



How do your credentials stack up?

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Introductions

Hope Cotner, Center for
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Community College /
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Transportation Center



Debbie Davidson,
Gateway Technical
College



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Research Associates



Community College Career & Technical Education Stackable Certificates Initiative



Office of Career, Technical, and Adult
Education

U.S. Department of Education



National Career Pathways Network

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Community College Career & Technical Education Stackable Certificates Initiative



- U.S. Dept. of Education – Office of Career Technical and Adult Education
- **Purpose:** Build capacity of community colleges to improve credential attainment rates among youth and adults; embed industry-recognized credentials within technical degree programs
- Background paper highlighting findings from environmental scan
- Selection of five community college consortia to receive technical assistance
- Customized TA to help colleges advance efforts in stackable certificates design through prioritized actions based on local needs; supported by a coach and SMEs on targeted issues; institute and site visits
- Stackable certificates toolkit, accompanying tutorials, and resource web page



What are stackable credentials?

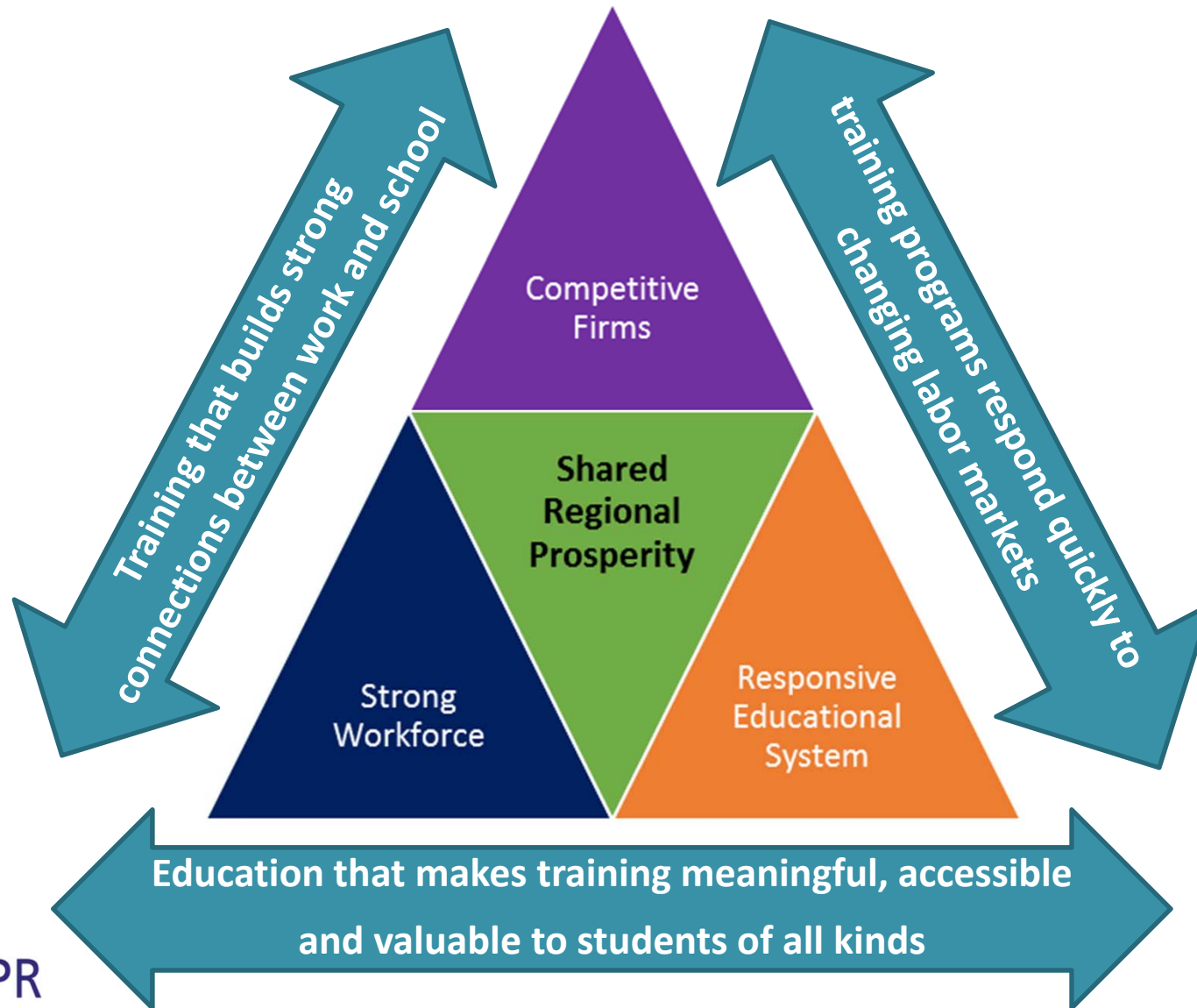
Support Learning within
Career Pathway

Accumulate credit
across programs/
institutions

Link credit for academic
and industry-focused
training

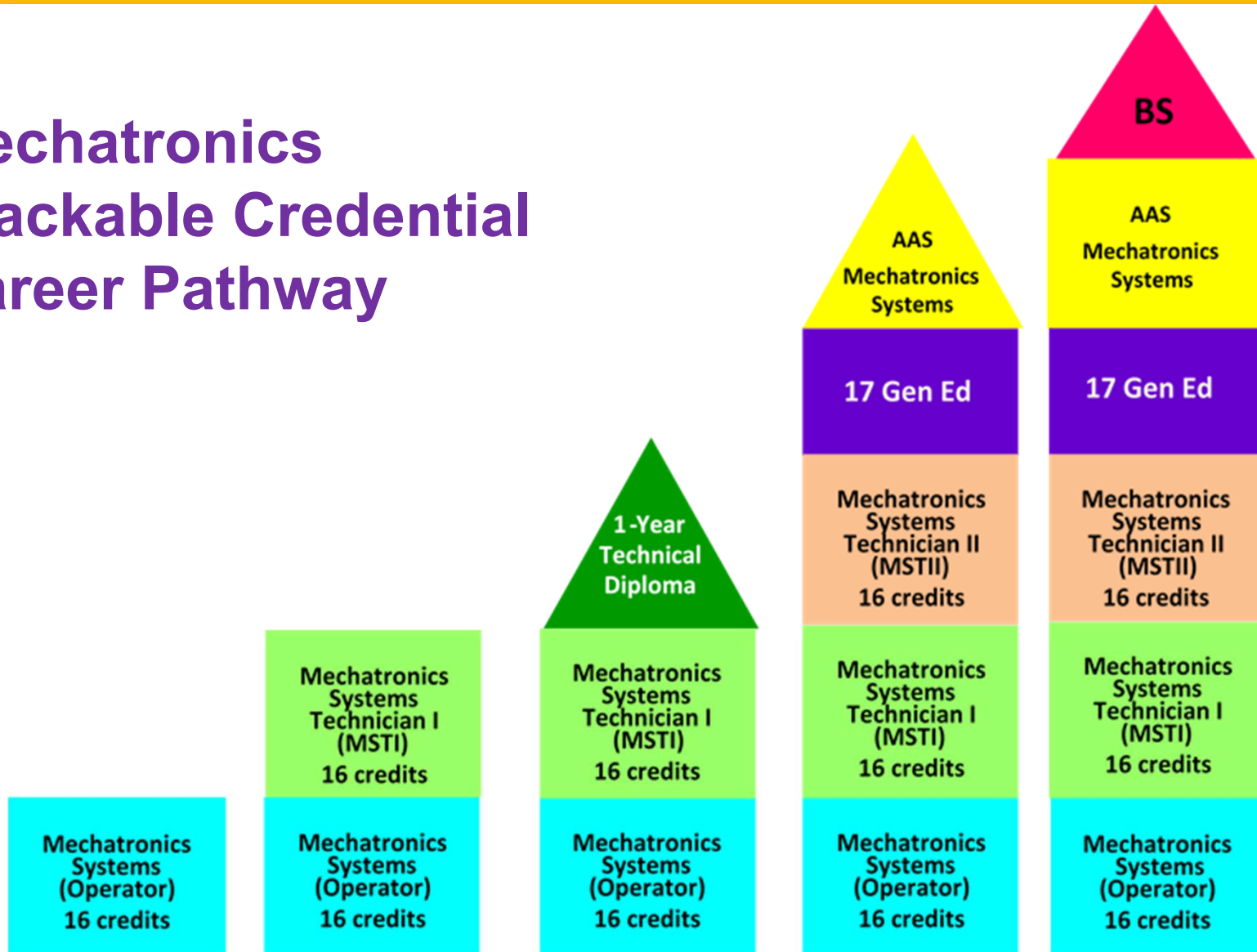
Hold Stand-alone Labor
Market Value

Why Stackable Credentials?



Models of Stackable Credentials

Mechatronics Stackable Credential Career Pathway



Models of Stackable Credentials



Stackable Credentials Project

Link to jobs through deep employer engagement

Result in credentials that support career pathways

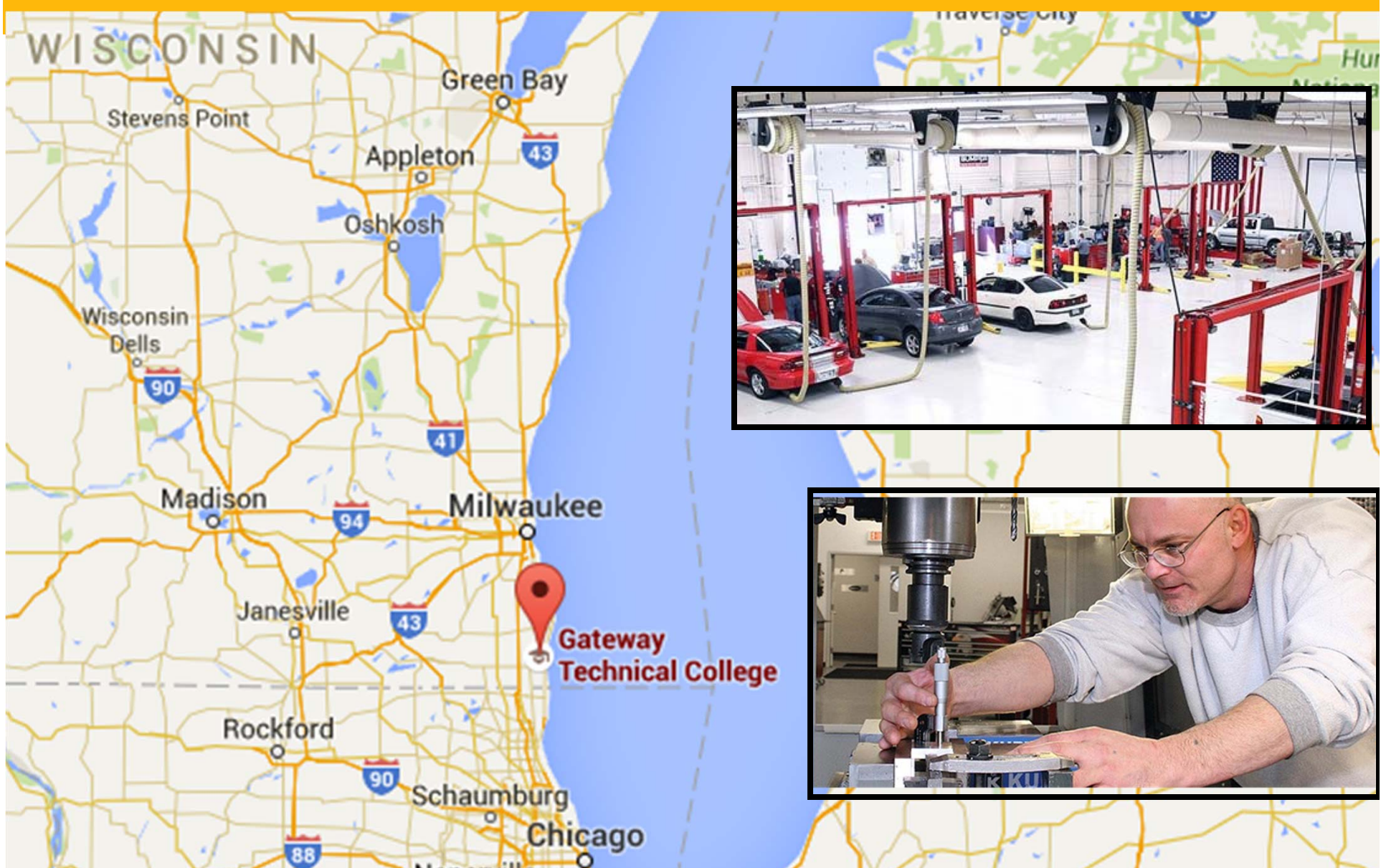
Make training accessible to diverse students and workers

