Resource for Creation of NYSED-Approved CTE Programs in Technology Education, Trade, and Technical Subjects

PLEASE NOTE: This document serves as a RESOURCE for schools in the planning and creation of NYSED-approved CTE programs in Technology Education, Trade, and Technical subject areas. This is not an official NYSED policy document regarding the program approval process. This document may be updated as the vendor provided assessments and blueprints are updated. For questions or guidance, please contact the Office of Career and Technical Education.

For more information, please refer to the *NYS Implementation Guide to CTE Program Approval*

We understand that it is common to find Technology Education programs at LEA's and Trade and/or Technical programs at BOCES. However, many of the programs that can be found in these content areas overlap. For example, it is not uncommon for a construction program to be found at both an LEA (taught by a certified Technology Education teacher) AND at a BOCES (taught by an appropriately certified CTE teacher); both of which is allowable by the ESSA crosswalk. Another example of this would be an automotive program. The purpose of this document is to convey the multitude of program opportunities that can exist at both an LEA and/or a BOCES.

Step 1: Consider the following essential questions as you plan your program.
Why are you looking into CTE program approval? What are the goals for your program? What do you hope to provide to students with a CTE endorsement? What would be the desired outcomes for students in a NYSED-approved CTE program? What courses do you currently offer? What are the labor market needs in your geographical area?

Step 2: Consider the composition of your program.
Attached are samples of common sequences, courses, and technical assessments in current NYSED-approved CTE programs. Please note that all local sequences, courses, and technical assessments may vary. The inclusion of any listed course and technical assessment in a sequence is at the discretion of the local program self-study and external review teams. Common sequences have been organized by the following career clusters.

*Design and Drawing for Production has been included in program content for every sequence as it can be used to fulfill the 1-unit arts requirement for graduation, as found in Commissioner's Regulation 100.5, so long as it is taught by a certified technology education teacher and follows the New York State syllabus in its entirety.

ARCHITECTURE & CONSTRUCTION	MANUFACTURING	TRANSPORTATION, DISTRIBUTION & LOGISTICS
INFORMATION TECHNOLOGY	ARTS, A/V TECHNOLOGY & COMMUNICATIONS	STEM

ARCHITECTURE & CONSTRUCTION

	Architectural Engineering	Carpentry	Electrical	Plumbing	Building Trades	HVAC
CIP CODE	15.0101	46.0201	46.0302	46.0503	46.9999	47.0201
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)					
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production* • Blueprint Reading • Residential Construction • Architectural Drawing	• Design and Drawing for Production* • Blueprint Reading • Residential Construction • Framing Carpentry • Materials Processing: Wood	• Design and Drawing for Production* • Blueprint Reading • DC Theory • AC Theory • Residential Electricity	• Design and Drawing for Production* • Blueprint Reading • Plumbing • Residential Construction	• Design and Drawing for Production* • Carpentry • Masonry • Electrical • Residential Construction • Blueprint Reading • Building Maintenance	• Design and Drawing for Production* • Plumbing • Refrigeration • Heating • Electricity • Blueprint Reading
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.					
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• NOCTI Architectural Drafting 4104 • SkillsUSA Architectural Drafting • Precision CAD Architectural Design I 631 (written only)	• NCCER Carpentry • NCCER Construction Technology • NOCTI Carpentry 4115 • NOCTI Carpentry 4215 • NOCTI Carpentry Basic 8326/8327 • NOCTI Building Construction Occupations 4011 • SkillsUSA Carpentry • Precision Carpentry 512 • Precision Construction Trades Foundation 510	• NCCER Electrical • NOCTI Electrical Occupations 3029 • NOCTI Electrical Construction Technology 4130 • NOCTI Electrical Construction Technology 4230 • NOCTI House Wiring Basic 8061 • SkillsUSA Electrical Construction Wiring (Residential Wiring)	• NCCER Plumbing • NOCTI Plumbing 4061 • SkillsUSA Plumbing • Precision Plumbing 516	• NCCER Carpentry • NOCTI Building Construction Occupations 4011 • NOCTI Carpentry 4115 • NOCTI Carpentry 4215 • NOCTI Carpentry Basic 8326/8327 • SkillsUSA Carpentry • Precision Construction Trades Foundation 510 • Precision Carpentry 512	• ESCO HEAT • ESCO Section 608 EPA • NCCER HVAC/R • NOCTI HVAC/R 3045 • NOCTI HVAC Installer Basic 7906
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.					
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.					

