

NEW THINKING ABOUT POST SECONDARY EDUCATION: THE PURPOSE VALUE AND BENEFITS OF STACKABLE CERTIFICATES AND CREDENTIALS

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CTE

Technical
Assistance
Center of NY

Technical Assistance Center Work Plan

1. Provide CTE Professional and Leadership Development
2. Advance and Review CTE Approved Programs
3. Conduct Research into Delivery of CTE Programs and advance Best Practice CTE Models
4. Provide Support for Multiple Pathways Initiatives and NYSED priorities
5. Enhance and Support CTE Communications and Marketing
6. Networking to strengthen CTE



Our Time Together

- New York State Graduation/Completion Options
- Deeper Dive into Career Readiness
- A Bit of Research
- Credentials Purpose, Value and Access
- Why it Matters
- What to do



New York Offers at least 9 paths to graduation

- Regents
- Regents (through appeal)
- Regents with **Honors**
- Regents with **Advanced Designation**
- Regents with **Advanced Designation ...Mastery in Math**
- Regents with **Advanced Designation ...Mastery in Science**
- Regents with **Advanced Designation with Honors**
- Local Diploma (through Appeal)
- Local Diploma, Regents Diploma, Regents Diploma with **Advanced Designation (with or without Honors), with a Career and Technical Education Endorsement**



CTE (4+1) Pathway	CDOS Credential	CDOS Pathway
Diploma Credit Requirement		
<ul style="list-style-type: none"> Meet the minimum diploma requirement of 22 credits 	<ul style="list-style-type: none"> No minimum credit requirement 	<ul style="list-style-type: none"> Meet the minimum diploma requirement of 22 credits
Regents Exam Requirement		
<ul style="list-style-type: none"> Pass the 4 required Regents exams (ELA, Math, Science and Social Studies) 	<ul style="list-style-type: none"> No Regents exam requirement 	<ul style="list-style-type: none"> Pass the 4 required Regents exams, one each in ELA, Math, Science and Social Studies
Other Requirements		
<ul style="list-style-type: none"> Successfully complete an approved CTE program of study: <ul style="list-style-type: none"> ➤ 3 or more credits of CTE coursework that is rigorous and focused on a career ➤ Participate in work based learning experiences ➤ Pass the 3 part industry based national technical assessment ➤ Complete an employability profile 	<ul style="list-style-type: none"> Complete the requirements in Option 1 or Option 2 <ul style="list-style-type: none"> <u>Option 1</u> <ul style="list-style-type: none"> ➤ Complete a Career Plan ➤ Demonstrate achievement of the CDOS learning standards 1, 2, & 3a ➤ Successful completion of at least 216 hours of CTE coursework and/or work based learning experiences (of which at least 54 hours must be in work based learning) ➤ Complete an employability profile <u>Option 2</u> <ul style="list-style-type: none"> ➤ Meets the requirement for one of the nationally recognized work readiness credentials. (i.e. NWRC) 	<ul style="list-style-type: none"> Complete the same requirements for the CDOS Credential in <u>Option 1</u> or <u>Option 2</u>
Technical Assessment Requirement		
<ul style="list-style-type: none"> Pass a 3 part industry based national technical assessment approved by the Commissioner and Board of Regents 		
Students Leave High School with...		
<ul style="list-style-type: none"> Students exit school with a Regents diploma and a Technical Endorsement 	<ul style="list-style-type: none"> Students exit school with the CDOS Credential as a stand-alone credential or an addition to a Regents or Local diploma 	<ul style="list-style-type: none"> Students exit school with a Regents diploma and the CDOS Credential

For CTE (4+1) Pathway: NYSED-Approved Assessments in Career and Technical Education (Updated June 13, 2016)