Build a bridge to real work

Set clear goals and measure outcomes

Quality Stackable Credentials

Debbie Davidson, Gateway Technical College



Horizon Center for Transportation Technology



Course Title	Academic Credential			Automotive
SEMESTER 1	Undercar Tech	Automotive Technician Diploma	Automotive Technology Degree	
Auto IT for Transportation				
Auto Service Fundamental				
Brake Systems				
Steering & Suspension Systems				
College Mathematics				
English Composition 1				
SEMESTER 2				
Electrical & Electronic Systems 1				
Electrical & Electronic Systems 2				
Climate Control Systems				
Engine Repair 1				
Economics				
Oral / Interpersonal Communication				
SEMESTER 3				
Engine Performance 1				
Auto Instrumentation & Testing				
Electrical & Electronic Systems 3				
Manual Drive Train & Axles				
Sociology, Introduction to				
Psychology, Introduction to				
SEMESTER 4				
Advanced Chassis Systems				
Engine Repair 2				
Auto Transmission/Transaxle				
Engine Performance 2				
Auto Service Simulation				
Technical Reporting				

Connecting Academic Credit to Industry Credentials

Credential	Undercar Technician	Automotive Maintenance Technician Diploma	Automotive Technology Associate Degree
Program length	1 semester	2 semesters	4 semesters
Academic Credits	10	32	64
Industry Credentials	10	3	8



Automotive Student Outcomes

Gateway Degree students graduate with

- Associate Degree (AAS)
- FCA Level 0 & 1 Certified
- 14 Snap-on certifications
- 6 Starrett Certifications
- 3 additional industry certifications
- Tools and equipment
 - 596 Multimeter
 - Ethos Plus Scan Tool
 - Starter set of tools and tool from Snap-on



Course Title	Credits	Integrated Certifications	Academic Credential		
Semester 1			CNC Operator Boot Camp	CNC Production Technician	CNC Programmer
CNC Intro/Support Equipment Basics	1				
CNC Machine Tool Operation	4				
CNC Offsets and Operations	1				
Gauging/Inspection	2				
Lean Six Sigma Yellow Belt	2	LSSYB			
Workplace Safety MSSC	1	MSSC Safety			
Blueprint Reading	2				
Applied Mathematics 1	2				
Speaking Principles	1				
Semester 2					
Blueprint Reading, Advanced	2				
Fundamentals of CNC Turning Applications	3				
Fundamentals of CNC Milling Applications	3				
CNC Lathe Set-up	3				
CNC Mill Set-up	3				
Writing Principles	1				
Mathematics II, Applied	1				
Semester 3					
Fundamentals of Swiss CNC Turning	3				
Swiss CNC Setup and Operation	3				
CNC Lathe Process	3				
CNC Mill Process	3				

CNC Machining

- CNC Operator Boot Camp
 - 1 Semester
- CNC Production Technician
 - 2 semesters
- CNC Programmer
 - 3 semesters

CNC Operator/Boot Camp (1 semester)