For more information, please refer to the *NYS Implementation Guide to CTE Program Approval:* http://www.nysed.gov/career-technical-education/guidelines-cte-program-approval

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MANUFACTURING

	Robotics	Manufacturing Technology	CAD	Architectural Drafting	Machine Tool Technology	Welding
CIP CODE	15.0405	15.0613	15.1302	15.1303	48.0501	48.0508
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)					
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production* • Electro-Mechanical Systems • Digital Electronics • Robotics • Analog Circuits • Digital Circuits	• Design and Drawing for Production* • Material and Processes • Production Systems • Product Development • Manufacturing Processes for Engineering	• Design and Drawing for Production* • CAD • Architectural Drafting • Civil Drafting • Electrical Drafting • Mechanical Drafting	• Design and Drawing for Production* • Residential Construction • Architectural Drawing • CAD	• Design and Drawing for Production* • Material and Processes • Machining • Equipment Maintenance & Repair	• Design and Drawing for Production* • Metal Processing/Production • Metalworking • Sheet Metal • Welding
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.					
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• NOCTI Pre-Engineering/Engineering Technology 2475 • NOCTI CAD CAM 3073 • SkillsUSA Robotics Precision Robotics I 612 (written only) • Precision Robotics II 622 (written only) • Precision Electronics I 651	• Autodesk AutoCAD Certified User • NIMS Machining Level I • NOCTI Precision Machining 4152 • NOCTI CAD 4973 • NOCTI CAD CAM 3073 • SkillsUSA Automated Manufacturing Technology Precision Machining I 580 • Precision Manufacturing Technology 620 (written only) • Precision Manufacturing Principles I 621 (written only)	• Autodesk AutoCAD Certified User NOCTI CAD 4973 • NOCTI CAD 4983 • SkillsUSA Technical Drafting • Precision CAD Architectural Design I 631 (written only) • Precision CAD Mechanical Design II 662	• NOCTI Architectural Drafting 4004 • NOCTI CAD 4973 • SkillsUSA Architectural Drafting • Precision CAD Architectural Design I 631 (written only)	• NIMS Machining Level I • NOCTI Precision Machining 4152 • SkillsUSA Automated Manufacturing Technology • SkillsUSA CNC Milling and Turning Technology • Precision Machining I 580	• AWS SENSE • AWS Level I Entry Welder • NCCER Welding • NOCTI Welding 4172 • NOCTI Welding 4272 • NOCTI Welding 4983 • SkillsUSA Welding • Precision Welding Technician III 597
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.					
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.					

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TRANSPORTATION, DISTRIBUTION & LOGISTICS