Technical Assessment	Sponsored by	Technical Assessment	Sponsored by	Technical Assessment	Sponsored by
A+ Certification (tests CompTIA 220-801; 220802)	CompTIA	Computer Aided Drawing (CAD) (Test Code 4973)	NOCTI	Network+ Certification (test N10-005 or N10-006)	CompTIA
Accounting – Basic (Test Code 4000)	NOCTI	Conservation (Test Code 7426)	NOCTI	Precision Machining (Test Code 4052)	NOCTI
Advertising and Design (Test Code 4019)	NOCTI	Core: Introductory Craft Skills (V2)	NCCER	Pre-engineering (Test Code 2475)	NOCTI
Advertising Design	SkillsUSA	Criminal Justice/CSI	SkillsUSA	PrintED / SkillsUSA Graphic Comm.	SkillsUSA
Agricultural Mechanics (Test Code 2102)	NOCTI	Criminal Justice (Test Code 4081)	NOCTI	Certified Production Technician Sequence	MSSC
ASE Maintenance and Light Repair (Student Certification)	ASE	Early Childhood Education and Care- Basic (Test Code 4016)	NOCTI	ProStart National Certificate of Achievement	National and NYS Restaurant Associations
A*S*K Business Fundamentals	A*S*K	Electrical Construction Wiring (Residential Wiring)	SkillsUSA	Small Engine Technology (Test Code 4068)	NOCTI
A*S*K Marketing Fundamentals	A*S*K	Hospitality Mgmt - Food & Bev (Test Code 3079)	NOCTI	Student Electronics Technician (SET) Certification	ETA-I/NOCTI
Collision Repair (Test Code 4106)	NOCTI	Medical Assisting (Test Code 4155)	NOCTI	Television Production (Test Code 3427)	NOCTI
Commercial Foods (Test Code 4020)	NOCTI	National Institute for Metalworking Skills (NIMS) Credential Exams	NIMS	Welding (Test Code 4172)	NOCTI

The College Completion Agenda by the Numbers

- Only 30% of young adults earn a bachelors degree by their mid-20's
- 27% of those with post secondary licenses or certificates - credentials short of an associate's degree – earn more than an average bachelors degree recipient
- By 2018 there will be 8 million openings in blue collar fields and 2.7 million will require a post secondary credential. This type of education-as opposed to a BA-is a ticket to a well-paying job and more education
- “College for all” might be the mantra, but the hard reality is that fewer than one in three young people achieve the dream

The College Completion Agenda-Pathways to Prosperity



College Completion in NYS

- 23% who enter complete community college in 3 years
- Only 61% entered the second semester
- 34% who enter community college complete in 10 years
- 58 % who enter a four year college complete bachelors degree programs in 6 years

NYSED and the College Board



CTE vs. Career Readiness

Career and Technical Education	Career Readiness
Describes a School Program	Describes a Student
Set of Courses/Modules	Set of Characteristics
Involves Some Teachers	Involves All Teachers
Technical Curriculum	Enabling Instruction



CTE

Technical Assistance Center of NY

Why the Renewed Focus on CTE?

www.connectedcalifornia.org/linked_learning/evidence

CTE Programs with High Quality Integrated Curriculum Result in:

- **Improved learning:** students learned faster and retain concepts better when taught rigorous and relevant academic material in a context of real world application.
- **Higher academic achievement:** CTE students have increased graduation rates and improved exit exam passing rates than students from the general population.
- **Higher wage earning potential:** postsecondary students who participated in high school CTE combined with integrated curriculum and work-based learning achieved higher wages
- **Lower dropout rates:** risk of dropping out was four times higher when students took no CTE courses than when students completed three such courses

Vocational Education vs. CTE

Vocational Education

- Learning to do
- Job specific skills in the skilled trades
- Prep for lifetime employment
- A non college track
- Apart from academics
- Credentialed by Diploma
- Text and manual based information
- Trade and Technical High Schools

Career and Technical Education

- Doing to learn
- Specific and “soft” job skills
- Prep for employment based on skills and projects
- College and Career ready
- Convergence with academics
- **Credentialed by Diploma and Certification**
- Digitally based information
- All schools and all students



Post Secondary Career Education and Affordability

- 4 out of 5 work
- 2 of 4 full-time
- Average is 30 hours per week
- 50% Financially independent
- 25% Have children

Earn and Learn

- Recent evidence suggests that “earning while learning” can lead to better employment opportunities and higher wages when related to an individual’s field of study
- Because CTE is career-focused, it has a unique advantage for working learners
- In the short run, students with relevant knowledge and skills can secure positions that pay more than routine low-level jobs
- In the long run, students will have developed career-relevant skills and gained work experience that pays dividends as they advanced their careers and saved for further education and training.



The ability to pass on middle-class standing to children depends on giving them a strategic postsecondary educational advantage of some kind.

