

Progress is Stalled:

Career Pathways: Accelerating Access to the Middle Class

Presentation to:

North Carolina House Select Committee on Education Strategy and Practices

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Better alignment between state workforce opportunities and college and career readiness is needed **now**.

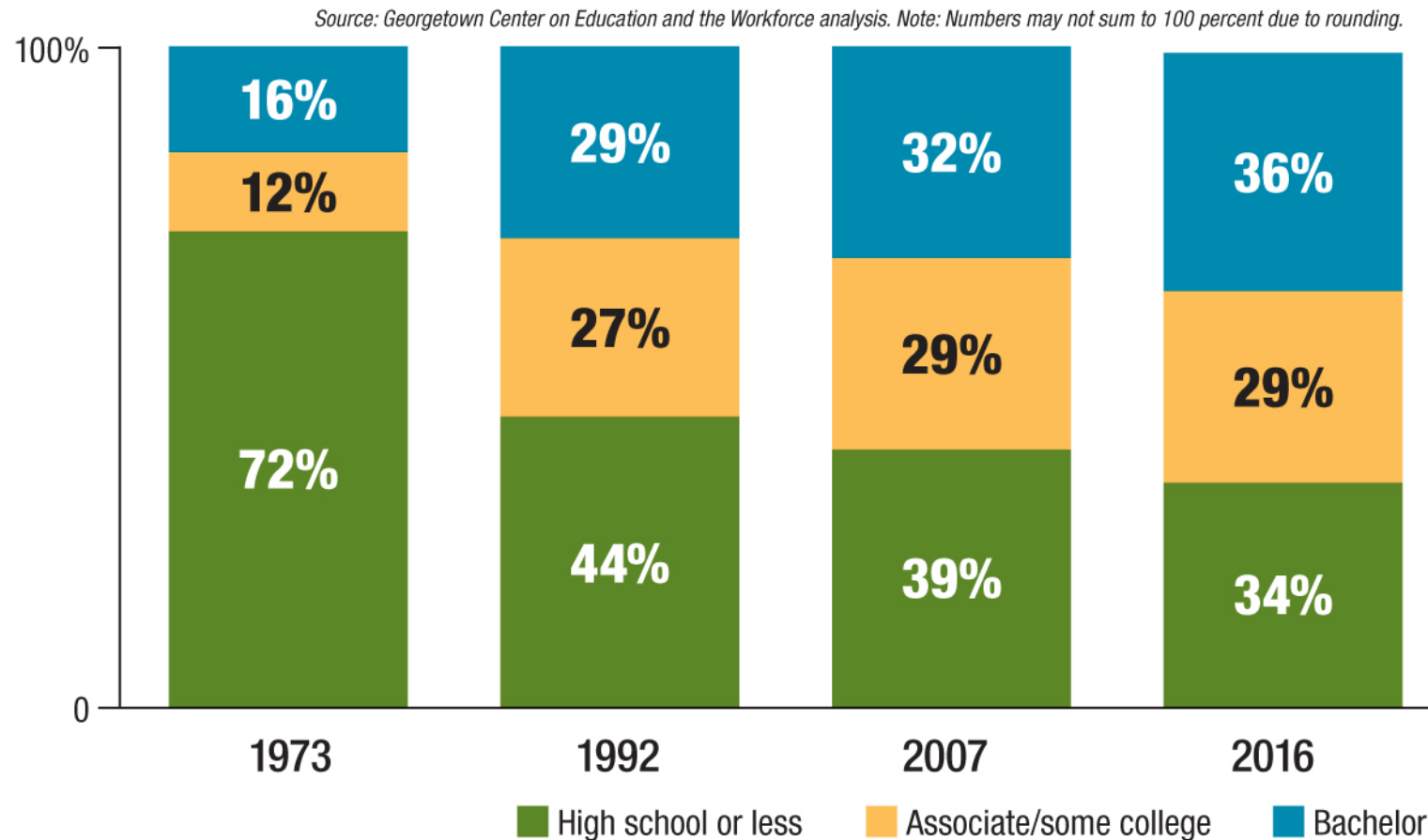
Since the 1970s, the U.S. has seen a steady rise in the education needed to obtain a good job.

Based on current trends, by 2020, **67 percent of all jobs in North Carolina** will require some postsecondary education and training that leads to advanced credentials — i.e., associate or bachelor's degrees or higher.

Source: George Washington University

Rise in Education Levels for Jobs

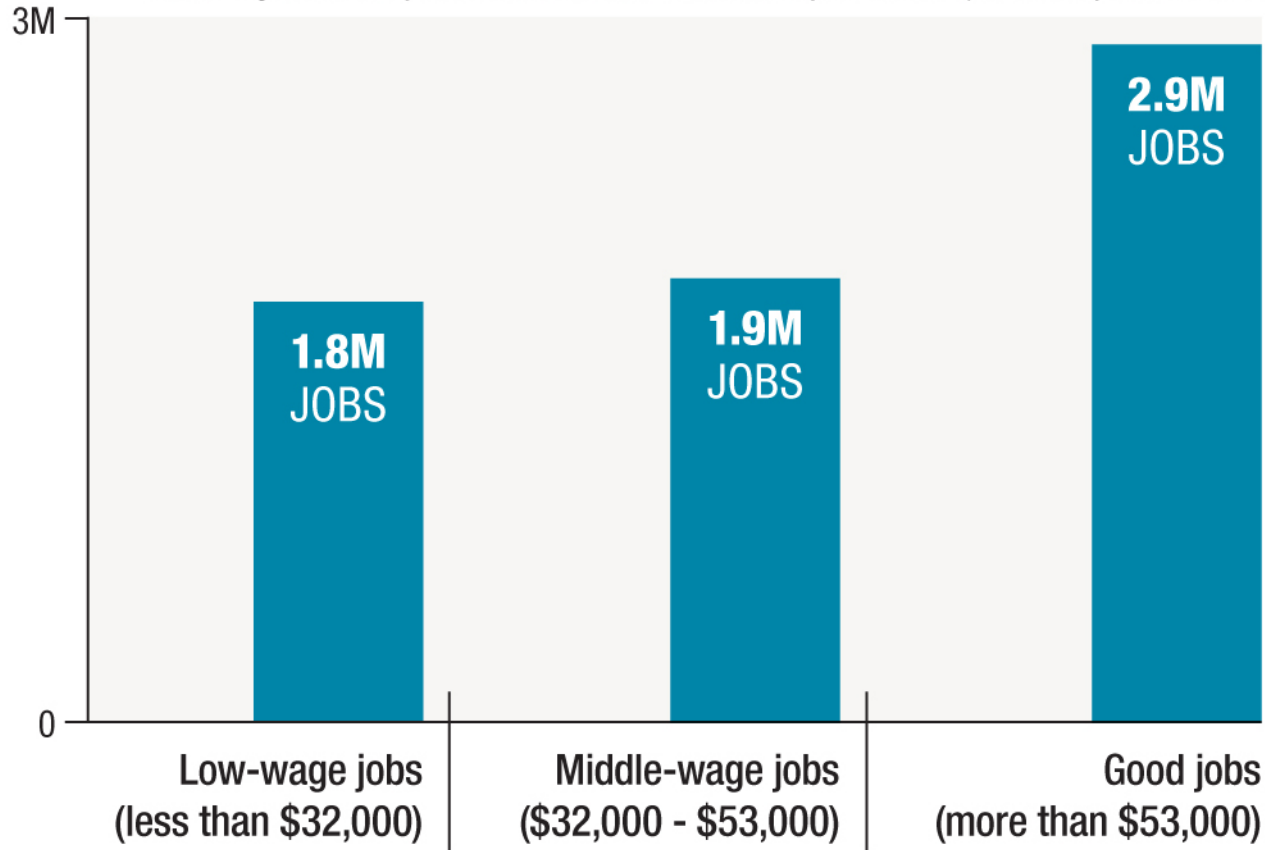
1973 to 2016



Jobs Added in the Economic Recovery

Good jobs account for 44%. Low-wage jobs stand at 29% (2010-2014)

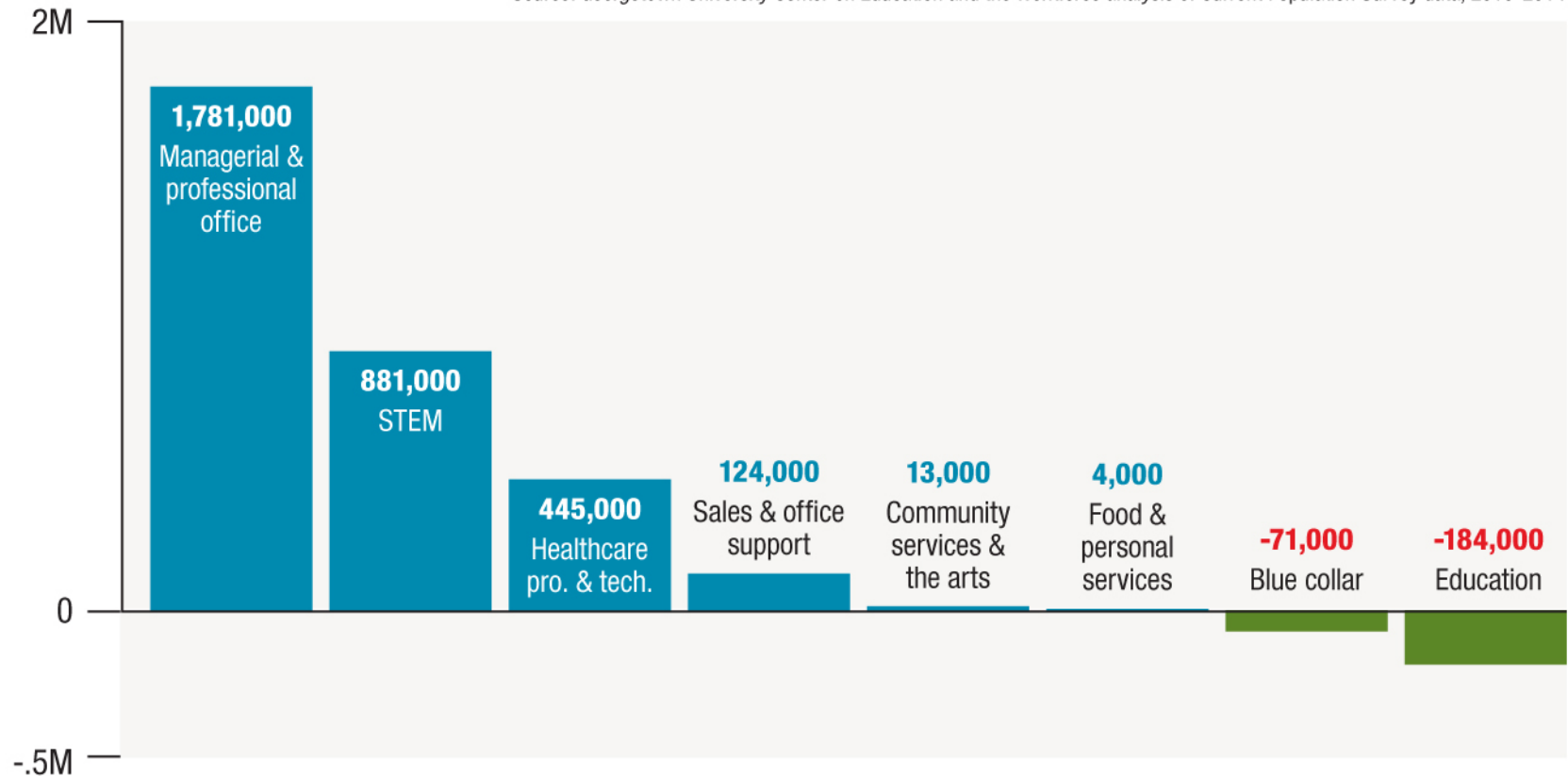
Source: Georgetown University Center on Education and the Workforce analysis of Current Population Survey data, 2010-2014



Areas Representing the Majority of Good Jobs

Employment change in high-wage occupations, 2010-2014

Source: Georgetown University Center on Education and the Workforce analysis of Current Population Survey data, 2010-2014