	Heavy Equipment Maintenance	Autobody and Collision Repair	Automotive Repair	Diesel Technology	Outdoor Power Equipment	Aviation/Drone Technology
CIP CODE	47.0302	47.0603	47.0604	47.0605	47.0606	49.0101
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)					
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production* • Heavy Equipment Operation • Heavy Equipment Mechanics	• Design and Drawing for Production* • Auto Detail & Recondition • Auto Body Repair Refinish—Comp	• Design and Drawing for Production * • Power and Mechanics • Small Engine Mechanics • Diesel Mechanics • Automotive Service	• Design and Drawing for Production* • Diesel Mechanics • Heavy Equipment Mechanics	• Design and Drawing for Production* • Small Vehicle Mechanics • Small Engine Mechanics • Marine Mechanics	• Design and Drawing for Production* • Energy/Power • Aircraft Power Plant • Aviation • Remotely Piloted Aircraft Systems
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.					
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• NCCER Heavy Equipment Operators • NOCTI Heavy Equipment Maintenance and Repair 3046	• ASE Collision Repair & Refinish (written only) • NOCTI Collision Repair and Refinishing 3183 • NOCTI Collision Repair 4106 • NOCTI Collision Repair 4206	• ASE Maintenance and Light Repair (written only) • ASE Automobile Service Technology (written only) • NOCTI Automotive Technician 4209 • NOCTI Automotive Technician Core 4309 • NOCTI Automotive Technician Advanced 4008 • SkillsUSA Automobile Service Technology	• ASE Diesel Engines (written only) • NOCTI Diesel Technology 4127	• EETC 4-Stroke • NOCTI Small Engine Technology 4068 • NOCTI Small Engine Technology 4168 • SkillsUSA Power Equipment Technology • Precision Small Engine Repair 501	• FAA Airmen Private Pilot • FAA Remote Pilot *****Instructor for program content must possess appropriate NYSED certification as well as appropriate FAA certification*****
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.					
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.					

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INFORMATION TECHNOLOGY

	Information Technology	Computer Programming	Web Design	Computer Systems Networking	Computer Technology	Computer Installation and Repair
CIP CODE	11.0103	11.0201	11.0801	11.0901	15.1202	47.0104
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)					
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production* • IT Essentials • Computing Systems • Computer Applications	• Design and Drawing for Production* • Computer Programming • Python Programming • C++ Programming • Java Programming	• Design and Drawing for Production* • Web Page Design • Computer Graphics • Interactive Media	• Design and Drawing for Production * • Networking Essentials • Switching, Routing, and Wireless Essentials • Network Security	• Design and Drawing for Production* • Computer Technology • IT Essentials • CISCO	• Design and Drawing for Production * • Computer Technology • Computer Maintenance • Information Support & Services
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.					
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• CISCO CCNA • CompTIA A+ • CompTIA ITF • MTA Introduction to Programming Using Python • NOCTI Computer Technology 4122	• C++ Certified Associate Programmer • MTA Introduction to Programming Using Python • NOCTI Computer Programming 4023 • Precision Computer Programming I 820	• MTA HTML5 Application Developer Fundamentals • ACA Web Authoring Using Dreamweaver • NOCTI Web Design 2750 • Precision Web Development I 893 • Precision Web Development II 894	• CISCO CCT • CISCO CCNA • ESPA Electronic Systems Technician • MTA Networking Fundamentals • NOCTI Computer Networking Fundamentals 4514 • Precision Network Fundamentals 888	• CISCO CCT • CompTIA ITF • NOCTI Computer Technology 4122 • NOCTI Computer Networking Fundamentals 4514 • SkillsUSA Computer Maintenance Technology Precision Computer Maintenance and Repair 884	• CISCO CCT • CompTIA ITF • CompTIA A+ • TestOut PC Pro • NOCTI Computer Repair Technology 4515 • NOCTI Electronics 3034 • SkillsUSA Computer Maintenance Technology • Precision Computer Maintenance and Repair 884
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.					
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.					

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ARTS, A/V TECHNOLOGY & COMMUNICATIONS

