mathematics/ Science/Technology
Total Units of Credit 22.0	22.0	22.0	22.0

Work-Based Learning

❖ **Work-Based Learning Resource Center (WBLRC)**

The WBLRC is dedicated toward supporting the development and implementation of effective Work-Based Learning as an integral part of a school's CTE Program of Study. WBLRC provides guides as well as sample documents that schools can use as means to plan and monitor their students' internships. WBLRC, as part of the Career and Technical Education office, also provides Work-Based Learning support during the summer by conducting necessary site visits, student evaluations and payroll processing to ensure the smooth execution of students' internships.

WBLRC is located at:
High School of Graphic Communication Arts
439 West 49th Street, Room 306
New York, NY 10019-7235
Ph: (212) 399-3520

❖ **Work-Based Learning Coordinator's Guide (WBLRC)**

A school should have a designated Work-Based Learning Coordinator who oversees the students in their internships for the program. A handbook is available that provides information on the respective roles of the school, internship site, student, and student's family to ensure a productive experience for all involved. Sample templates of a training agreement, student's WBL checklist, a work-skills employability profile, student evaluation, and other pertinent documents to help a coordinator monitor and assess a student's internship experience are provided. These forms should be considered examples, rather than to be used as is, and the content should be refined to reflect the specific WBL conditions, skills and activities that a student will be assessed on for your school's CTE Program of Study.

The WBL guide entitled, "Implementing Work-Based Learning Programs: A Guide for Coordinators" is available for download at:
<http://schools.nyc.gov/ChoicesEnrollment/SpecialPrograms/CTE/Educators/Work+Based+Learning+Information.htm>

❖ **Work-Based Learning Coordinator's Extension Certification**

According to NYSED, a WBL Coordinator must be a "properly certified Career and Technical Education teacher (i.e., Business and Marketing Education, Family and Consumer Science Education, Agriculture Education, Technology Education, Trade/Industrial/Technical Education, Health Occupations Education)." Coordinators are expected to have met certification requirements, which entails two three-credit hour college courses in the "Coordination of Work-Based Learning Programs;" possess in their background 300 hours of paid work experience. This will grant an individual with a WBL Coordinator Extension to an existing CTE certification. Online WBL courses are offered through SUNY Oswego. For more information, please contact Marilyn Scher [mscher@schools.nyc.gov].