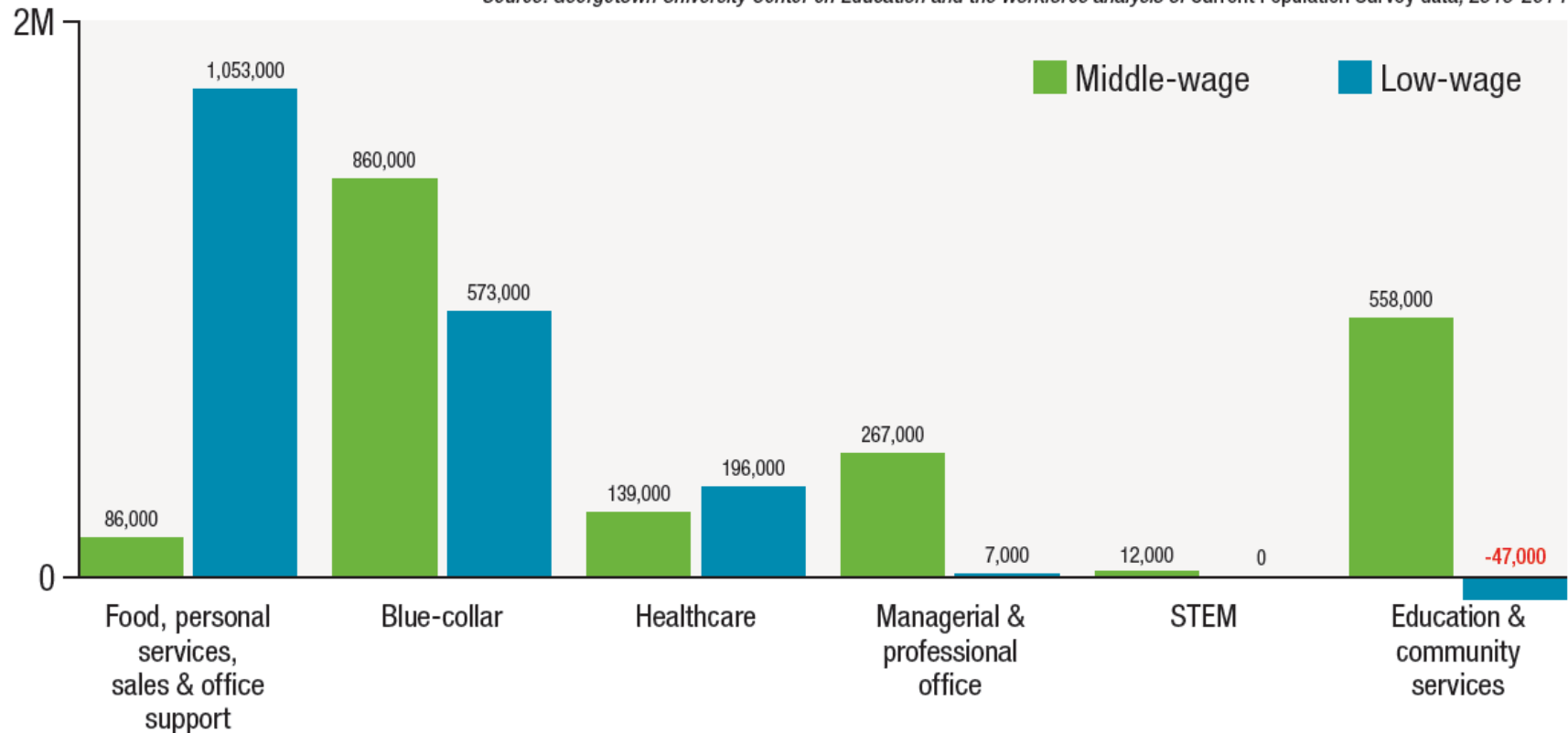


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Areas with Majority of **Middle- and Low-Wage Jobs**

Job growth recovery, 2010-2014

Source: Georgetown University Center on Education and the Workforce analysis of Current Population Survey data, 2010-2014



North Carolina Annual Openings for Good Jobs, Middle-Wage Jobs

Career Cluster	Projected Annual Openings (2022)	Annual Salary > 32K	Annual Salary > 53K	2014-2015 HS Secondary Enroll.	2014-2015 Post-Secondary Enroll.	Total Enroll.	Gaps
Architecture & Construction	14,221	33%	67%	3,966	2,589	6,555	-7,666
Business, Management & Administration	22,503	50	50	3,806	8,811	12,617	-9,886
Finance	6,189	25	75	388	135	523	-5,666
Health Science	18,812	31	69	5,969	135	6,104	-12,708
Human Services	1,359	100	0	1,098	1,750	2,848	1,489
Information Technology	1,958	20	80	2,219	4,726	6,945	4,987
Law, Public Safety, Corrections & Security	2,488	40	60	537	5,438	5,975	3,527
Manufacturing	9,451	100	0	468	6,345	6,813	-2,638
Marketing	776	0	100	395	5,083	5,478	4,702
STEM (Including Computer Science)	7,688	0	100	1,445	296	1,741	-5,947
Transportation, Distribution & Logistics	2,109	80	20	748	614	1,362	-747

The Great Skill Mismatch

Job Openings Rise, Hiring Slows



Looking for Jobs

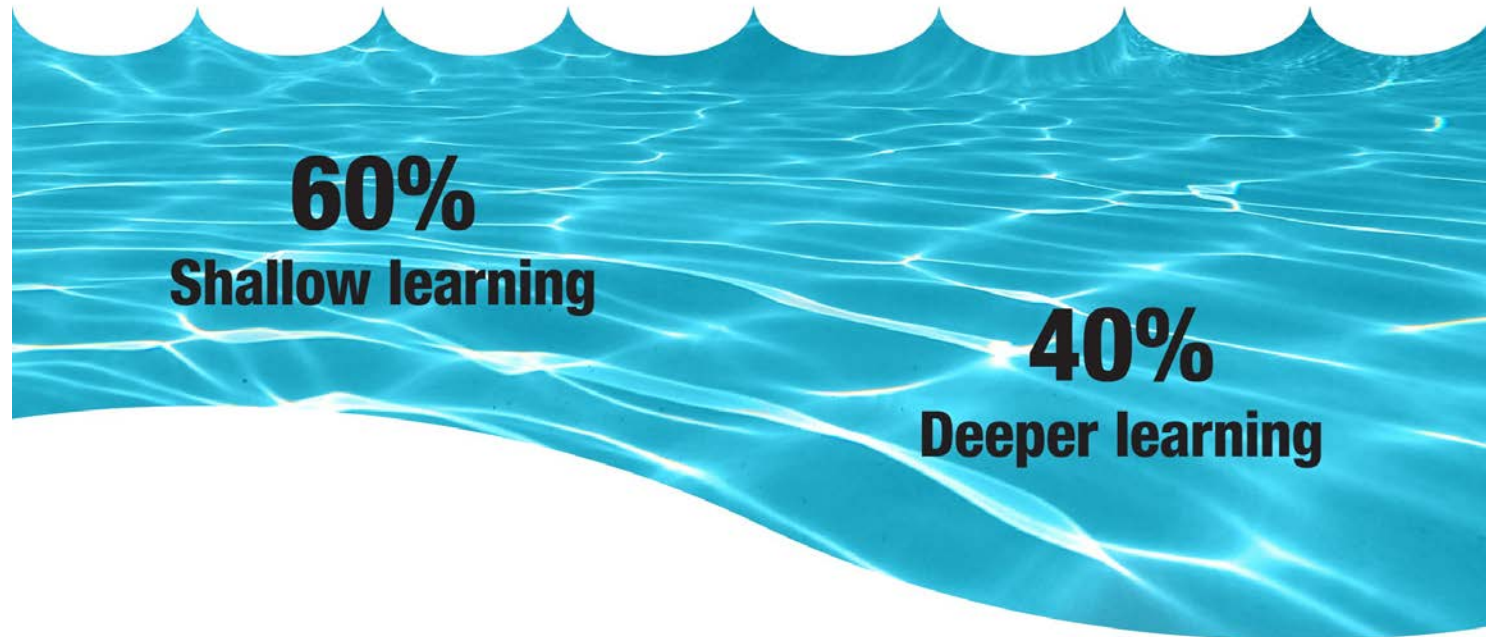


Help Wanted

What is the problem?

We're preparing
60% of students for
the **33% of jobs**
that are **low-wage**.

We're preparing
40% of students for
the **67% of jobs** that are
good- and middle-wage.

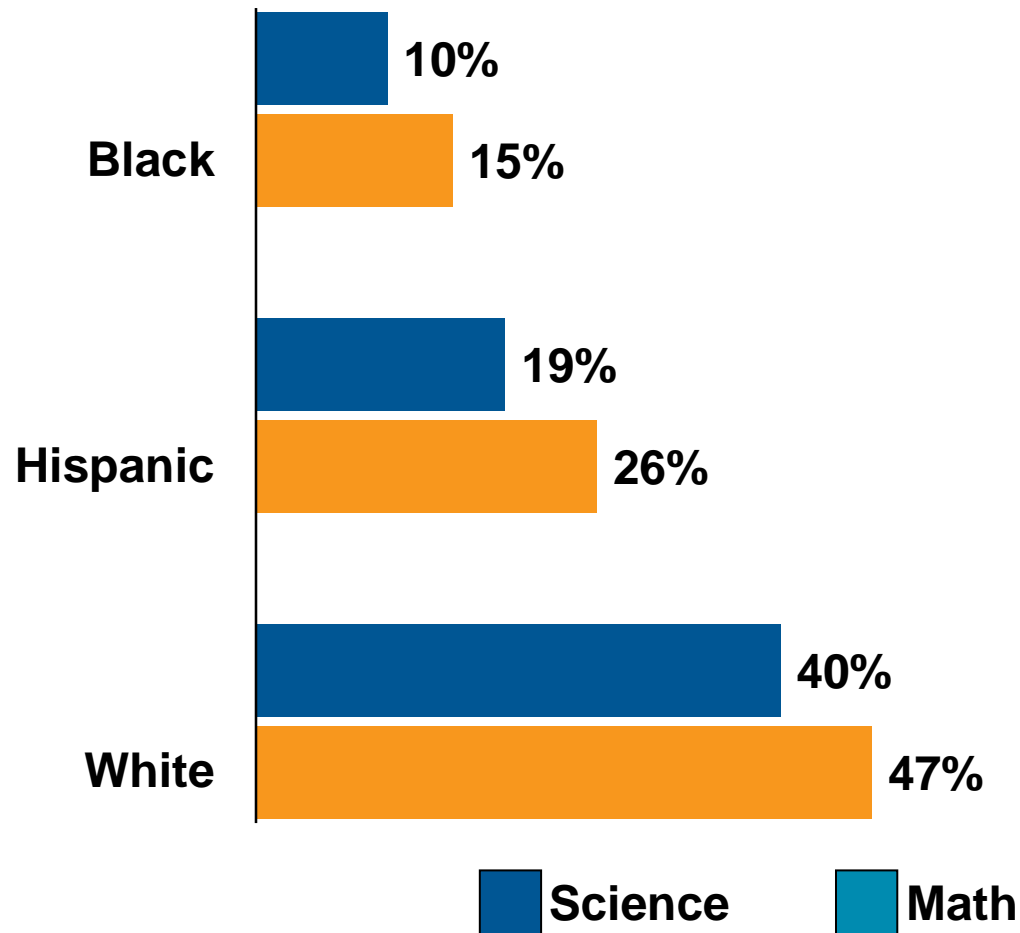


Median Percentage of Eighth-Graders in SREB States Proficient and Above in Reading and Math

	Reading	Math
SREB States	30%	27%
North Carolina	30	33
United States	33	32

Source: NAEP Assessment 2015

STEM-Interested Seniors Who Met ACT's College-Readiness Benchmarks in North Carolina By Racial/Ethnic Group, 2015





Median Percentage of Students in SREB States Meeting ACT College-Ready Benchmarks

	N. C.	SREB	U.S.
English	47%	58%	64%
Reading	34	41	46
Science	26	32	38
Math	32	36	42
Met all four	18	22	28
Percentage of students taking ACT exams	100	69	59