Middle Level

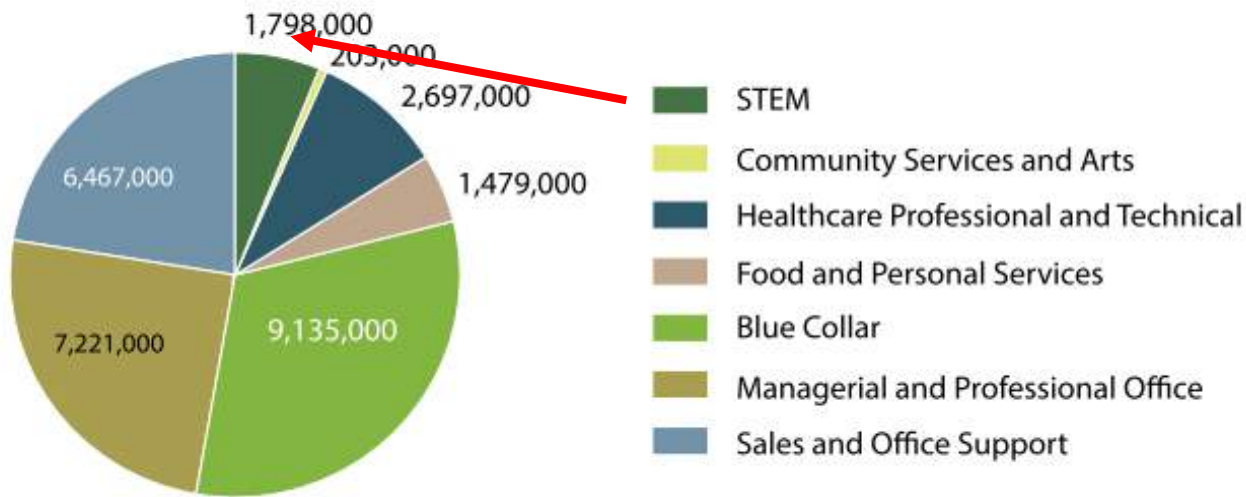
- Middle-education jobs are those that require of have some postsecondary education and training but do not require a BA(S)
- Middle class earnings are above \$35K and below \$95K
- Middle jobs are occupations that require some postsecondary education and training but not a Bachelor's degree and have average earnings' above \$35K

Figure 3. Two out of five middle jobs pay \$50,000 or more per year.



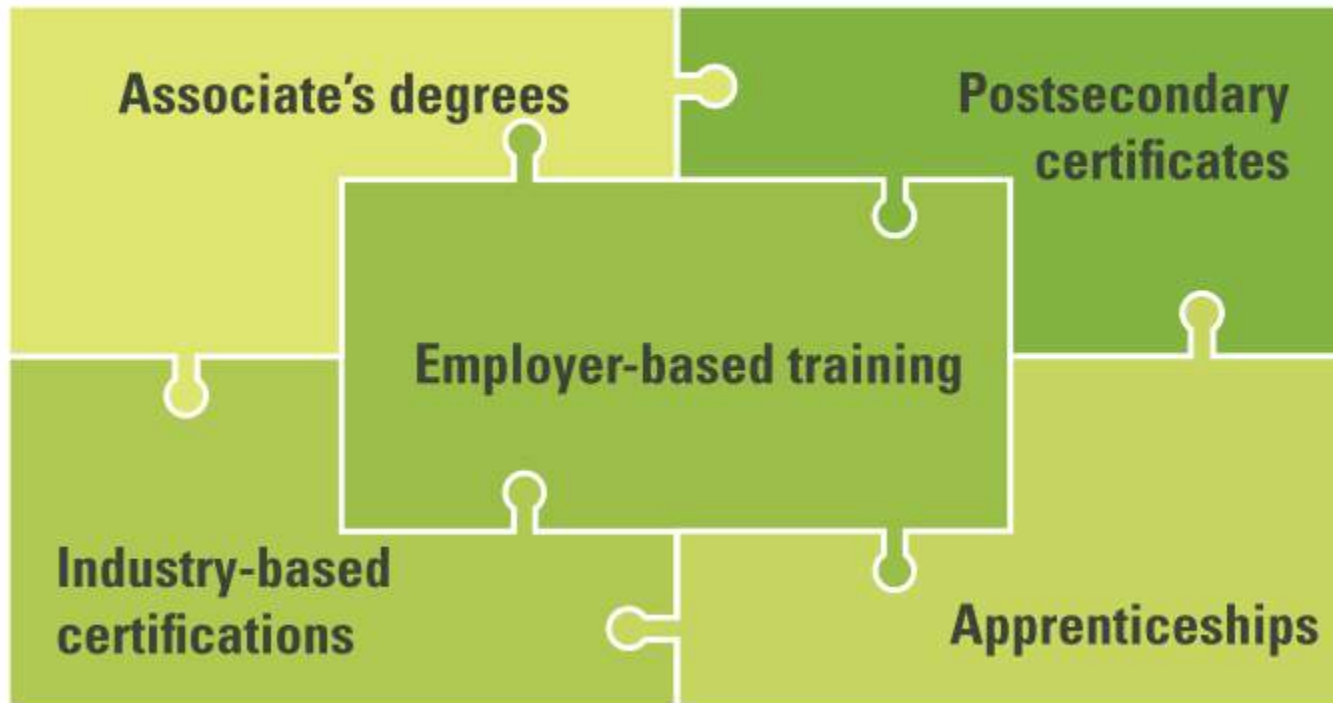
SOURCE: Authors' estimate using American Community Survey, 2010. The American Community Survey is an annual survey by the U.S. Census Bureau, gathered in monthly segments, that contains questions formerly part of the long form of the decennial census.