Industry Partnership

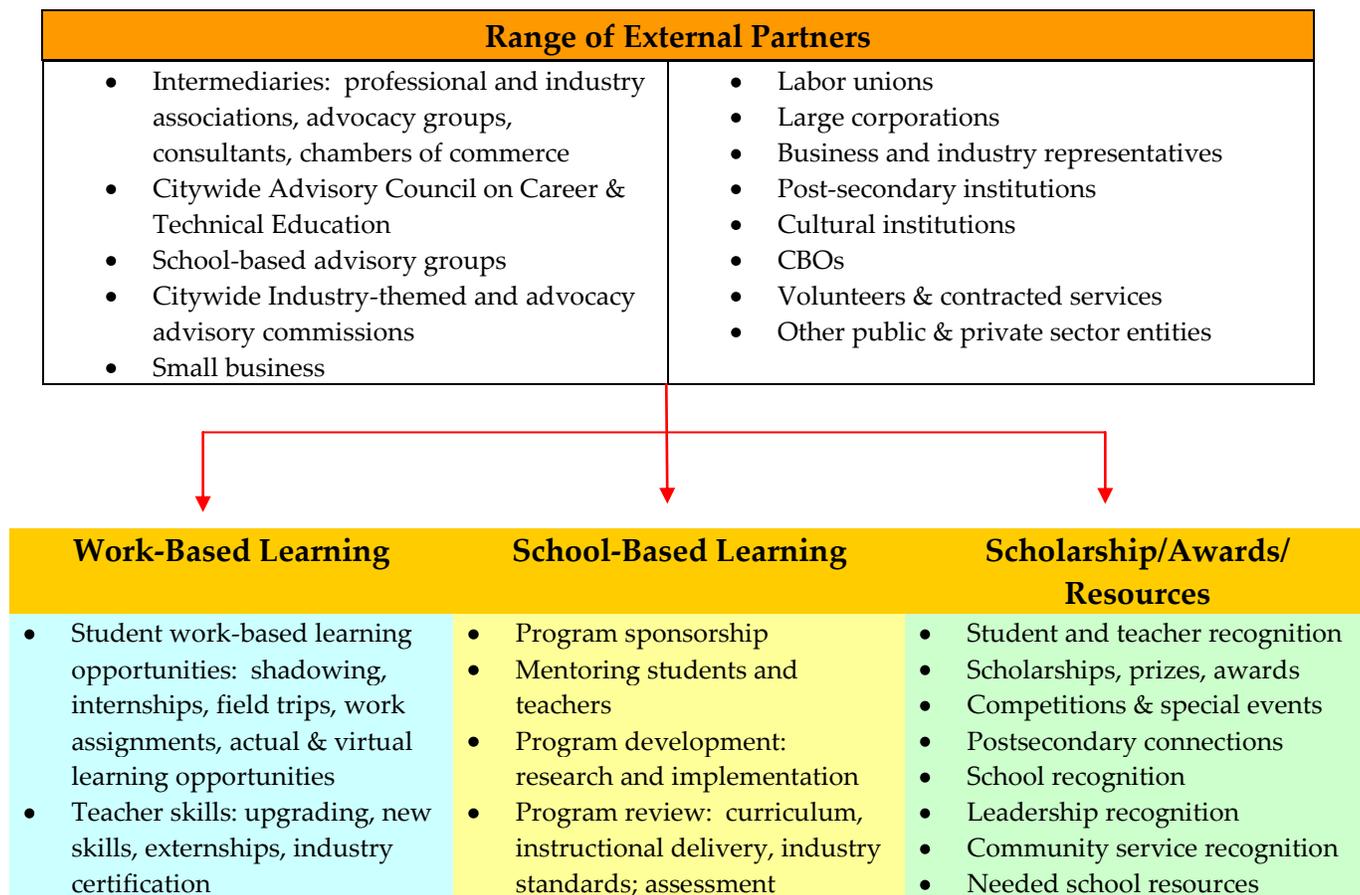
❖ CTE Advisory Council

A city-wide CTE Advisory Council is in place by law to advise the DOE on the development, administration and evaluation of policies and programs relating to Career and Technical Education. It is composed of volunteers from industry, labor, colleges, as well as the non-profit sector and defines its mission as assisting the DOE to provide all students with relevant and meaningful programs where they will acquire high-level academic and workforce preparation skills. Industry-specific advisory groups also meet on a regular basis to address specific career clusters. Information on these advisory commissions is available through www.CTEcouncil.org

Schools are encouraged to showcase their students' successes and school achievements by submitting news to the CTEcouncil.org website. This will help raise awareness among our industry members about the school. Send your school's news to buzz@CTEcouncil.org

❖ School's External Partners

Below are examples of how the school may wish to engage its external partners in the development and delivery of its CTE Program of Study.



Teacher Certification

❖ CTE Teacher Licensing

- To find out how a teacher can begin applying for a CTE certification, check the CTE section of TeachNYC: <http://schools.nyc.gov/TeachNYC/certification/cte.htm>
- If you have specific questions regarding your teacher's situation, contact the CTE Recruitment Manager at the Office of Teacher Recruitment and Quality:
 - Mr. Lonnie Saunderson [lisaunde@schools.nyc.gov]
- You can also look up what CTE certification applies for your school's CTE program by using NYSED's Office of Teaching Initiatives' search engine: <http://eservices.nysed.gov/teach/certhelp/CertRequirementHelp.do>
- If NYSED has not yet recognized a CTE certification or pathway that your school is pursuing, or you are unsure, please let us know by completing the form on page 9 (fill out the grey sections only). We will bring this to the attention of NYSED; your school is encouraged to alert us before applying for CTE Program Approval so that this issue does not hold back the review process.