Source: ACT Assessment, 2015

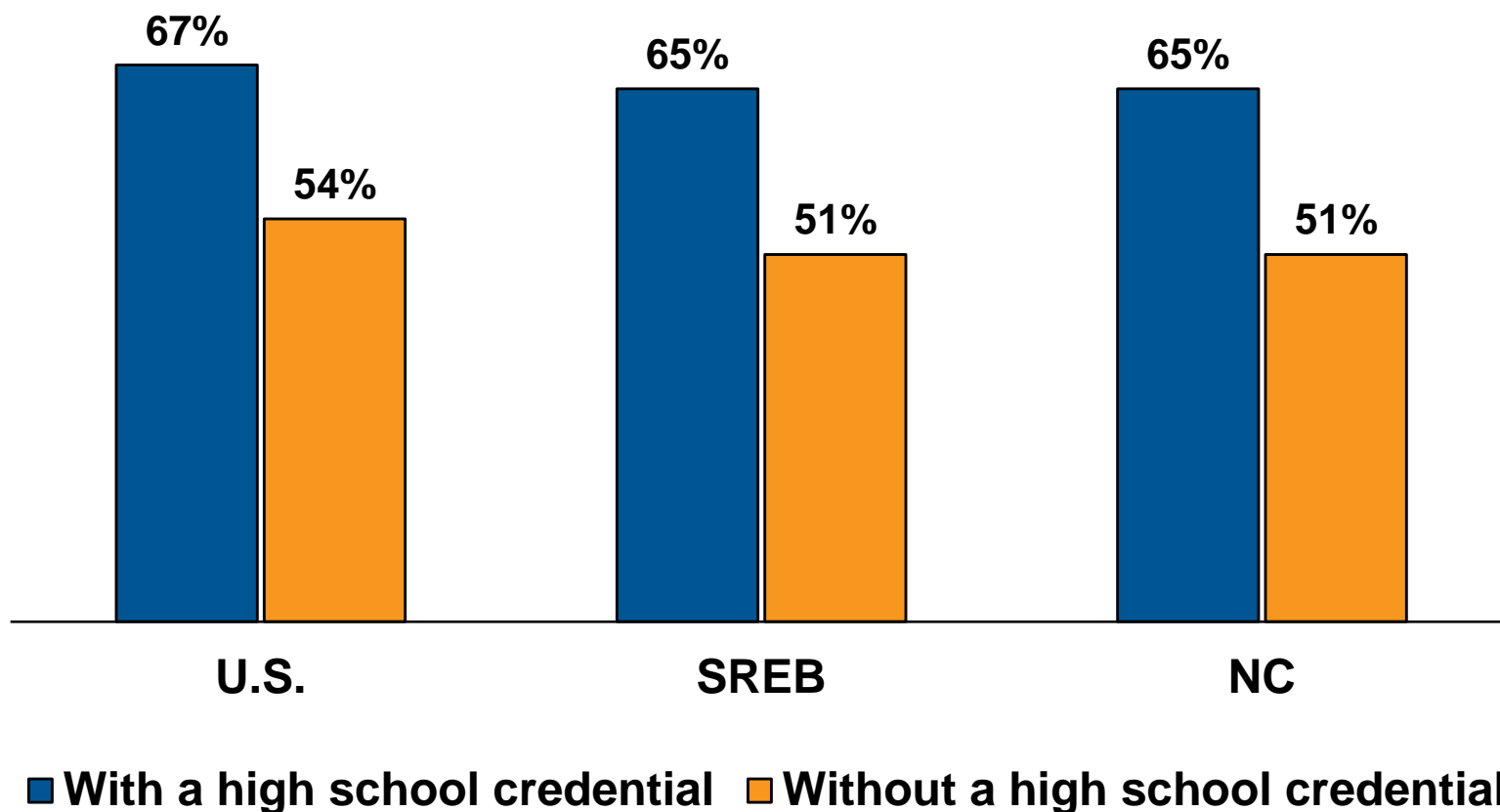
Unemployment Rates of Three Groups

Select SREB states, 2015

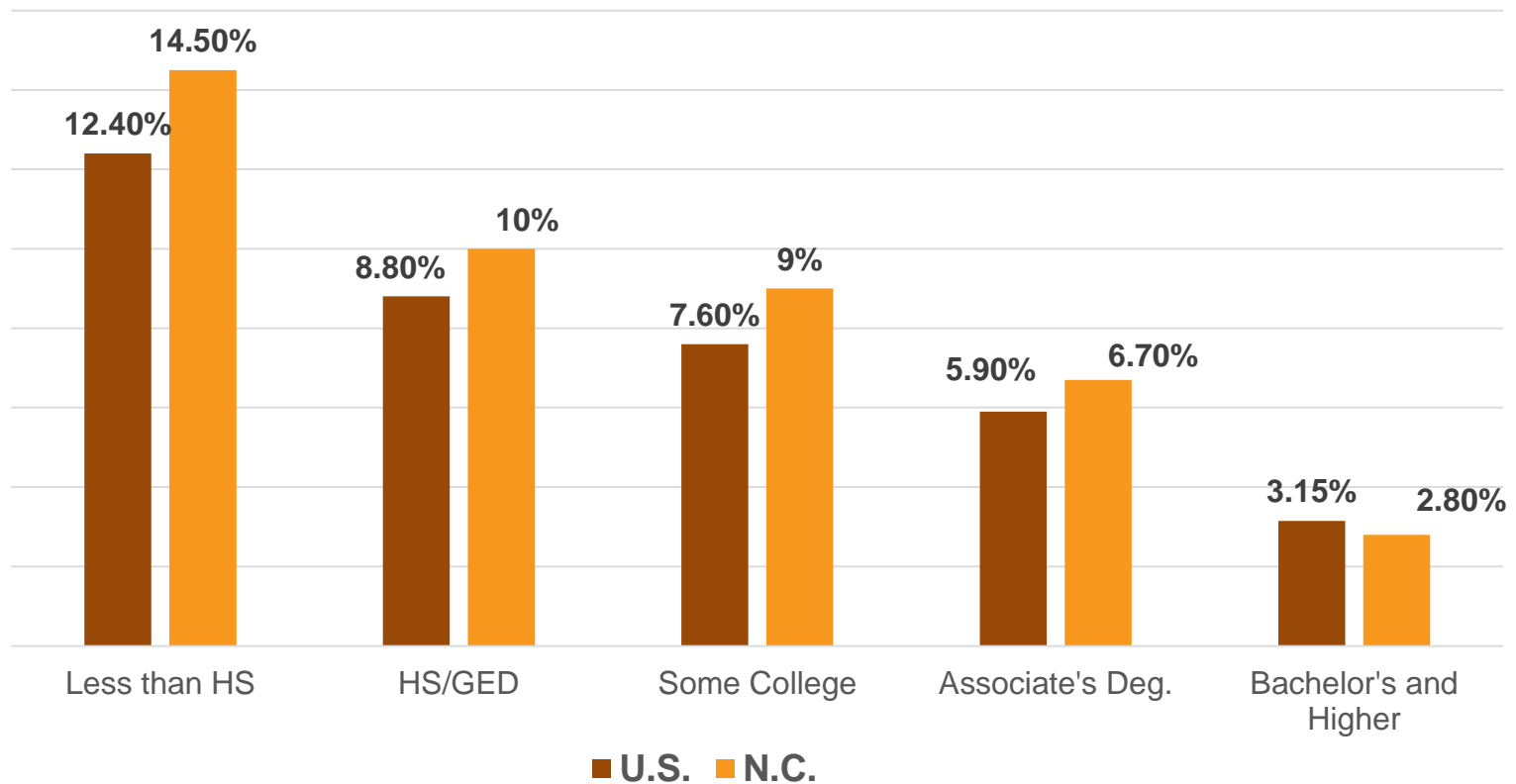
Source: Bureau of Labor Statistics

	Under Age 25	All Workers	Adults PS Certified
State A	10%	4%	7%
State B	13%	5%	15%
State C	15%	6%	8%
State D	16%	6%	4%
State E	15%	6%	

Employment Rates for Adults, Ages 25 to 64, Without a Postsecondary Credential In North Carolina, 2014



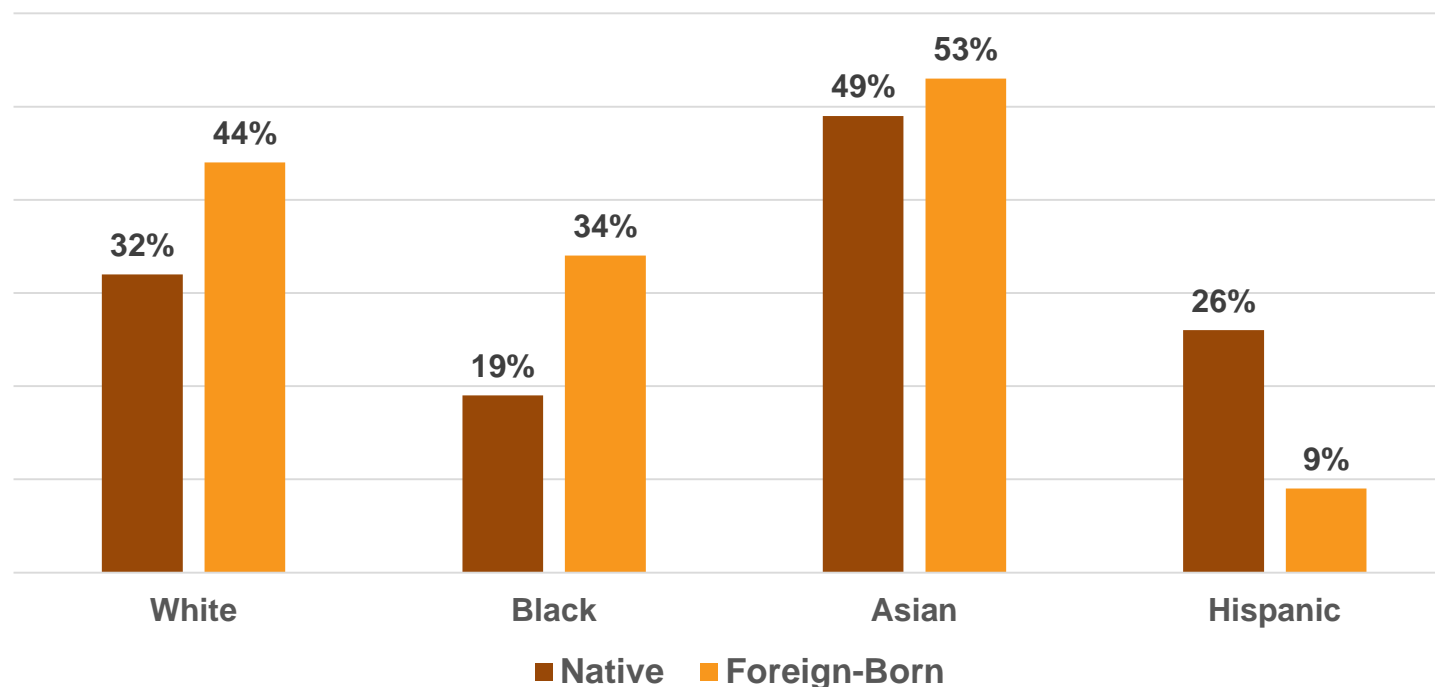
Unemployment Rate by Educational Attainment 25+, U.S. and N.C., 2015



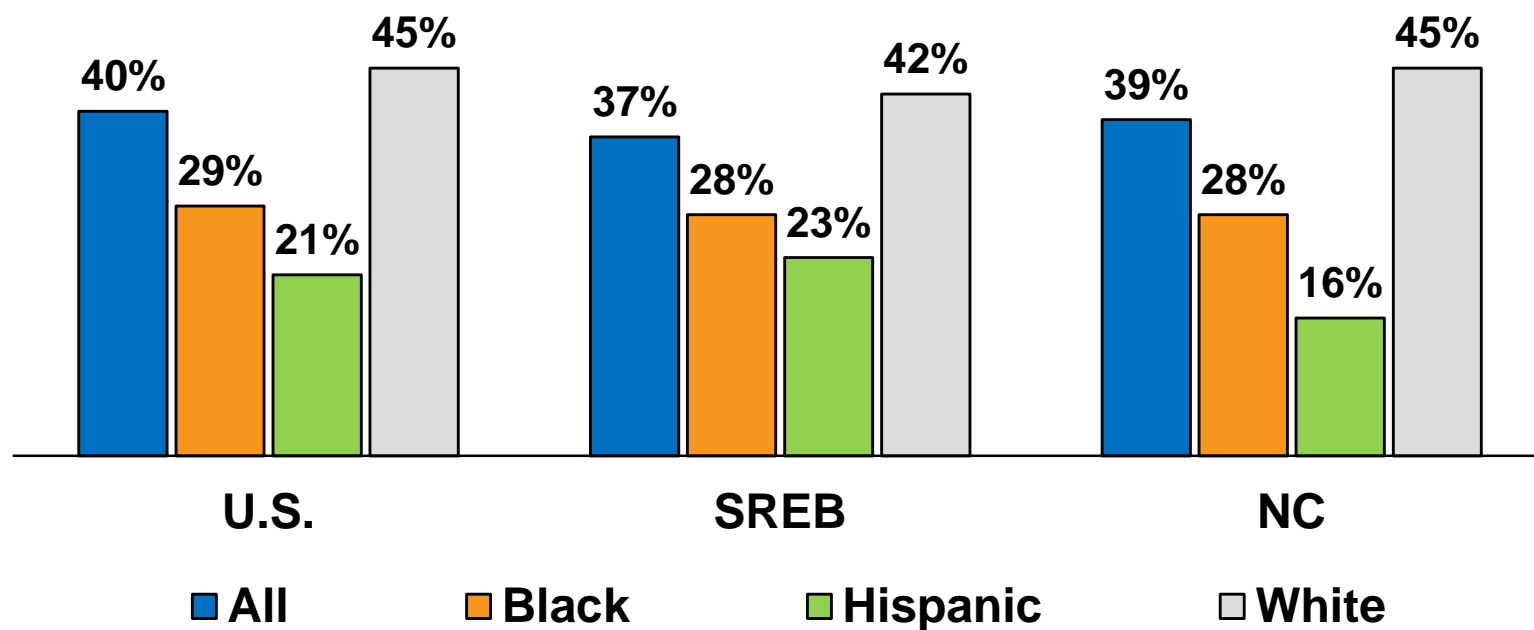
Source: IPUMS-USA, analysis limited to individuals 25+ in civilian labor force.

Educational Attainment varies by Race/Ethnicity and Nativity

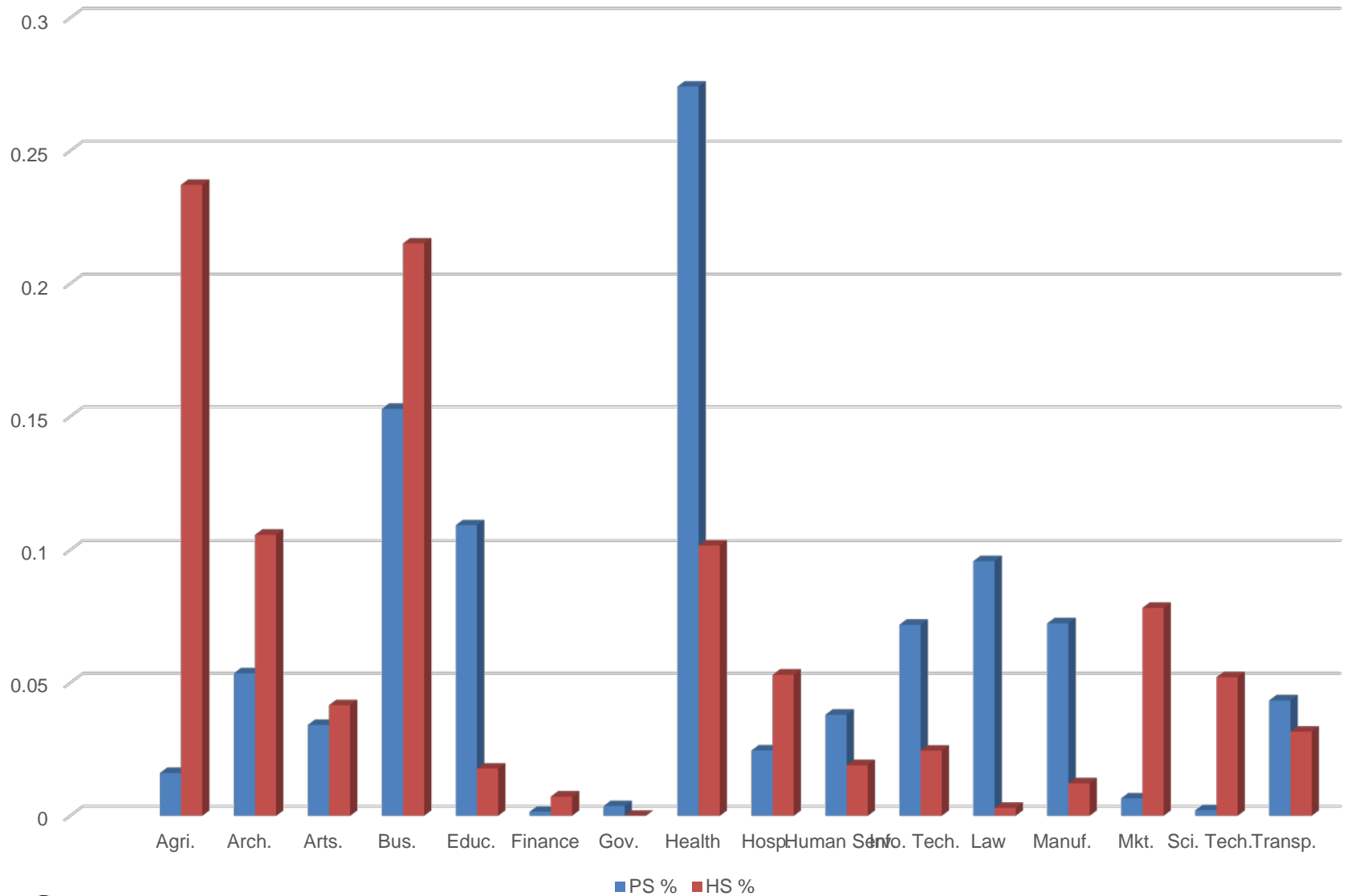
Percentage of NC adults 25 and older with a bachelor's degree or higher, 2014