Figure 4. Nearly half of the 29 million middle jobs are in office occupations, while another third are in traditional blue-collar occupations.



SOURCE: Authors' estimate using American Community Survey, 2010.

Five Ways That Pay Along the Way to the B.A.



Pathway to 29 Million Jobs

- The American CTE system provides five major pathways to middle-class jobs:
 - Employer-based training,
 - **Industry-based certifications**,
 - Apprenticeships,
 - **Postsecondary certificates**, and
 - Associate's degrees.
- These pathways are not mutually exclusive; they often integrated and overlap in linear and nonlinear ways

EMPLOYER BASED TRAINING

- The heart of career readiness and is a crucial component in the American workforce development puzzle.
- The end game in the U.S. human capital development system, but gaining access requires ever-higher levels of secondary and postsecondary education.
 - Informal (On-the-job) Training
 - Formal (Classroom-based) Training
 - Related Work Experience
- 141 Billion per year investment

Industry-Based Certifications

- IBCs address problems that postsecondary credentials currently face:
 - Relevance, accountability, consistency, and portability.
- IBCs are more flexible than traditional degrees
 - Better reflect current industry standards and competencies
- Rampant grade inflation
 - Difficult to assess the differences in grade point averages of job applicants
- IBCs, are typically nationally portable within an industry.
- Online job advertisements cite IBCs as a prerequisite
- Workers pursue IBCs at many levels of education **including high school**; Industry Based Certificate, Associate's degree, and Bachelor's degree levels



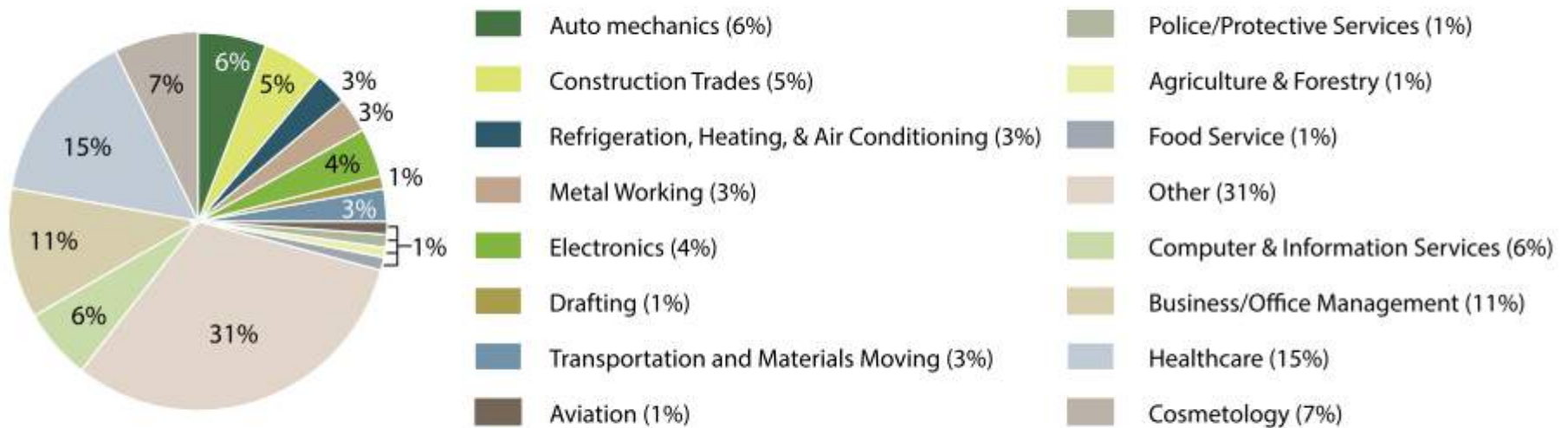
Table 1. Seven of the top 10 industry-based certifications for high school graduates and nine of the top 10 for Associate's degree-holders are in healthcare fields.