Course	Credit	Credential
CNC Intro/Support Equipment Basics	1	
CNC Machine Tool Operation	4	
CNC Offsets and Operations	1	
Gauging/Inspection	2	
Lean Six Sigma Yellow Belt	2	LSSYB
Workplace Safety MSSC	1	MSSC Safety
Blueprint Reading	2	
Applied Mathematics 1	2	
Speaking Principles	1	



Photo Credit: Brighthub

CNC Production Technician (1 additional semester)

Semester 2	
Blueprint Reading, Advanced	2
Fundamentals of CNC Turning Applications	3
Fundamentals of CNC Milling Applications	3
CNC Lathe Set-up	3
CNC Mill Set-up	3
Writing Principles	1
Mathematics II, Applied	1



Photo Credit: Wise Geek

CNC Programmer (1 additional semester)

Semester 3

Fundamentals of Swiss CNC Turning	3
Swiss CNC Setup and Operation	3
CNC Lathe Process	3
CNC Mill Process	3

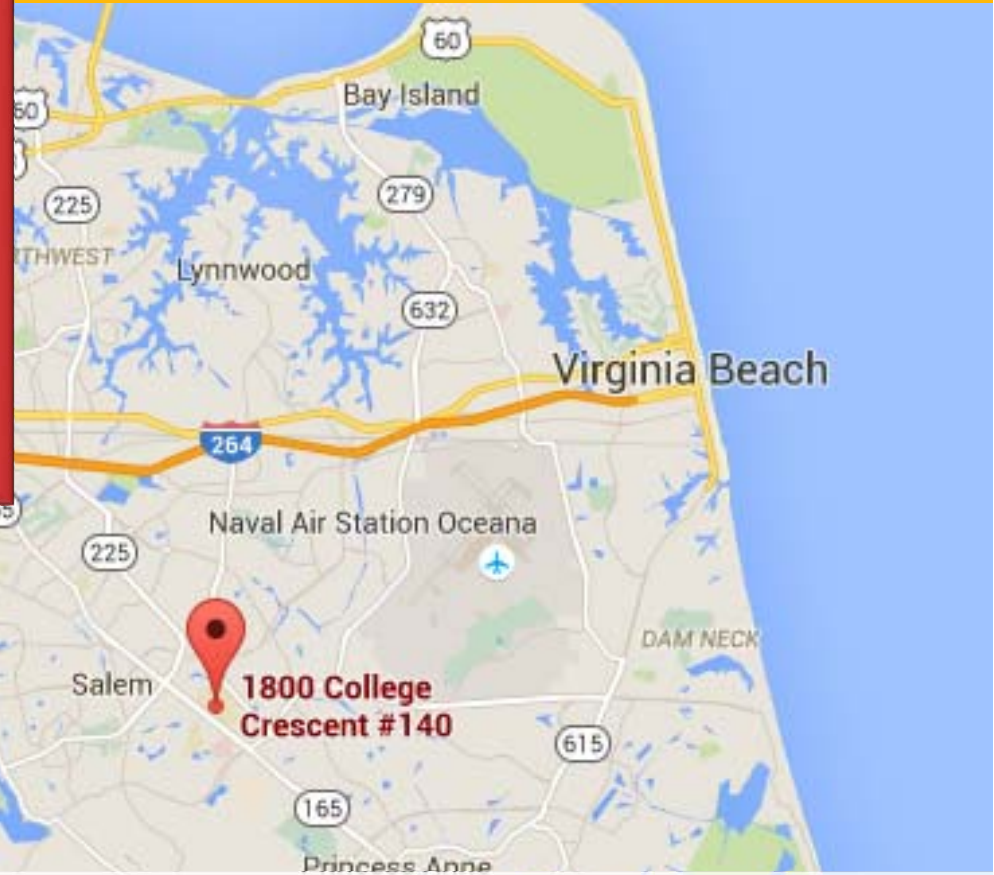


Barbara Murray, SMART Center



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The SMART Center serves as a regional ATE center and is an economic model for developing a sustainable, globally prepared maritime and transportation workforce for the 21st century through partnership with vital industry and educational entities