Percentage of Working-Age Adults With Associate Degrees or Higher, By Race/Ethnic Group In North Carolina, 2014



North Carolina Secondary and Postsecondary CTE Concentrators by Cluster: Average Percentage for 2007/08 to 2014/15



High school career **pathways** must be aligned with postsecondary and workforce **opportunities**.

The number of students choosing CTE career clusters has **declined** since 2007, especially in high-demand clusters.

There is a **disconnect** between career pathway enrollments and labor market opportunities.

There are **disparities** between high school CTE concentrations and postsecondary career clusters.

Too many students are headed for the **shallow end** of the **employment pool**.

Why?

Pathways vs. Expectations

National transcript outcomes of 2013 HS graduates

Source: Education Trust.

Pathway / curriculum completed	% who completed	% who planned bachelor's or higher	% who planned associate or higher
College and Career Ready	8%	77%	11%
College Ready	31%	78%	12%
Career Ready	13%	52%	22%
No Cohesive Curriculum	47%	61%	17%

Career and Technical Education Concentrations

High Schools That Work schools, 2014

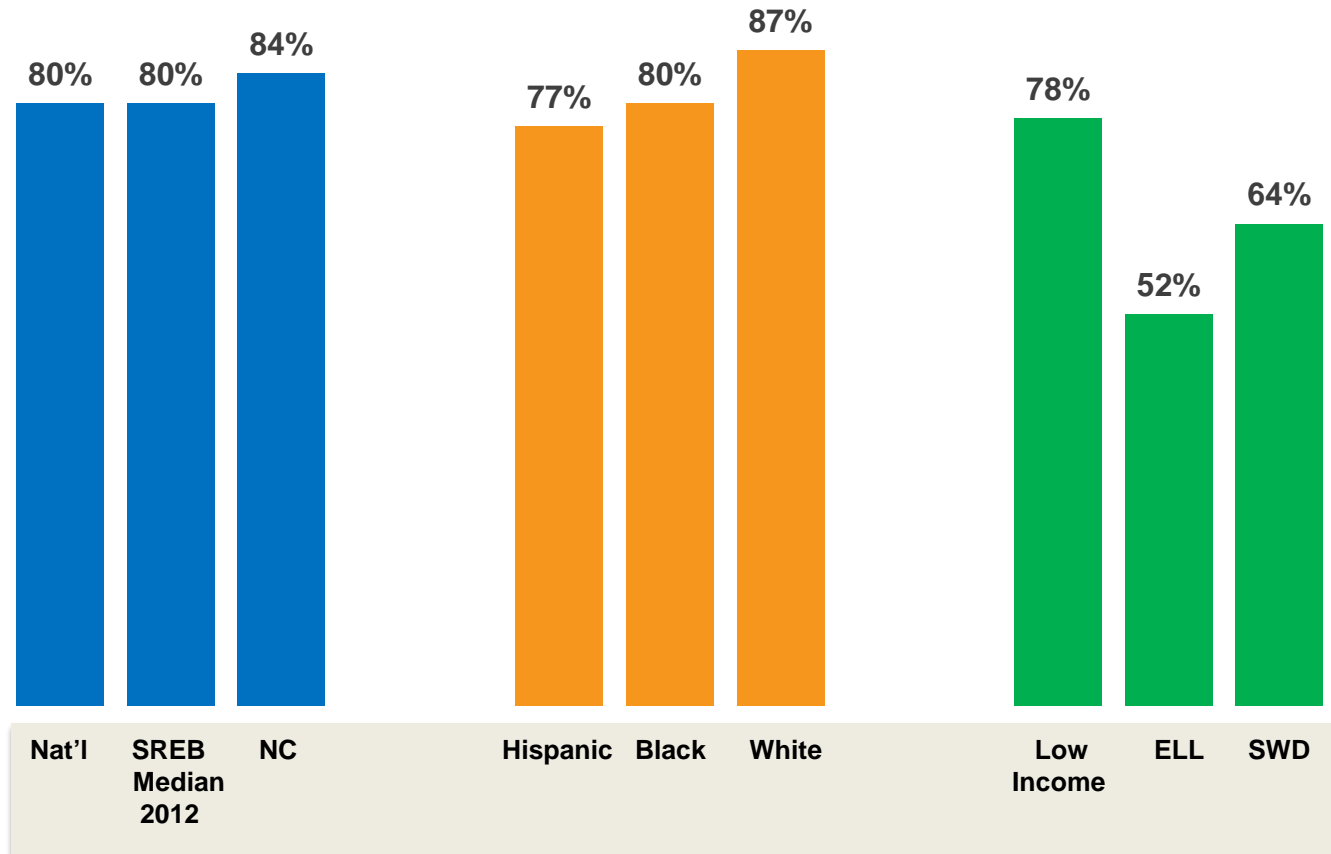
	College-ready core + Rigorous career pathway pathway	College-ready core + Weak career pathway	Weak academic core + Career-ready pathway
Completed all of HSTW-recommended academic core	15%	14%	71%
1. Met college-readiness standards			
Reading	81%	64%	40%
Math	81%	64%	50%
Science	78%	62%	45%
2. Percentage with postsecondary aspirations			
BS degree or higher	73%	63%	46%
AA/AS/Postsecondary training	19%	20%	24%

Middle-size school districts in North Carolina: Survey of career-focused seniors in Spring of 2016

Post-Secondary Aspirations	College-Ready Core without CTE Concentration (%)	CTE Concentration without College-Ready Core (%)	No College-Ready Core or CTE Concentration (%)
Total (511 Students)	2% (10 students)	30% (152 students)	68% (349 students)
Career and technical education, trade or advanced industry credential	0%	7%	9%
Associate's degree (or other 2-year program)	0	19	13
Bachelor's degree or higher	78	70	71

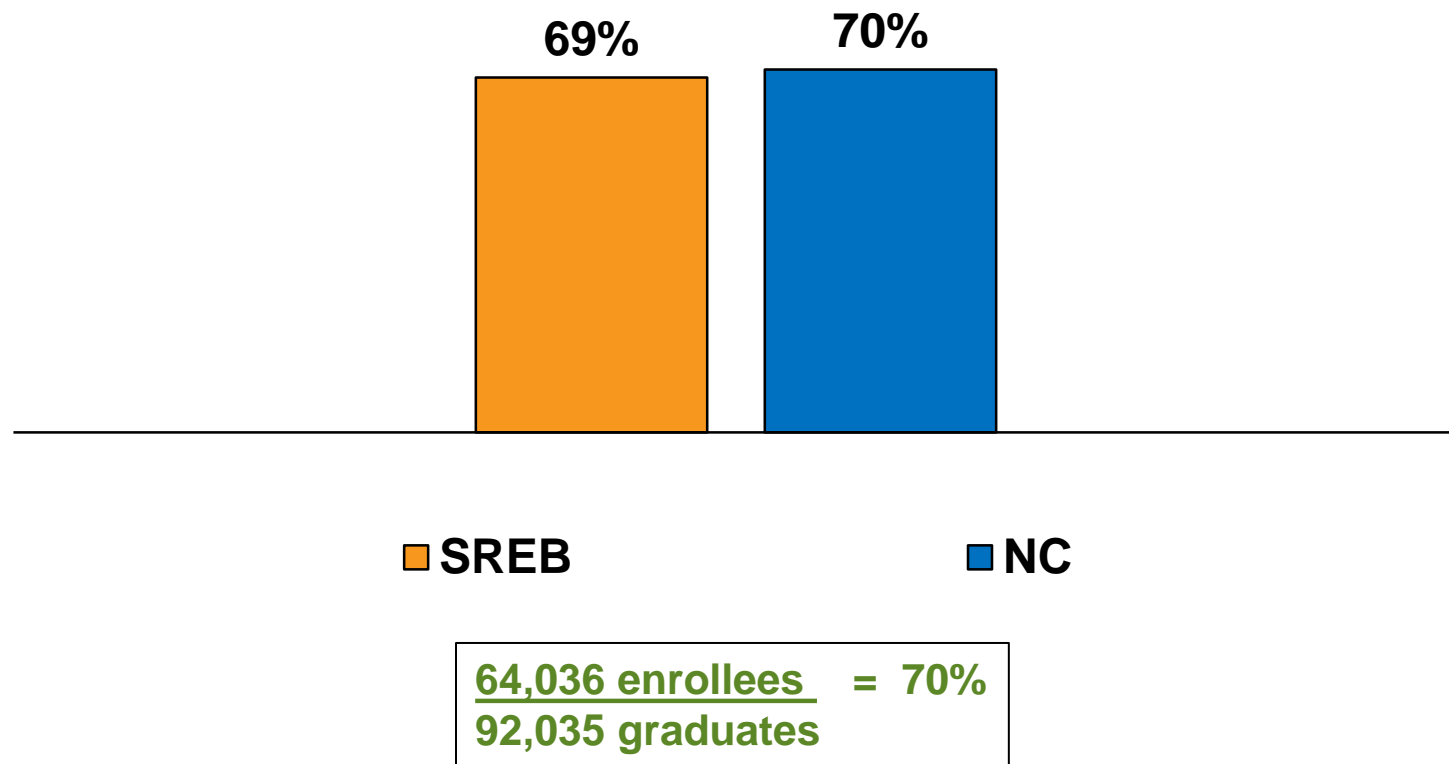
Based on a survey of 511 students from six high schools.

High School Graduation Rates in North Carolina, 2014



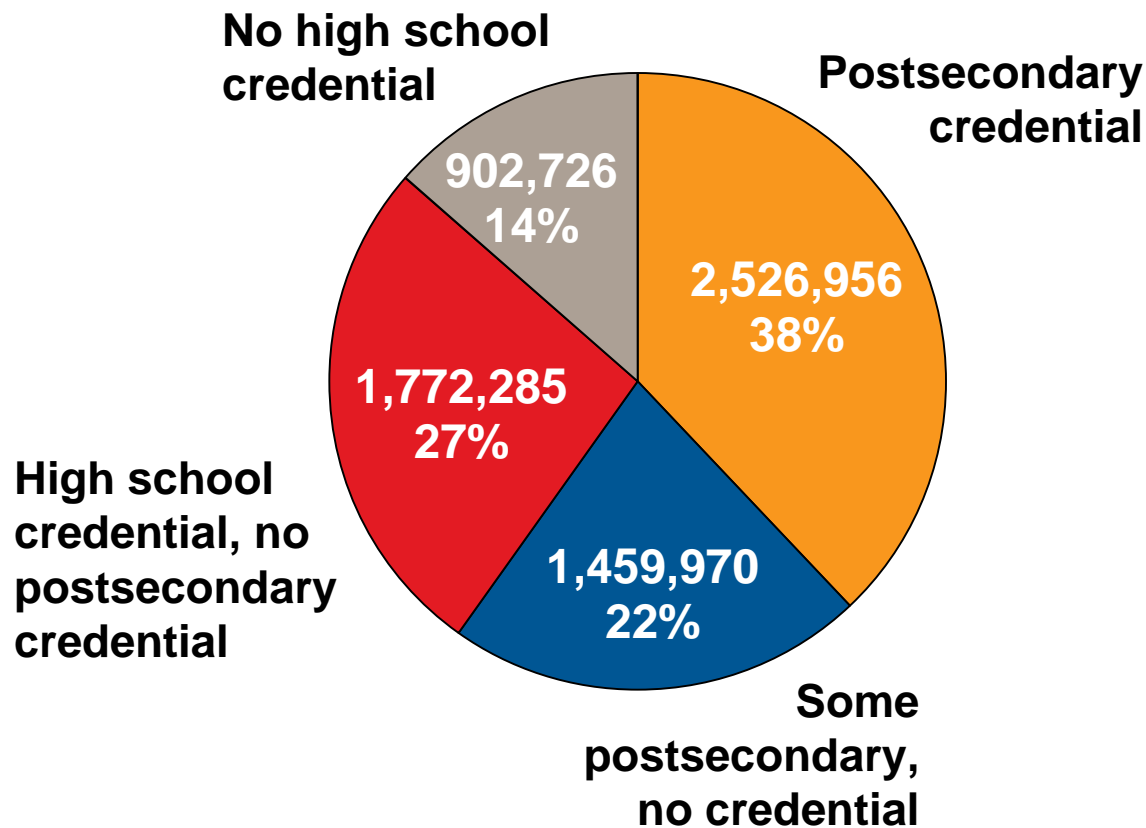
ELL: English Language Learners SWD: Students with Disabilities

Postsecondary Enrollment Rates of Recent High School Graduates in North Carolina, Fall 2014



Source: SREB, based on data from states and the National Center for Education Statistics

Educational Attainment of Adults, Ages 25 and Over, In North Carolina, 2014



Note: The sum of categories does not equal 100 percent, due to rounding.