	Digital Multimedia	Audio Production	Visual Communications	Commercial Art	Graphic Design	Video/Film Production
CIP CODE	9.0702	10.0203	50.0401	50.0402	50.0409	50.0602
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)					
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production * • Communication Technology • Digital Media Technology • Digital Media Design & Production	• Design and Drawing for Production* • Audio/Visual Production • Broadcasting • Studio Production • Radio Technology	• Design and Drawing for Production* • Communication Technology • Photo Imaging • Graphic Communications • Desktop Publishing	• Design and Drawing for Production* • Commercial Graphic Design • Commercial Photography • Desktop Publishing • Publication Production	• Design and Drawing for Production* • Graphic Communications • Printing Technology • Publication Production	• Design and Drawing for Production* • Audio/Visual Production • Video Production • Broadcasting
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.					
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• ACA Digital Video Using Premiere Pro • ACA Visual Design Using Photoshop • NOCTI Visual Communications and Interactive Media Design 3425 • NOCTI Audio-Visual Communications Technology 5904 • Precision Digital Media II 815	• ACA Digital Video Using Premiere Pro • SkillsUSA Audio Radio Production	• ACA Visual Design Using Photoshop • ACA Graphic Design & Illustration Using Illustrator • ACA Print & Digital Media Publication Using InDesign • NOCTI Visual Communications and Multimedia Design 3425 • SkillsUSA Introduction to Graphic Communications • Precision Digital Graphic Arts I 560	• ACA Visual Design Using Photoshop • ACA Graphic Design & Illustration Using Illustrator • ACA Print & Digital Media Publication Using InDesign • NOCTI Advertising & Design 4119 • Precision Commercial Advertising & Art 532	• ACA Visual Design Using Photoshop • ACA Graphic Design & Illustration Using Illustrator • ACA Print & Digital Media Publication Using InDesign • NOCTI Advertising and Design 4119 • NOCTI Graphic Production Technology 4342 • SkillsUSA Introduction to Graphic Communications Precision Digital Graphic Arts I 560	• ACA Digital Video Using Premiere Pro • NOCTI Television Production 3527 • SkillsUSA Television Video Production • Precision Video Production I 592 • Precision Video Production II 593
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.					
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.					

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STEM

	Pre-Engineering	Electronic and Communications Technology	Engineering Technologies/Technicians
CIP CODE	15.0000	15.0399	15.9999
CAREER AND FINANCIAL MANAGEMENT	Career and Financial Management (½ or 1 unit, stand alone or embedded)		
SAMPLE PROGRAM CONTENT **Minimum 3 units of CTE content + all courses must be taught by certified Technology Education teachers or appropriately certified CTE teachers.**	• Design and Drawing for Production * • Materials Processing • Principles of Engineering • Computer Integrated Manufacturing • Electronics/Robotics • Civil Engineering • Biotechnical Engineering	• Design and Drawing for Production* • Digital Electronics • Electronics/Robotics • Computer Programming • Computer Technology	• Design and Drawing for Production* • Materials Processing • Manufacturing Processing for Engineering • Computer Integrated Manufacturing • Digital Electronics • Engineering Technology
WORK-BASED LEARNING	Students must have access to work-based learning opportunities. This can be done through any of New York's four registered programs (CEIP, Co-op, GEWEP, and WECEP) or through non-registered experiences such as job shadowing, school-based enterprises, industry-based projects, community service, or career-focused research projects.		
SAMPLE INDUSTRY-DEVELOPED TECHNICAL ASSESSMENTS ***Please note that this is not a list of approved assessments. The appropriateness of the technical assessment is individually evaluated for each program application.**	• NOCTI Pre-Engineering/Engineering Technology 3475 • NOCTI Pre-Engineering/Engineering Technology 2475 • Precision Engineering Principles I 601 (written only) • Precision Engineering Technology 615 (written only) • Precision Electronics I 651 • Precision Electronics II 652	• CISCO CCNA • CompTIA A+ • CompTIA IT Fundamentals • NOCTI Electronics 3034 • NOCTI Industrial Electronics 2051 • SkillsUSA Computer Maintenance Technology	• NOCTI Pre-Engineering/Engineering Technology 3475 • NOCTI Pre-Engineering/Engineering Technology 2475 • NOCTI CAD CAM 3073 • SkillsUSA Engineering Technology • Precision Engineering Technology 615 (written only) • Precision CAD Mechanical Design II 662
ARTICULATION AGREEMENT	A signed articulation agreement from a post-secondary institution must be obtained. An example of this could be an agreement with a local college or university, trade and technical school, or registered apprenticeship for advanced standing or academic credit.		
EMPLOYABILITY PROFILE	The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, work experience, performance on core academic Regent's examinations, performance on industry-based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.		

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