The SMART Center

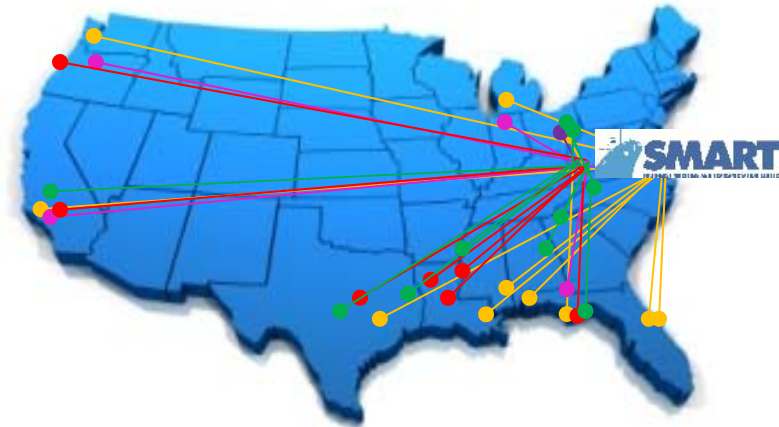
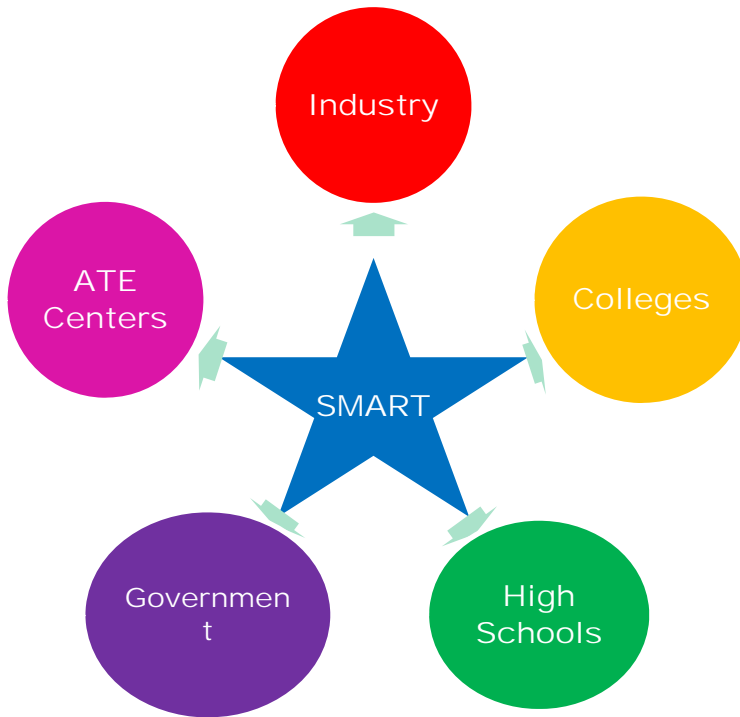
Partners with Industry for the 21st Century Workforce

- The SMART Center is a National Science Foundation Advanced Technological Education (NSF ATE) Center focused on careers in the Maritime industry – anchored in people, partnerships and pathways.
- The maritime and transportation **industry needs tens of thousands of skilled, educated workers** in the employment pipeline to fill important middle-skill technician jobs over the next decade to sustain the industry
- **Leaders in providing Maritime Technologies Pathways utilizing stackable credentials**



Megan was a community college student who found a rewarding career in the maritime and transportation industry.