The road to the **middle class** begins with:

1. Increasing greatly the **college- and career-readiness** of high school graduates
2. Structuring **career pathway programs** that
 - span high school and postsecondary studies
 - align with good career opportunities
 - are combined with a college-ready academic core



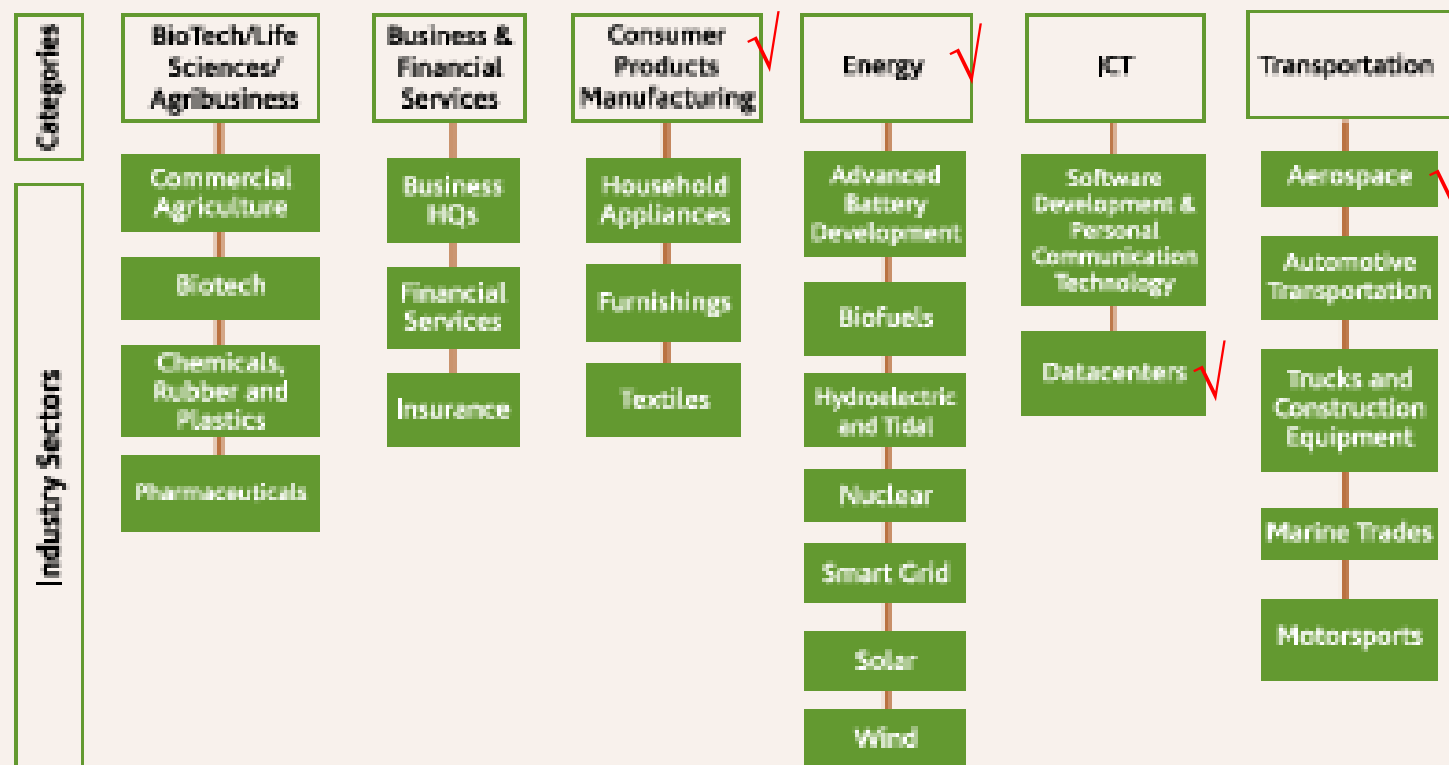
What is Advanced Career?

- Advanced Career (AC) is eight ready-to-implement curricula made up of four courses each.
- Courses focus on preparing students for college and careers by engaging them in applying academic and technical knowledge and technology to complete work-related assignments.

Leading Industry Sectors in N. C.



North Carolina's Potential Industry Sector Targets



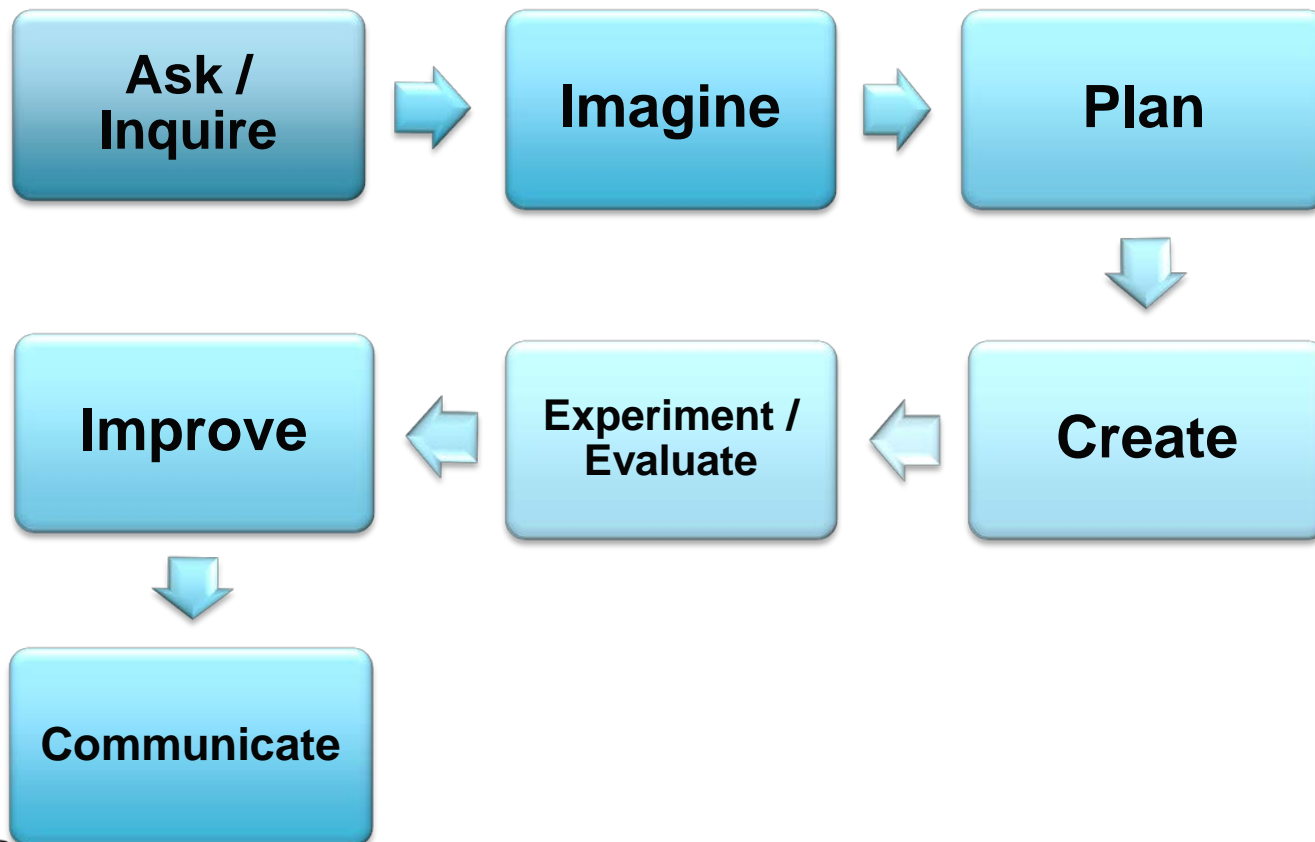


Why Develop the Advanced Career Curricula?

- Prepare students for a double purpose.
- Model assignments that require students to apply a blend of — academic, thinking, technical, technology and team skills.
- Introduce students to career opportunities (often unknown to them).
- Create career pathway programs of study that blend a college-ready core with career studies.

Anatomy of an AC Project

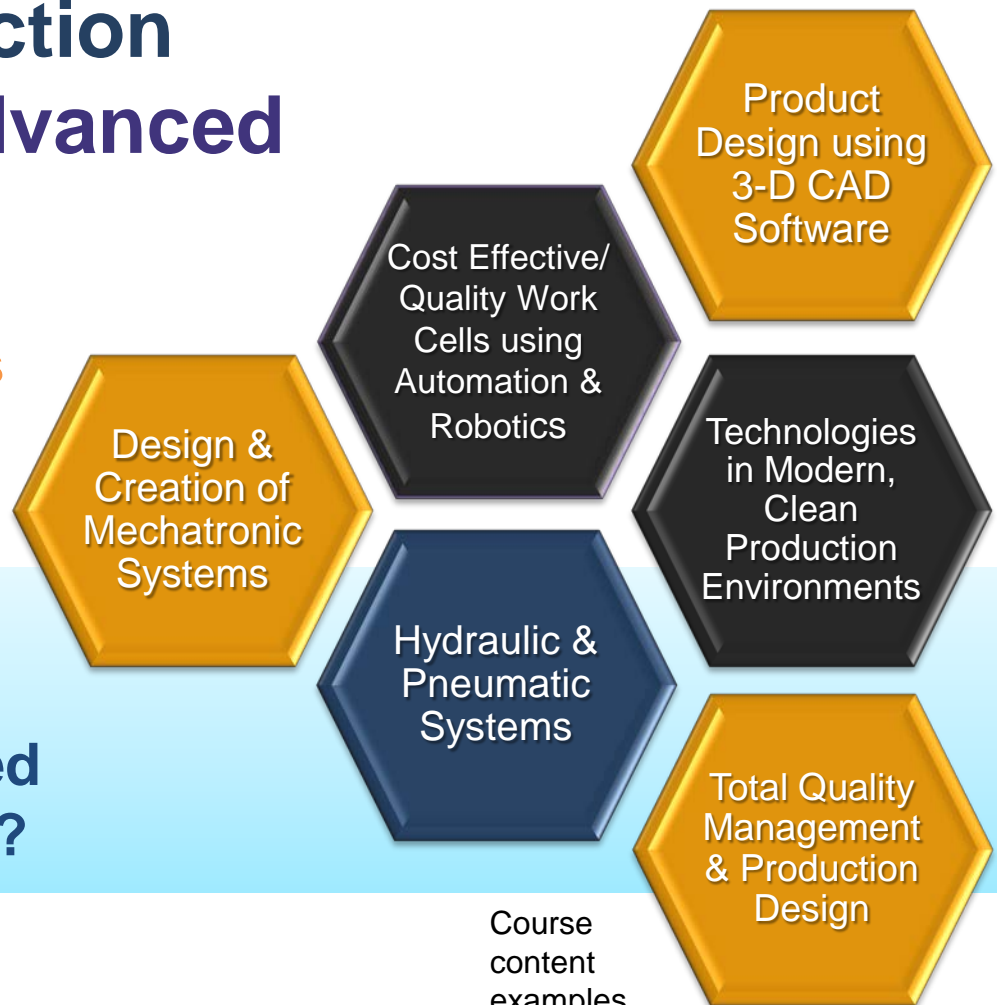
Students apply the seven-step Engineering Design Process (EDP) to complete each project.