Rank	Top Certifications (High School Diploma)	Top Certifications (Associate's Degree)
1	Certified Nursing Assistant	Licensed Practical Nurse (LPN)
2	Commercial Driver's License	Basic Cardiac Life Support
3	Phlebotomy	Certified Nursing Assistant
4	Basic Cardiac Life Support	Occupational Therapist
5	Licensed Practical Nurse (LPN)	Advanced Cardiac Life Support (ACLS)
6	Certified Medical Assistant	Help Desk (e.g., CompTIA)
7	Forklift Operator	Home Health Aide
8	Automotive Service Excellence (ASE)	American Registry Of Radiologic Technologists (ARRT)
9	Certified Pharmacy Technician	Certified Occupational Therapy Assistant
10	Emergency Medical Technician	Licensed Vocational Nurse (LVN)
11	Insurance Agent	Certified Respiratory Therapist
12	First Aid CPR AED (automated external defibrillator)	Commercial Driver's License
13	Home Health Aide	First Aid CPR AED
14	Certified Teacher's Aide	Paralegal
15	Environmental Protection Agency	American Heart Association

Postsecondary Certificates

- Prepare individuals for narrow occupations and fields, these programs often take less time to complete than college degrees
- The majority (54 percent) of postsecondary certificate programs take less than a year of instructional time
- Cost-effective alternative for high school graduates because of their short, focused training and earnings advantage

Figure 21. The most common certificate fields are healthcare, basic office work, cosmetology, auto mechanics, and computer and information services.



SOURCE: Survey of Income and Program Participation (SIPP), 2008. Carnevale, Anthony P., Stephen J. Rose, and Andrew R. Hanson. *Certificates: Gateway to Gainful Employment and College Degrees*. Georgetown University Center on Education and the Workforce. Washington, D.C. (Jun 2012). <http://cew.georgetown.edu/certificates/>.

Table 2. Certificate holders who work in their field of study get a significant earnings premium.

Field of Study	Share of certificates	Share in field	In-field earnings	In-field earnings premium
All		44%	\$40,420	37%
Computer and Information Services	9%	15%	\$70,400	115%
Aviation	1%	40%	\$65,642	73%
Police/Protective Services	2%	46%	\$55,499	68%
Business/Office Management	17%	62%	\$40,000	66%
Electronics	6%	42%	\$61,668	60%
Drafting	1%	44%	\$59,592	56%
Transportation and Materials Moving	5%	58%	\$44,336	38%
Healthcare	21%	54%	\$30,577	35%
Auto Mechanics	9%	46%	\$45,586	30%
Construction Trades	8%	42%	\$50,989	25%
Refrigeration, Heating, or Air Conditioning	4%	38%	\$53,850	18%
Cosmetology	11%	23%	\$25,217	9%
Agriculture/Forestry/Horticulture	1%	20%	\$47,800	8%
Metalworking	4%	49%	\$45,040	2%
Food Service	2%	31%	\$17,600	-41%

Source: Survey of Income and Program Participation (SIPP)

Big Payoff for working in field

Payoff works against

This is an average of welding, fabrication and machining and design build

Professional and Academic Credentials

- Professional credentials
 - ‘warrants of competence’
 - ‘warrant of expertise’
- With professional designations, the **certifying body** is warranting that the certified worker (tradesperson or professional) has the essential knowledge and skills of a specified domain necessary for safe and appropriate practice of the trade or profession.
- With academic credentials, there is no such ‘warrant of competence,’ an academic credential means that someone has successfully completed a particular course of study not that one is competent to practice a trade or profession.

CFP?

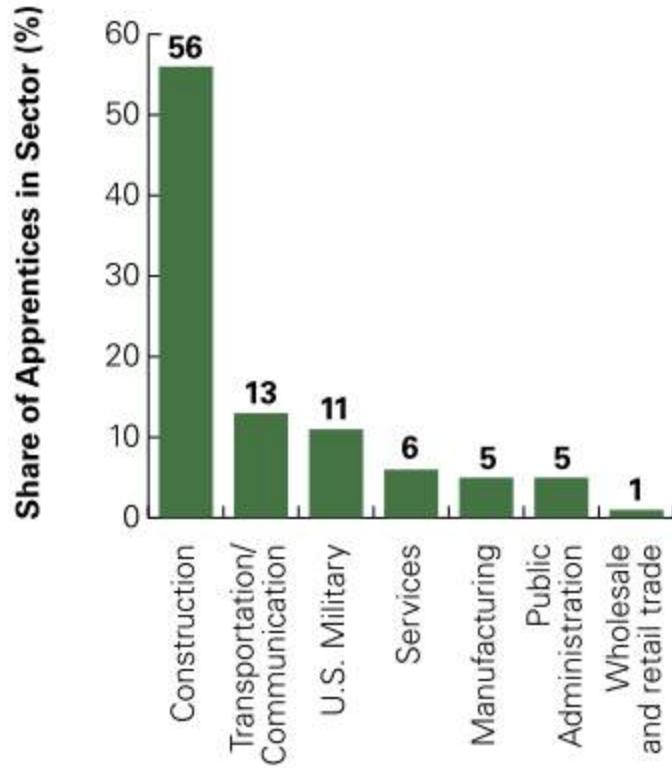
CFA?