Regional and National Partnerships Lead to Stackable Credentials through Apprenticeships



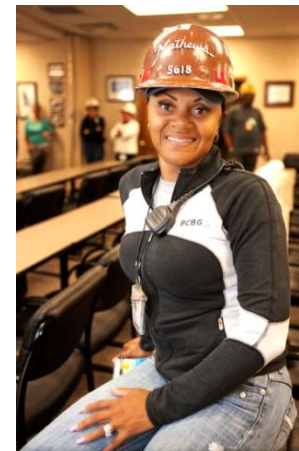
Maritime & Apprenticeship Pathways



Education in Maritime and Transportation Pays

Education/Experience	Maritime Jobs	Pay Range	Transportation Jobs
<i>Master's Degree / Bachelor's Degree with Experience</i>	<ul style="list-style-type: none"> • Industrial Engineer • Nuclear Engineer • Project Supervisor • Electrical Engineer • Mechanical Engineer 	\$75K - \$100K Yearly	<ul style="list-style-type: none"> • Industrial Engineer • Supply Chain Manager • Electrical Engineer • Civil Engineer • Captain
<i>Bachelor's Degree</i>	<ul style="list-style-type: none"> • Production Manager • Health & Safety Inspector • Logistics Manager 	\$60K - \$90K Yearly	<ul style="list-style-type: none"> • Transportation Manager • Distribution Center Supervisor • Ports Logistician • Ocean Engineer
<i>Registered Apprenticeship / Journeyman</i>	<ul style="list-style-type: none"> • Marine Welder • Inside/Outside Machinist • Shipfitter • Rigger 	\$41K - \$68K Yearly	<ul style="list-style-type: none"> • Freight Forwarder • Marine Designer • Longshoreman • HVAC Technician • Welder
<i>Associate's Degree / Certifications or College Coursework & 1-2 Years Experience</i>	<ul style="list-style-type: none"> • Electrical Technician • Mechatronics Tech • CAD/Designer • Marine Maintenance • Instrumentation 	\$17 - \$26 Hourly	<ul style="list-style-type: none"> • Production/Planning Clerk • Crane and Tower Operator
<i>Intensive Training Programs</i>	<ul style="list-style-type: none"> • Certified Welder • Maritime Electrician • Mechanics 	\$15 - \$25 Hourly	<ul style="list-style-type: none"> • Rail-Track Laying and Equipment Operator • Heavy Vehicle Service Tech
<i>High School Diploma or GED</i>	<ul style="list-style-type: none"> • Welder • Helper • Fire Watch 	\$8 - \$15 Hourly	<ul style="list-style-type: none"> • Freight, Stock and Material Mover • Shipping, Receiving and Traffic Clerk

The **Maritime Technologies** career pathway provides a way to go from earning \$8-15/hourly at an entry-level position to \$100,000 yearly at a engineer/captain position with an advanced degree. The opportunities for advancement are endless!