❖ Success Via Apprenticeship (SVA) Teachers

The SVA program is a joint effort by the DOE and the United Federation of Teachers to foster a pipeline of qualified teachers for Career & Technical Education (CTE) programs across New York City. The program identifies highly competent and motivated CTE high school graduates through a rigorous admission practice for participation. A strong emphasis is placed on recruiting for areas of projected CTE teacher shortage and emerging needs.

Over a five-year period, participants receive support as:

- Teacher-apprentices (student teaching in CTE programs across the City)
- Industry workers (at an appropriate industry job)
- College students at New City College of Technology (CityTech), where students earn sufficient credits to receive an associates degree, teacher certification and licensure.

Each year, a cohort of SVA teachers graduate and receive teacher licensure to be hired to teach in CTE programs in NYC. Individuals who have completed the program have more than an 85% job retention rate; some have continued on to become assistant principals and principal.

As your school plans its programs and identifies anticipated staffing needs, please let us know. We will work in consultation with the SVA program and UFT to include those emerging teaching areas to recruit SVA candidates.

Determination of Correct Career and Technical Education Title

Instructions for school district or BOCES where the teaching position exists:

1. The BOCES CTE/school district official most knowledgeable about the CTE teaching position in question should complete Section I
2. Email this completed form and any additional information requested to your local BOCES RCO or your HR liaison.

Section I: Teaching Position Information

1. BOCES/District Name: New York City Department of Education
2. Name of school district official completing request: _____
3. Title: _____
4. Email _____ Phone _____
5. Describe the career and technical education teaching position, including the name of course /teaching assignment. Please include a brief outline of the curriculum to be covered in the course. (Send as an attachment if necessary)

6. If you have a candidate in mind, please list the candidate. The candidate must apply for certification through TEACH and list their education, if any, and experience.

- Trade subjects, Agricultural, or Health Occupations certificate titles require four years of paid, full-time appropriate occupational experience.
- Technical subjects and the Family and Consumer Sciences certificate titles require an Associates Degree in the field and a minimum of two years of paid, full-time appropriate occupational experience.

Applicant's Name: _____ SS# _____

Section II: Instructions to the BOCES RCO or HR liaison: Please complete 1-4. Email completed form and any additional information to NYSED Office of Teaching Initiatives at ctecertreq@mail.nysed.gov.

1. Name of BOCES or HR Liaison: _____
2. BOCES/District Name: _____
3. Request expedited service? YES NO
4. Date request emailed: ____/____/____

Contacts and Links

❖ CTE Inquiry Tool for Schools

The “Measuring Program Effectiveness Student Inquiry Tool” provides schools with a consolidated overview of all currently enrolled students’ demographic, academic information and progress to graduation in their CTE Programs of Study. The tool is available for download via ARIS in your school’s ARIS Private Community, under the list of resources. A recording of a webinar that provided a walk-through of the inquiry tool can be accessed here:

<http://www.learningtimes.net/teachingarchives-2010>

❖ DOE’s Career and Technical Education Website

The CTE website provides information on a CTE Program of Study, including the Quality Indicators for a CTE Program of Study, Guidelines on the CTE Program Review and Approval Process as well as documents related to applying for program approval.

<http://schools.nyc.gov/ChoicesEnrollment/SpecialPrograms/CTE/default.htm>

❖ NYC Department of Education – Career and Technical Education Team

Industry Partnerships & WBL

VTEA Funding, Purchasing and STARS

Work-based Learning

CTE Student Inquiry Tool on ARIS

CTE Programs and Program Approval

Justice Resource Center

New York City Academies

Virtual Enterprise

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