CPA?

Apprenticeships

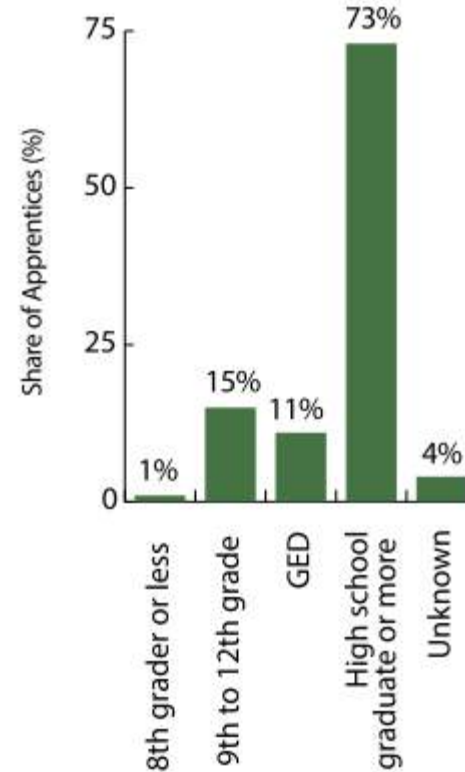
- Apprenticeships are training programs
 - Paid, supervised, on-the-job
 - Related academic instruction
- Registered Apprenticeship programs facilitate connections
 - employers,
 - employer associations,
 - joint labor-management partnerships,
 - job seekers interested in learning new skills through paid on-the-job training and academic instruction
- Apprenticeships helps reduce disparities in employment and earnings between young college graduates and young people with less education
- The **current net value** of lifetime earnings gains (less costs) of \$269,000 per apprentice compared with \$96,000 to \$123,000 for each individual who attended community college, and around \$40,000 for each person who participated in Workforce Investment Act training programs.

Figure 16: Over half of apprentices were working in construction in 2008.



SOURCE: Office of Apprenticeship, U.S. Department of Labor³⁵

Figure 20. Almost 73 percent of apprentices had at least a high school diploma in 2008



Source: Office of Apprenticeship, U.S. Department of Labor

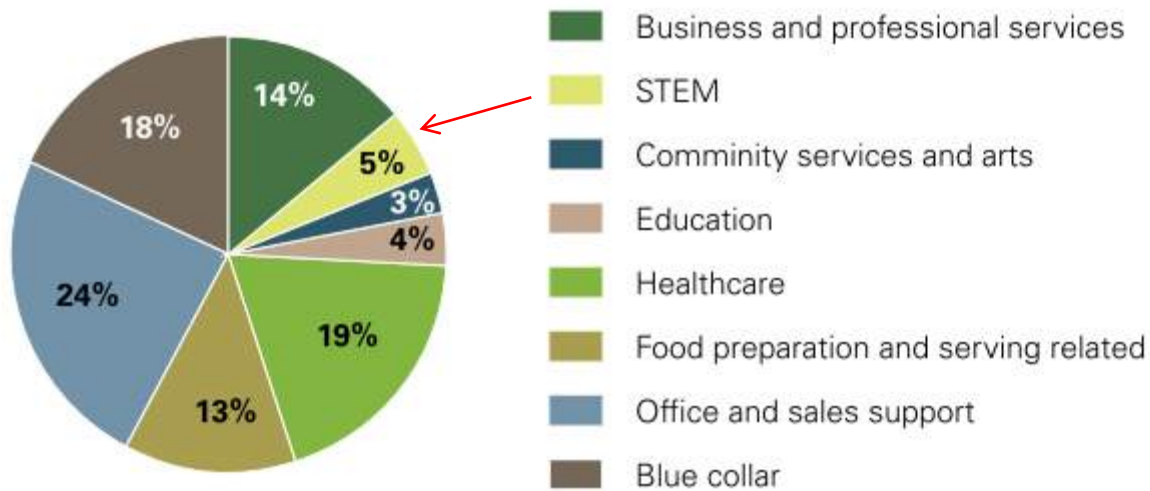
Associate's Degrees

Earnings Advantage

- Associate of Arts (AA); Associate of Science (AS); and Associate of Applied Science (AAS)
- Involve a combination of general education requirements and elective liberal arts coursework, but each program varies.
- AAS programs tend to be more occupationally focused
- As opposed to postsecondary certificate programs, which vary significantly, Associate's degree programs tend to require two years of instructional time and from 60 to 70 credit hours
- On average, men with occupational Associate's degrees earn \$49,000 annually, while women earn \$35,000, compared with \$41,000 for men with a high school diploma and \$28,000 for women with a high school diploma.