Advanced Career Integrated Production Technologies (Advanced Manufacturing)

**Projects Engage Students
in Solving Real-World
Challenges**

**EQ. How can we design
a logic control process
to improve an automated
manufacturing process?**



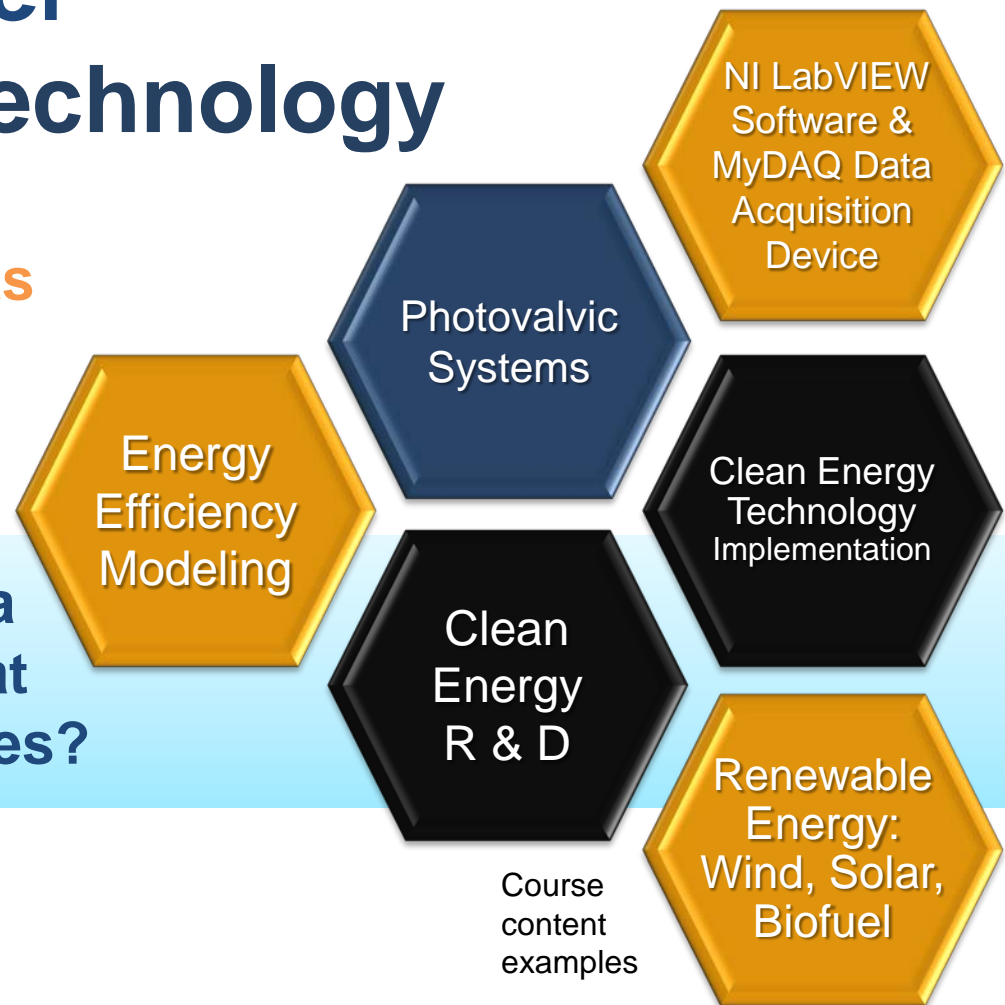
Course
content
examples

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Advanced Career Clean Energy Technology

**Projects Engage Students
in Solving Real-World
Challenges**

**EQ. How can we design a
device to use radiant heat
to heat water in our homes?**

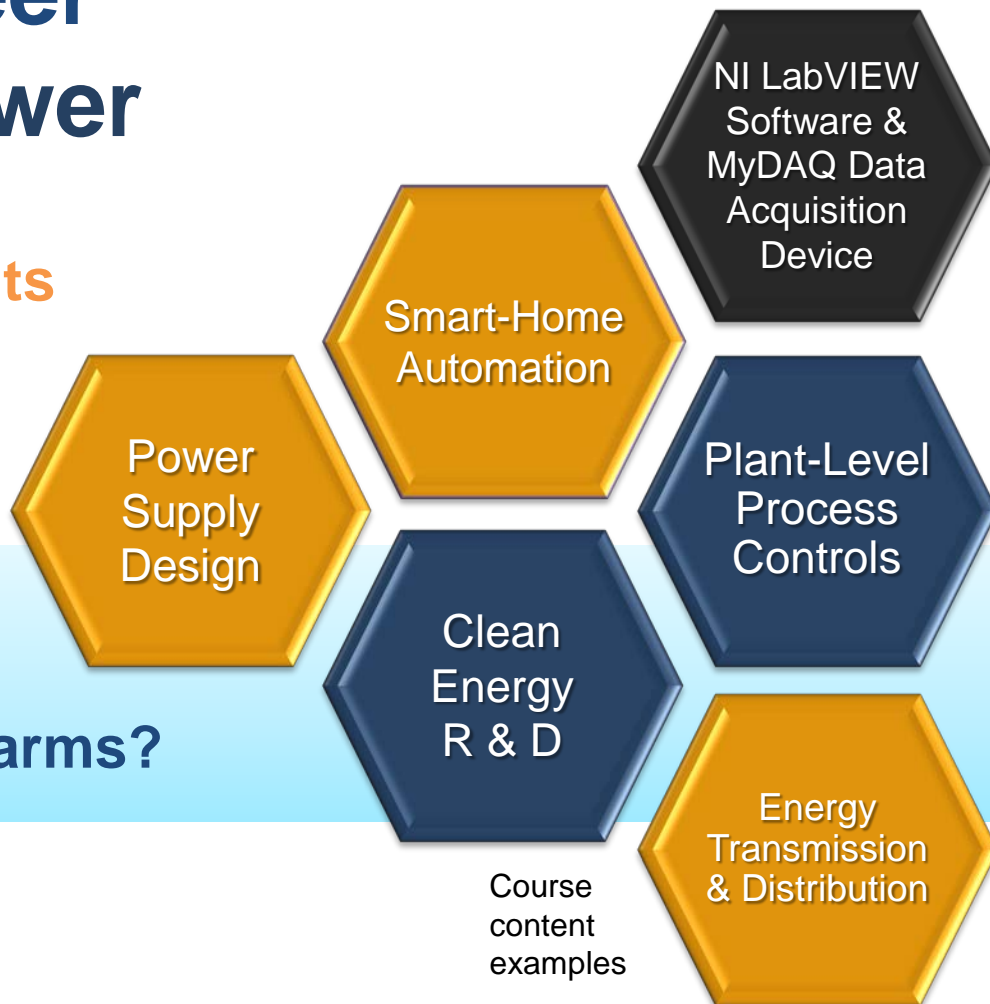


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Advanced Career Energy and Power

Projects Engage Students
in Solving Real-World
Challenges

EQ. How can we design
a mini-hydroelectric
system for homes and farms?

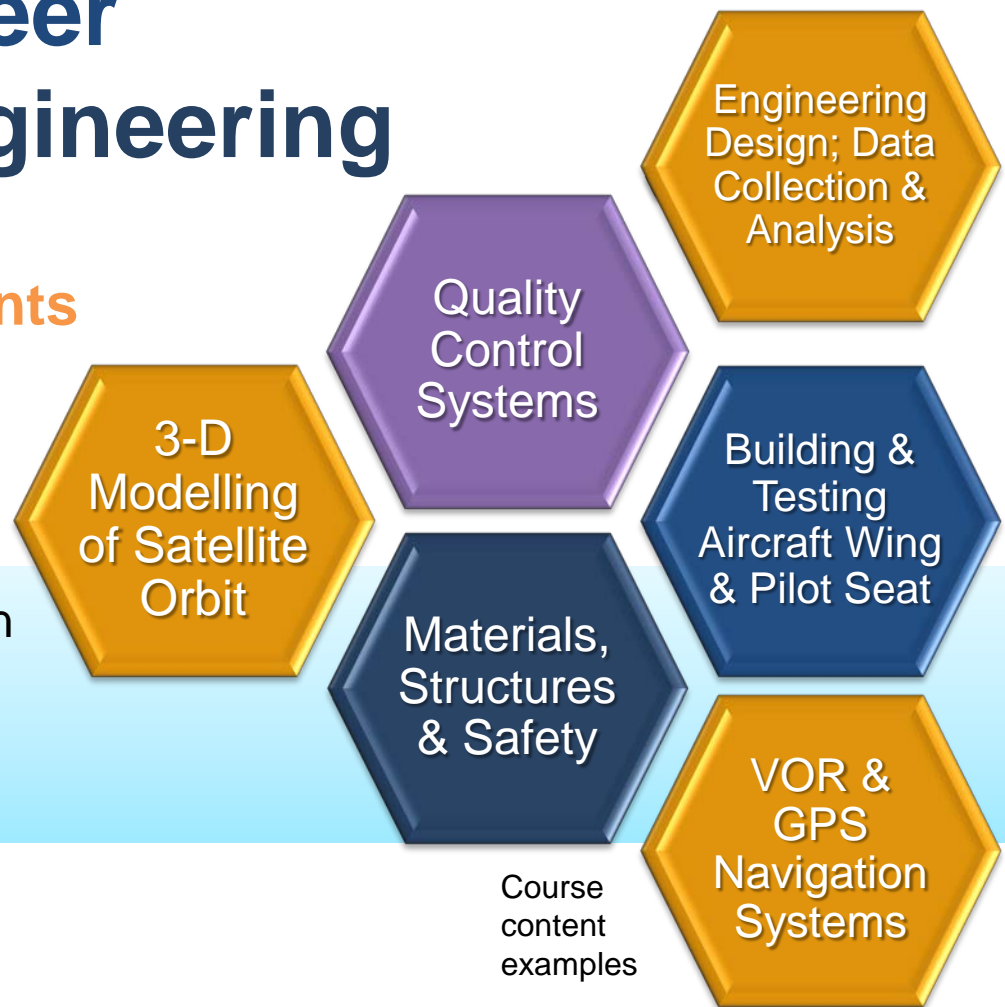


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Advanced Career Aerospace Engineering

Projects Engage Students in Solving Real-World Challenges

EQ: How can your team make an assembly of parts so that they fit and function properly within a larger system of parts?

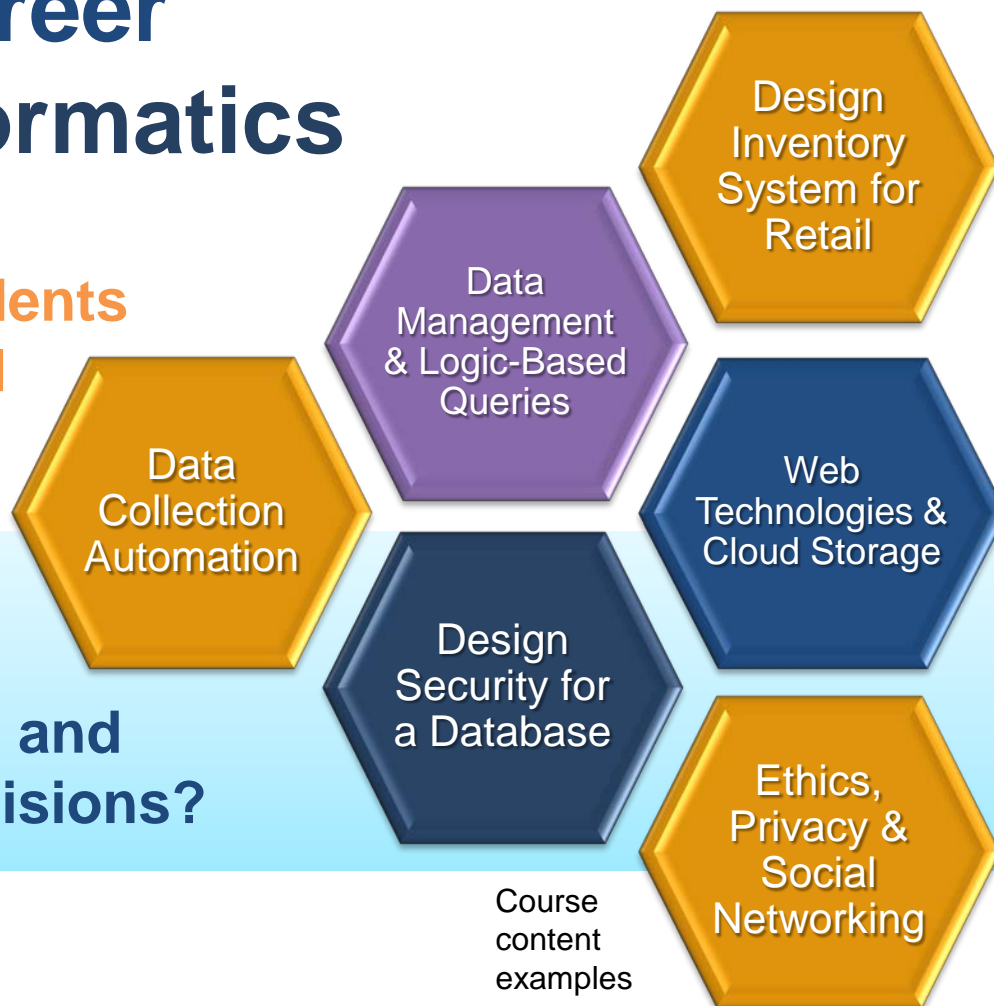


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Advanced Career Business Informatics

**Projects Engage Students
in Solving Real-World
Challenges**

**EQ. How can we
design a system to
better track inventory and
make purchasing decisions?**

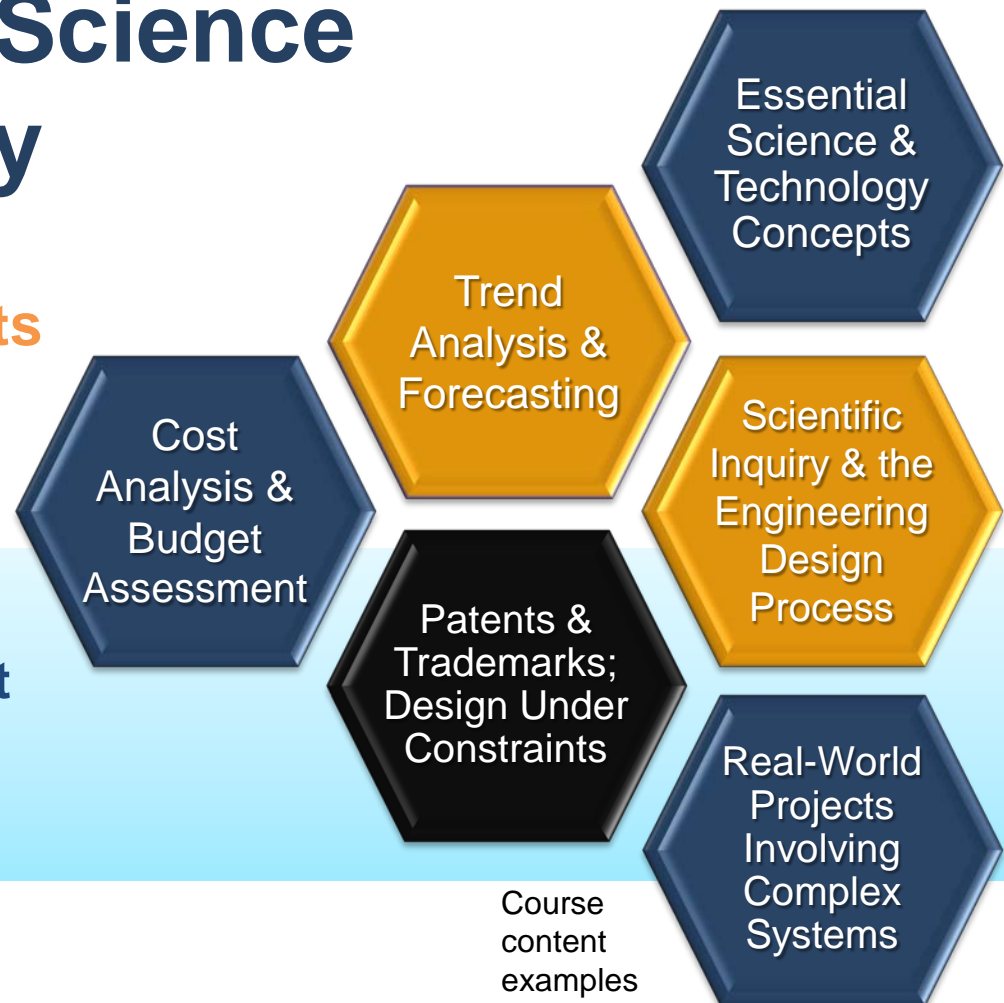


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Advanced Career Innovations in Science and Technology

Projects Engage Students in Solving Real-World Challenges

EQ. How can we determine which contaminants impact drinking water quality, and how can we remove them?



Course
content
examples

SREB

Advanced Career Student Survey 2015

- **72%** of AC students say that this AC course helped them in determining a career goal after high school
- **88%** of AC students find the AC course rigorous
- **80%** of AC students like the blend of hands-on activities, academics and creative thinking in the AC class
- **77%** of AC students would recommend this course to a friend
- Over **70%** of AC students report frequently using reading, writing and mathematics to complete assignments

AC pathways draw a mainstream group of students



Over 81% of AC students plan to take all four AC courses

CTE Student Assignments Matter

Comparison of perceptions of AC students with those taking regular assignments

Students Perceptions of Assignment Rigor	
Students taking AC courses	88%
Students taking regular CTE courses	30

Source: 2016 Survey of students taking Advanced Career courses and students taking regular CTE courses

Skills Most Needed to Succeed in a Changing Workforce



APPLIED KNOWLEDGE

- Reading
- Writing
- Mathematics
- Science
- Technology
- Critical Thinking



PERSONAL SKILLS

- Integrity
- Initiative
- Dependability & Reliability
- Adaptability
- Professionalism

PEOPLE SKILLS

- Teamwork
- Communication
- Respect

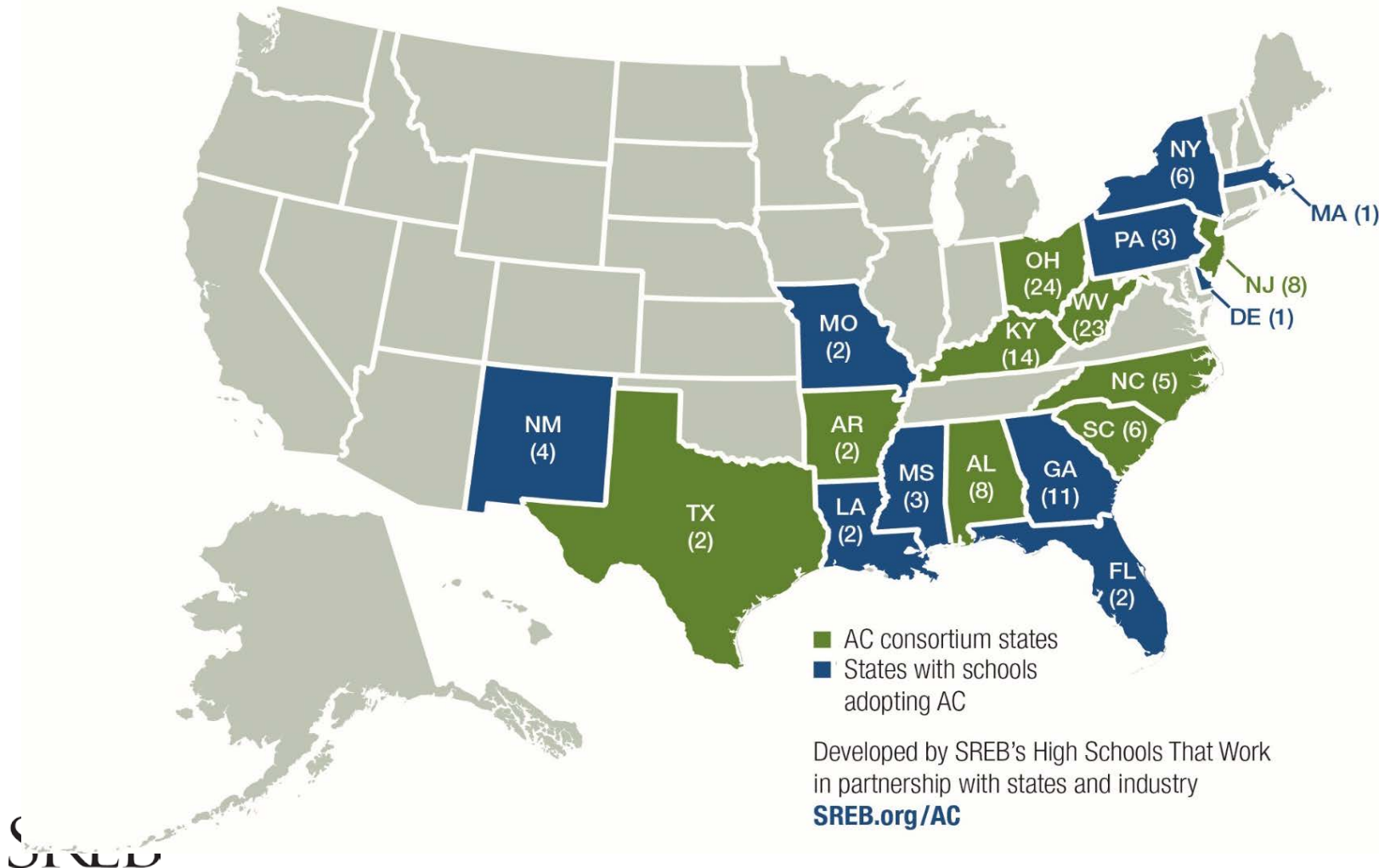


WORKPLACE SKILLS

- Planning & Organizing
- Problem Solving
- Decision Making
- Business Fundamentals
- Customer Focus
- Working with Tools & Technology

Status of Implementation of Advanced Career Curricula Fall 2016

States Adopting AC High School Curricula




Eight AC Curricula



Eight AC Curricula • 32 courses • 180 projects

SREB



Actions states can take to accelerate the process

Six Areas of Focus

Addressed by state needs assessments for career pathways

1. Labor market **data**
2. **Rigor and quality** in career pathway programs of study for all students
3. Career-focused **accountability** system
4. **Scaled pathways** that culminate in credentials of value
5. Alignment of state and federal **funding streams**
6. Cross-institutional **alignment**

Accelerate the Pace: **Redesign Senior Year**

Blend high school and postsecondary studies

1. **Allow** students to earn 30 hours of college credit
2. **Blend** college ready core with career studies
3. **Retain** the senior-year high school experience
4. **Personalize** the design for:
 - Earning an advanced credential
 - Earning 30 hours toward an associate or bachelor's degree
 - Creating a transitional bridge between high school and postsecondary education.

Accelerate the Pace: **Give Accountability Points**

Award them to each career pathway student who:

- **Completes a true** in college-preparatory courses at grade 9
- **Completes a true college-ready core** and at least 4 quality courses in a career pathway program of study
- **Meets college readiness standards** in literacy and math or meets **career academic readiness** standards in literacy and math (KY)
- **Meets technical readiness standards** by acquiring a credible industry credential that earns significant credit toward an advanced postsecondary credential or degree (FL)
- **Earns** 30 semester hours of college credit in an advanced credential AS or AAS in a critical industry sector

Accelerate the Pace: **Give Accountability Points**

Award them to high schools that:

- **Adopt new career pathway programs** aligned to critical industry sectors (DE), (WV AC), (Washington, DC, all Perkins dollars)
- **Redesign existing pathways** to reflect changing workplace requirements and provide more advanced postsecondary credits (TN)
- **Redesign the senior year** so it leads to an advanced credential or significant credit toward an associate or bachelor's degree (GA)

Kentucky College & Career Readiness Measures

College Ready <i>(1 Point)</i> A student must meet benchmarks on one of the following	Career Ready <i>(1 point)</i> A student must meet benchmarks on one from <u>each</u> of the following columns		College & Career Ready <i>(1.5 Points)</i> A Student must meet benchmarks on one from <u>each</u> of the following columns	
	Career Ready Academic	Career Ready Technical	College Ready Academic	Career Ready Technical
ACT or COMPASS or KYOTE	ASVAB or WorkKeys	KOSSA or Industry Certificate	ACT or COMPASS or KYOTE	KOSSA or Industry Certificate


Kentucky Career Ready: **Accelerating Change**

College and Technical Career Ready		Academic and Technical Career Ready Only	
2011-2012	13%	2011-2012	8%
2012-2013	18%	2012-2013	12%
2013-2014	27%	2013-2014	18%
2014-2015	33%	2014-2015	21%



Kentucky half-point Bonus: **Accelerating Readiness** for Career-Oriented Students

- Administrators, counselors, and teachers provide students with a **program of study** that includes:
 - a college-prep academic core
 - a four-course sequence of CTE courses
- CTE teachers are trained to design more **rigorous assignments** with embedded applied academics.



North Carolina Credentials Earned 2014-2015

- Total credentials earned — 130,611
 - At least 113,000 failed to meet SREB's criteria
- Measuring for Technical skills
 - WorkKeys is a measure of career academic readiness. Many current program exams are end-of-course exams or units.
- First aid and CPR are not industry credential exams.
- No evidence of postsecondary credit awarded for earning credentials.
- Need to bundle several course- or unit-level exams into an end-of-program exam

Accelerating Readiness: Fix Low-Performing Middle Grades and High Schools

- **Redesign** low-performing high schools with rigorous pathways that
 - align with a college-ready academic core
 - lead to postsecondary credentials that help secure good jobs
- **Restructure** low-performing high schools to include elements in the “Credentials for All” report • See pages 25-27.
SREB.org/CTECommission
- **Reform** middle schools feeding into low-performing high schools using “A New Mission for the Middle Grades” report
- **Align** students’ assignments with grade-level work
- **Create** a strong career and college counseling program

SUMMARY | Accelerate the Pace of Change by:

- **Redesigning assignments** in the middle grades and high school in all core academic courses to state college- and career-readiness standards
- Establishing an **accountability system** that values both college- and career-readiness standards
- Using SREB's **CTE commission report** as a framework for redesigning low-performing middle grades and high schools. See pages 25-27.

SUMMARY

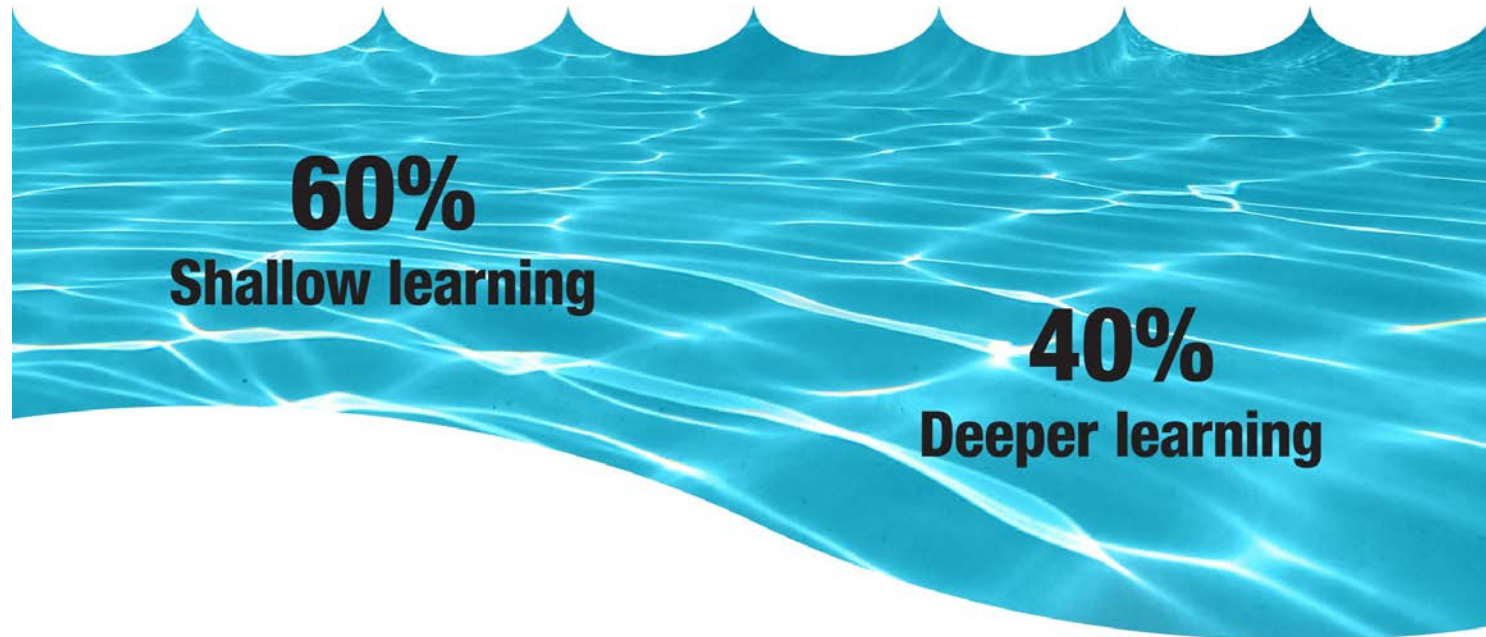
Accelerating Access to the Middle Class

- Align more high school and postsecondary pathways to **high-demand** and **high-paying** career fields
- Combine a **college-ready core** with a **career pathway** program of study — double purpose
- Redesign the senior year to allow prepared students to earn an **advanced credential** or **significant credit** toward a AA/AS/BS degree.