Figure 24. Office and sales, blue collar, and healthcare jobs are the most common occupations for Associate's degree-holders.



SOURCE: Authors' analysis of March 2011 Current Population Survey data for workers, ages 25-54.

Table 2. Registered nursing is by far the most common middle job that requires an Associate's degree.

Occupation	Number of Middle Jobs	Average Annual Salary
Registered Nurses	805,389	\$52,000
Miscellaneous Managers, Including Funeral Service Managers and Postmasters and Mail Superintendents	167,727	58,000
First-Line Supervisors of Retail Sales Workers	127,722	39,000
Accountants and Auditors	107,452	40,000
Diagnostic-Related Technologists and Technicians	103,114	48,000
First-Line Supervisors of Office and Administrative Support Workers	93,245	44,000
Police Officers	93,081	61,000
Sales Representatives, Wholesale and Manufacturing	77,128	57,000
General and Operations Managers	67,562	68,000
Electricians	66,310	51,000

SOURCE: Authors' estimate using American Community Survey, 2011

Majors Matter

Purpose of HS CTE

Currently, there is a debate over how CTE should be utilized in a high school setting, either as a way to explore different careers or as a program of study that begins to train students for a career. Both purposes are valid. As the relationships among education, training and economic opportunity intensify, more transparency is needed. In particular, the existence of high school CTE programs of study allows students an essential jumpstart and inroads into postsecondary education and training that often lead to middle-class jobs.

The Guidance Challenge

The American system avoids tracking at an early age and is characterized by flexibility that allows it to respond well to the changing demands on the labor market and allows for different pathways to the same goal. Consider, for example, that 28 percent of the population of Bachelor's degree recipients that started out at a community college. However, because these alternative routes are nonlinear and unsynchronized, they can be difficult to navigate for many individuals.



Credentials Should Be:

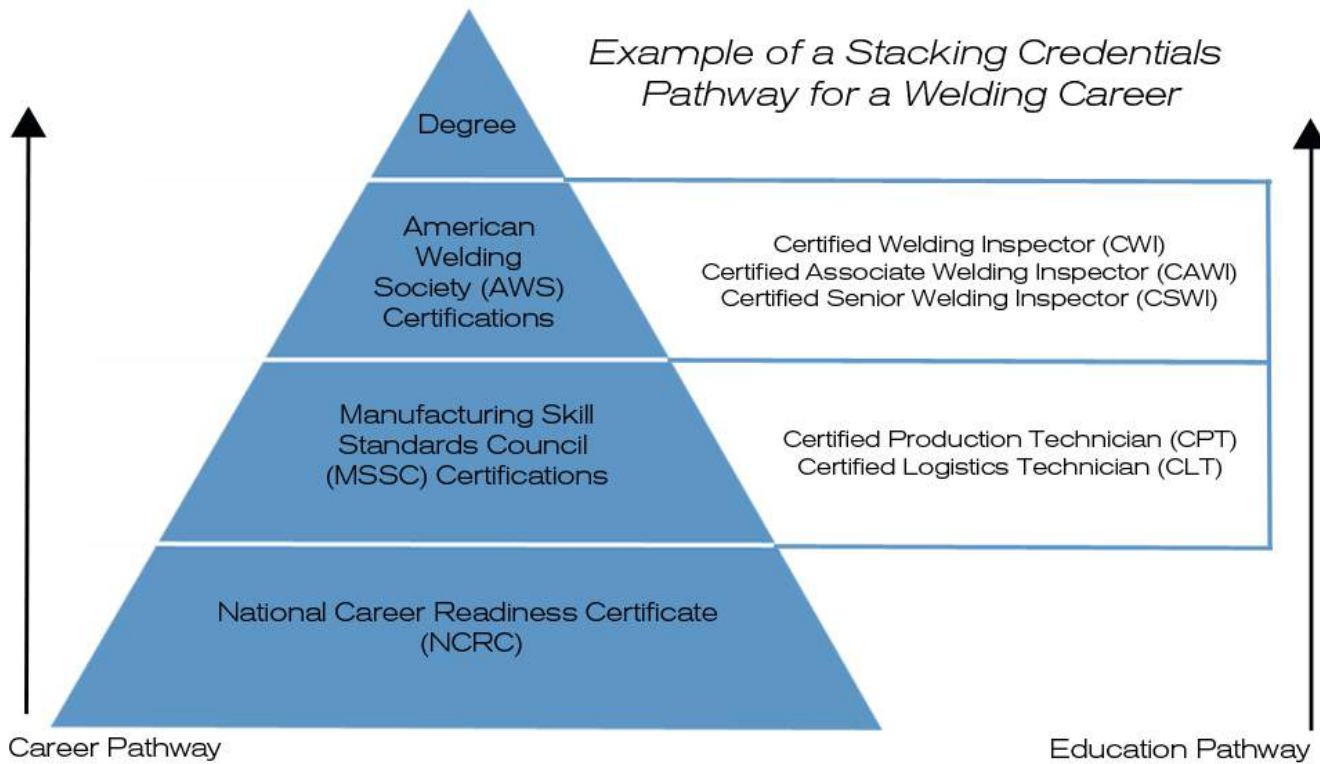
- Portable
- Stackable
- Part of a Career Pathways System

A stackable credential in manufacturing



* Industry-issued

designed by Lauren Rouppas



How about this?

A system of portable, stackable credentials embedded in transparent, more easily navigable career pathways.

The theory of action for multiple pathways

Why Invest in a Pathways Approach?

- **Under the current system of completion:**
 - Dropping out
 - Increasing levels of remediation and/or
 - Unsuccessful attempts to achieve a living wage job
- **The lack of coherence between K-12 and college and/or career/industry must be remedied:**
 - Combination of common expectations (State LS and Common Career Technical Core)
 - Multiple, similarly rigorous pathways
- **Multiple market and student-choice driven pathways**
 - Increase student engagement and student achievement
 - College, career and citizenship readiness.
- **The result will be a strengthening of our economy and our democratic way of life.**

The Foundation – 15 Credits

- All students would be required to meet certain established requirements aligned to New York State Standards including the P-12 Common Core Learning Standards for each diploma pathway
- An example of a rigorous college- and career-ready foundation might require:
 - 2 credits of Common Core mathematics
 - 2 credits of Common Core aligned Social Studies
 - 3 credits of Common Core English Language Arts (ELA)
 - 2 credits of science
 - 1 Career and Technical Education (CTE) credit
 - 1 Language Other Than English (LOTE) credit
 - 1 Arts credit
 - 2 Physical Education credits
 - $\frac{1}{2}$ Health credit, and
 - $\frac{1}{2}$ Financial Literacy credit.

The Pathways – 7 Credits

NYS Diploma Pathways SAMPLE FOR DISCUSSION PURPOSES ONLY

Liberal Arts/Sciences Foundation for All Students: Common Core Mathematics (2 units), Regents Life Science (1 unit), Regents Physical Science (1 unit), Common Core ELA (3 units), Common Core Aligned Social Studies (2 units), LOTE (1 unit), Arts (1 unit), CTE (1 unit), Physical Education (2 units), Health (½ unit) Financial Literacy (½ unit) = 15 Total Foundation Units*

	CTE Major	Humanities Major	STEM** Major	Arts*** Major	LOTE Major
Social Studies (common core aligned integrated, discrete or specialized)		2		1	1
ELA (common core aligned, integrated, discrete or specialized)		1		1	1
Science (common core aligned, integrated, discrete or specialized)	1	1		1	1
Math (common core aligned integrated, discrete or specialized)	1	1		1	1
Technical Writing (integrated or discrete)	1		1		
Regents/AP/IB or College Level Math			2		
Regents/AP/IB or College Level Science			2		
Concentration: (at least one college or career ready course: AP/IB/CTE/College Level)	4	2	2	3	3
Foundation	15	15	15	15	15
Total Credits	22	22	22	22	22

*CDOS requirements added to the foundation for all students (i.e., 1 CTE unit and ½ Financial Literacy unit).

**The STEM major could be further broken down into Life Science, Physical Science, Technology, Engineering or Mathematics

***Arts credits can be met in one or more arts disciplines

What Matters for Students

- What you know
- Proving (credentialing) what you know matters more
- What you pursue (majors or fields)
- Your Sex; Implications for young women & men
- Communicating knowledge and skills to employers

What to Do?

- Change the nature of the Career Ready conversation with the public, parents, board and staff from “those” kids to all kids
- Establish a career ready definition and associated metrics and use them in program and resource allocation discussions
- Build a Pathway System with business, industry and postsecondary partners



CERTIFICATES:

Gateway to Gainful
Employment and
College Degrees



References

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- Portable, Stackable Credentials: A New Education Model for Industry-Specific Career Pathways; J.T. Austin, G. O. Mellow, M. Rosin and M. Seltzer, 2012
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- The Differences between Academic and Professional Credentials: Claude Balthazard, 2010