What is the problem?

We're preparing
60% of students for
the **33% of jobs**
that are **low-wage**.

We're preparing
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A vision for new high schools that **work:**

Accelerate Depth of Literacy and Math Instruction with Intellectually Demanding Career Pathway Courses Designed to:

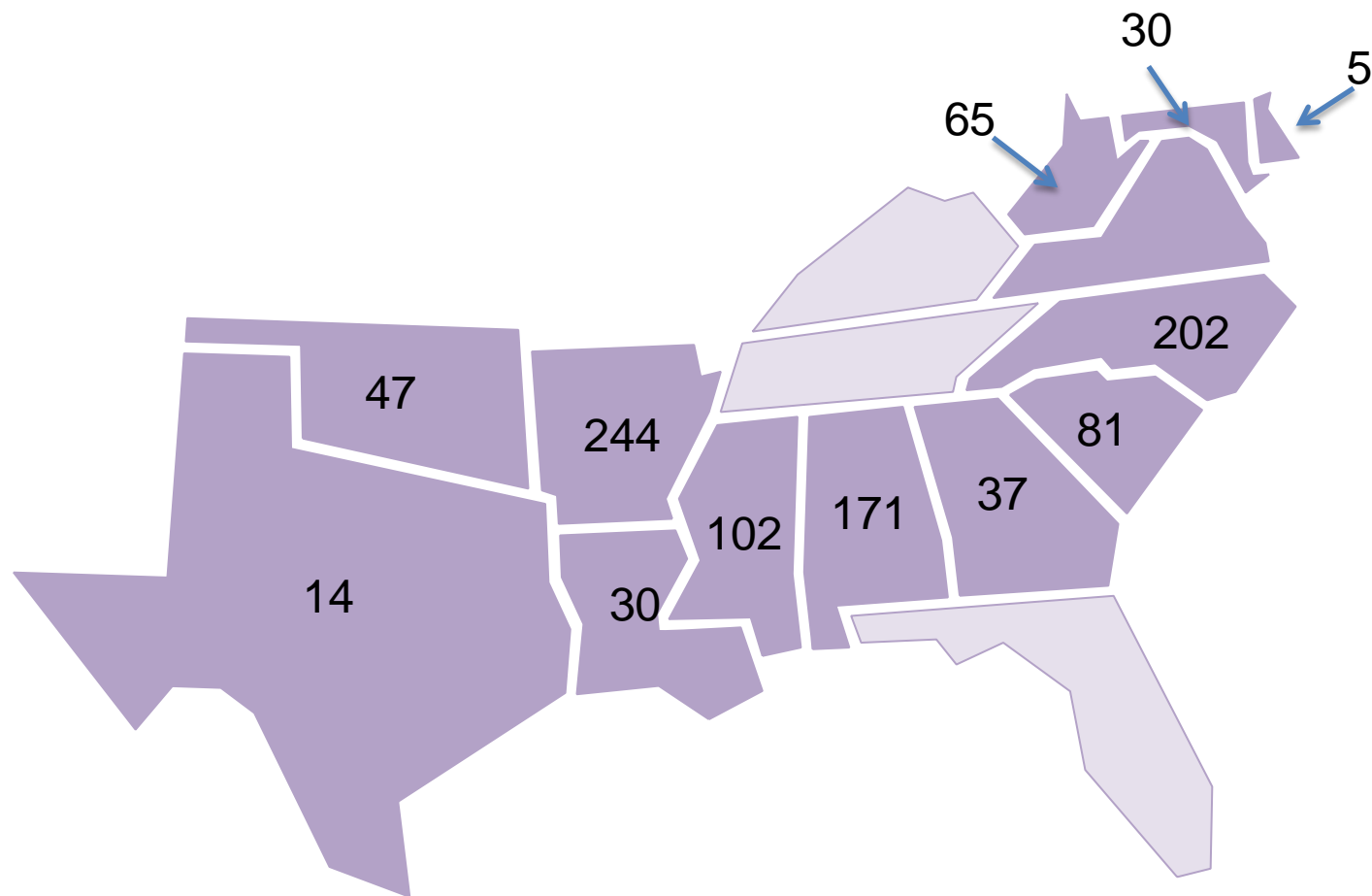
Connect high school, postsecondary studies and the workplace



Five Elements of SREB's PD for Literacy and Math

1. Develop capacity of teachers
2. Develop district/regional trainers.
3. Conduct classroom observations and provide feedback.
4. Engage principals in literacy/math PD
5. Provide web-based courses to support spread

Number of Schools Participating in Literacy and Math PD — 2016-2017





SREB Three-Year PD Plan

- Year 1 — four literacy and two math teachers per school, eight days of PD
- Years 2 & 3 — spread literacy-based assignments and formative assessment lessons (FALs) to all teachers
- Years 1, 2, 3 — provide special PD for principals
- Years 1, 2, 3 — provide special PD for local trainers

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Literacy Goal

- Increase students' abilities to **comprehend** and **analyze grade-level** texts and related documents and **express** their **understanding orally and in writing** in all subject areas.

Focus of SREB Literacy Professional Development Involves

- Teachers using a planning process to:
 - Develop **three** or **four** major assignments in **science, social studies, English/language arts, and career and technical education (CTE)**.
 - Engage students in applying literacy standards **(reading, writing, speaking)** to master content standards in academic and CTE courses.

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Science-Based Literacy Assignment

- How has the spread and treatment of infectious diseases evolved over the last 100 years?
 - After reading informational texts related to microbiology, write an essay that compares the differences in the spread and treatment of infectious diseases over the past 100 years.
 - Support your discussion with evidence from the texts.

Greta Browning and Jacki Clark, ninth-grade science teachers
Table Rock Middle School, Burke County, North Carolina

What Teachers and Principals Say About the Literacy Professional Development

“Creating literacy-based assignments has enabled me to teach my students the skills required to read grade-level texts and to paraphrase the information learned into their own words. For example, my sixth-grade students were academically behind my last class of sixth-graders. They were able to do the background research and to construct a solar oven. This was because I took time to provide them with skills to read the materials and synthesize the information into a work plan.”

Katrinia Zimmerman, CTE teacher,
Turrentine Middle School, North Carolina

AP Test Scores in AP History Campbell County High School, Tennessee

AP Scores by Level					
	1	2	3	4	5
2012 Baseline Yr.	80%	20%	0%	0%	0%
2013 Started PD	35	40	15	10	0
2014 Continued PD	27	43	30	0	0
2015 Completed PD	16	12	44	20	8

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Students' Perceptions of Literacy-Based Assignments

My teacher assigned me to:	SREB Trained	Non-SREB Trained
HS/CTE — create written papers that demonstrated my content knowledge — monthly	47%	17%
HS/SS — create written papers and cite evidence from multiple sources — monthly	50	11
HS/SCI — complete a written assignment based on an experiment conducted — a few times a year	74	47
MS/ELA — asked to compare and contrast information from different texts — often	54	35

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Teachers' Perceptions of Instructional Shift Using Literacy-Based Assignments with School Leadership Support

	Supported Teachers	Non-Supported Teachers
Adopted strategies to engage students in reading grade-level texts and using writing to demonstrate understanding of content	89%	75%
Literacy-based assignments and students' achievement on state assessments	54	32



Math Goal

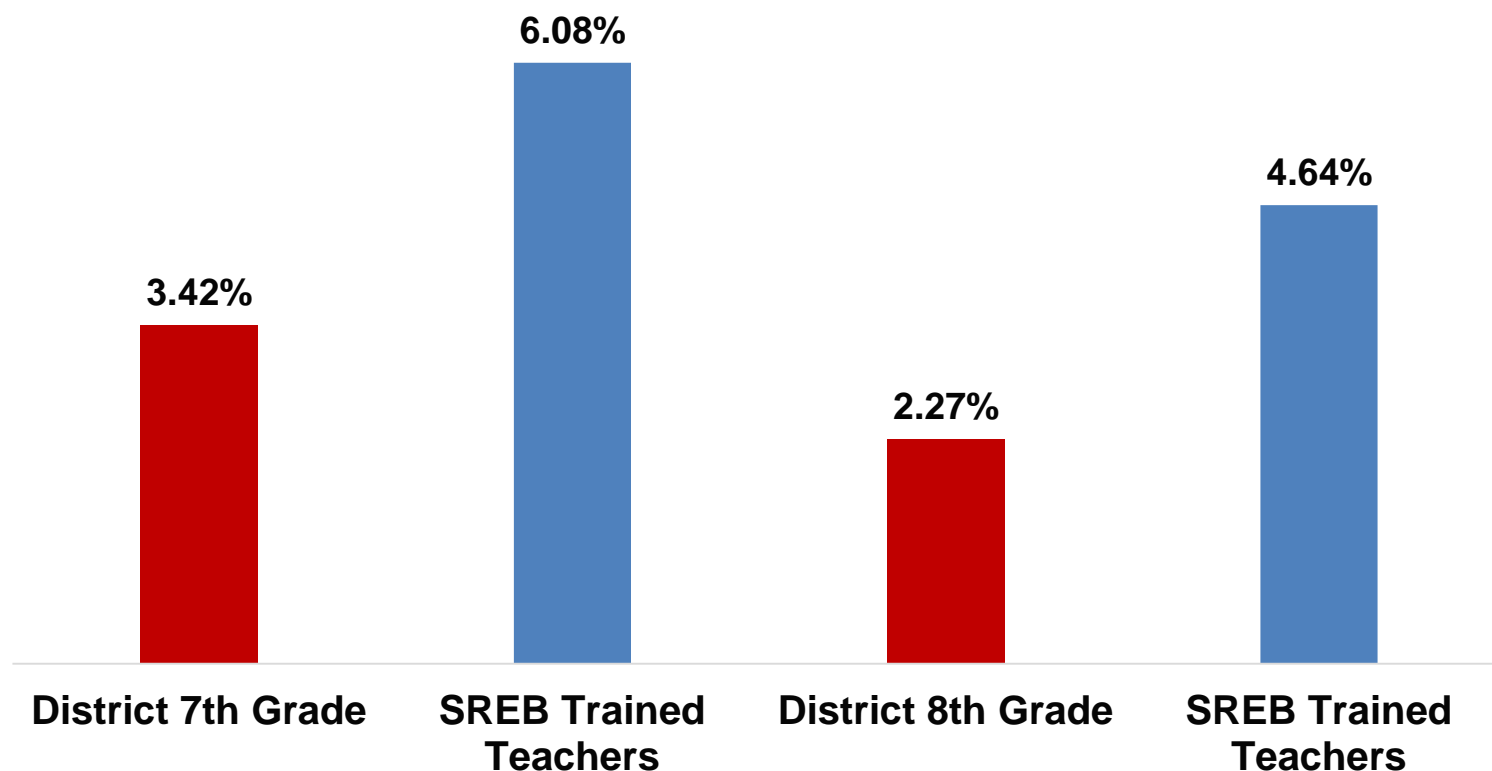
- Advance students' mathematical fluency and their abilities to understand, reason and apply math concepts to solving multistep problems



Focus on SREB's Math Professional Development Involves Teachers

- Identify the math topics to be taught during the next six weeks.
- Select formative assessment lessons (FALs) aligned to math topics.
- Leave each workshop with a plan to launch a formative assessment lesson.

Gains in Math Scale Scores Among SREB-Prepared and Non SREB-Prepared Math Teachers 2015-2016



Source: Jefferson County School District, Scantron Performance Series

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Teachers' Perceptions of Instructional Shift in Math Instruction Based on School Leadership Support

Teachers report that:	Supported Teachers	Non-Supported Teachers
Using FALs enabled them to focus on students' math understanding	82%	62%
Collecting information from FALs allow them to adjust their instruction	68	35
Using math practices learned raised students' achievement on state assessment	68	47

Students' Perceptions About Their Math Classroom Experiences in SREB- and Non-SREB Trained Teachers

Students reported classroom experiences	SREB Trained	Non-SREB Trained
MS — often had to explain how I solved a math problem	65%	48%
MS — often had to justify reasoning for solving a math problem	69	49
MS — often grouped with students who had similar math skills	51	39
HS — often solved real-world math problems in Algebra I	48	33

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Skills most needed to succeed in a changing workforce



APPLIED KNOWLEDGE

- Reading
- Writing
- Mathematics
- Science
- Technology
- Critical Thinking



PERSONAL SKILLS

- Integrity
- Initiative
- Dependability & Reliability
- Adaptability
- Professionalism

PEOPLE SKILLS

- Teamwork
- Communication
- Respect



WORKPLACE SKILLS

- Planning & Organizing
- Problem Solving
- Decision Making
- Business Fundamentals
- Customer Focus
- Working with Tools & Technology