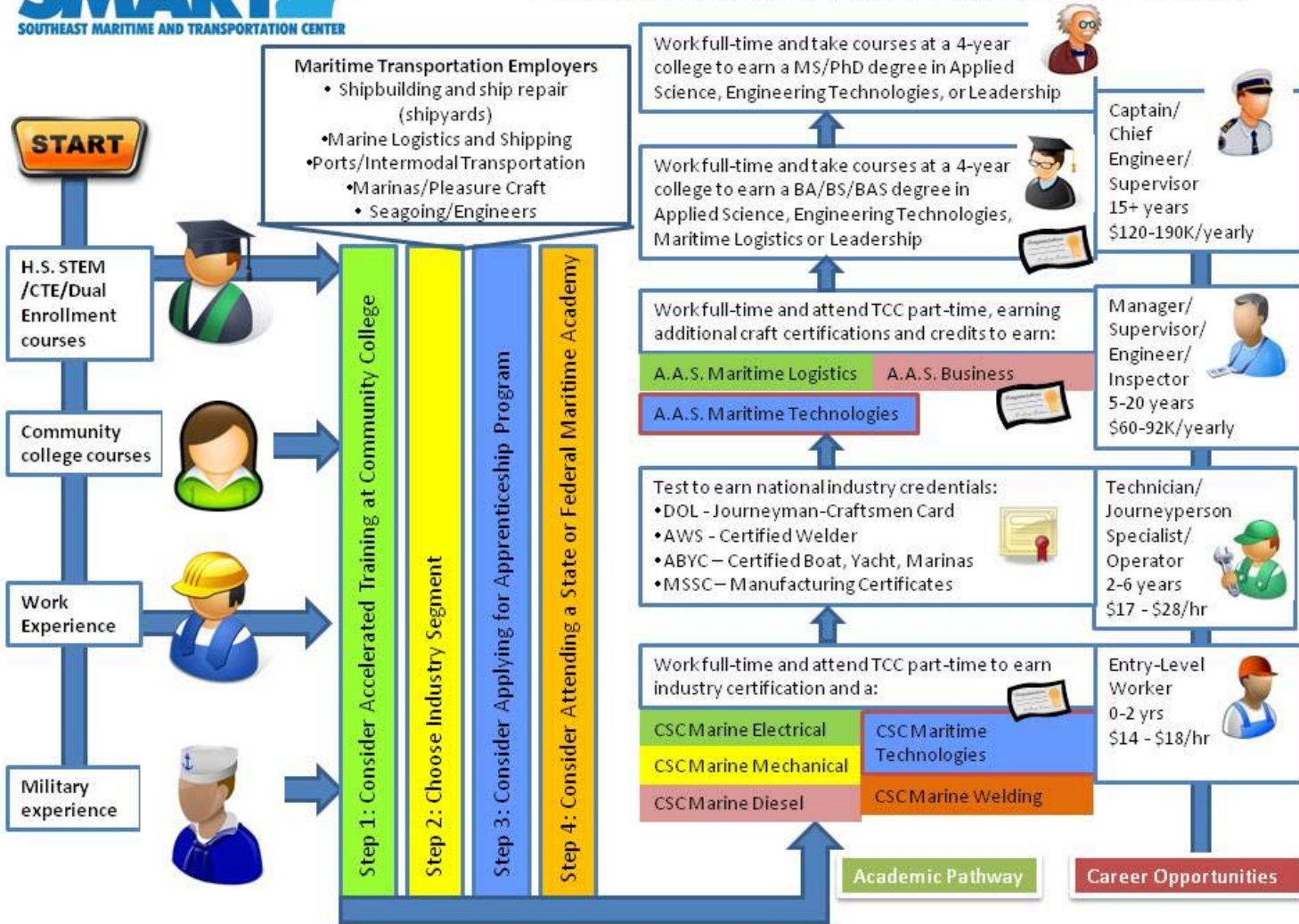


SMART

SOUTHEAST MARITIME AND TRANSPORTATION CENTER



Your Maritime and Transportation Industry Career Pathway



2+2+2 Pathway



Get on the SMART Career Pathway from High School to the Maritime and Transportation Industry!



Did you know?
Dual Enrollment classes allow you to take one course that meets your high school graduation requirements and earn college credit! Talk with your guidance counselor about DE courses you may be able to take today.

STEP 1: Take these High School or Dual Enrollment Courses

Math

- Algebra 1
- Algebra 2
- Geometry
- Trigonometry

Science

- Biology
- Chemistry
- Physics

Career and Technical Education

- Engine repair
- Drafting/design
- Engineering
- Electronics
- Robotics



STEP 2: Graduate and Enroll in a Community College Academic Maritime-Related Certificate Program



Certificate Program:
Marine Welding
• 19 credits

Certificate Program:
Marine Electrical
• 19 credits

Certificate Program:
Marine Diesel
• 19 credits

Certificate Program:
Marine Mechanical
• 19 credits



STEP 3: Apply Academic Certificate

Credits Toward:

- Certificate Program (CSC) Maritime Technologies (25-27 credits)



STEP 4: Apply Academic Certificate

Credits Toward:

- Associate degree (A.A.S.) Maritime Technologies (67 credits)
- Associate degree (A.A.S.) Maritime Logistics (67 credits)



STEP 5: Continue Education or Enter the Workforce

Continue Education
- B.A./B.S./B.A.S.
- M.A./M.S.
- PhD



Enter workforce in one of four industry segments:

- Seagoing
- Shipbuilding and Ship Repair
- Ports and Logistics
- Pleasure craft boating



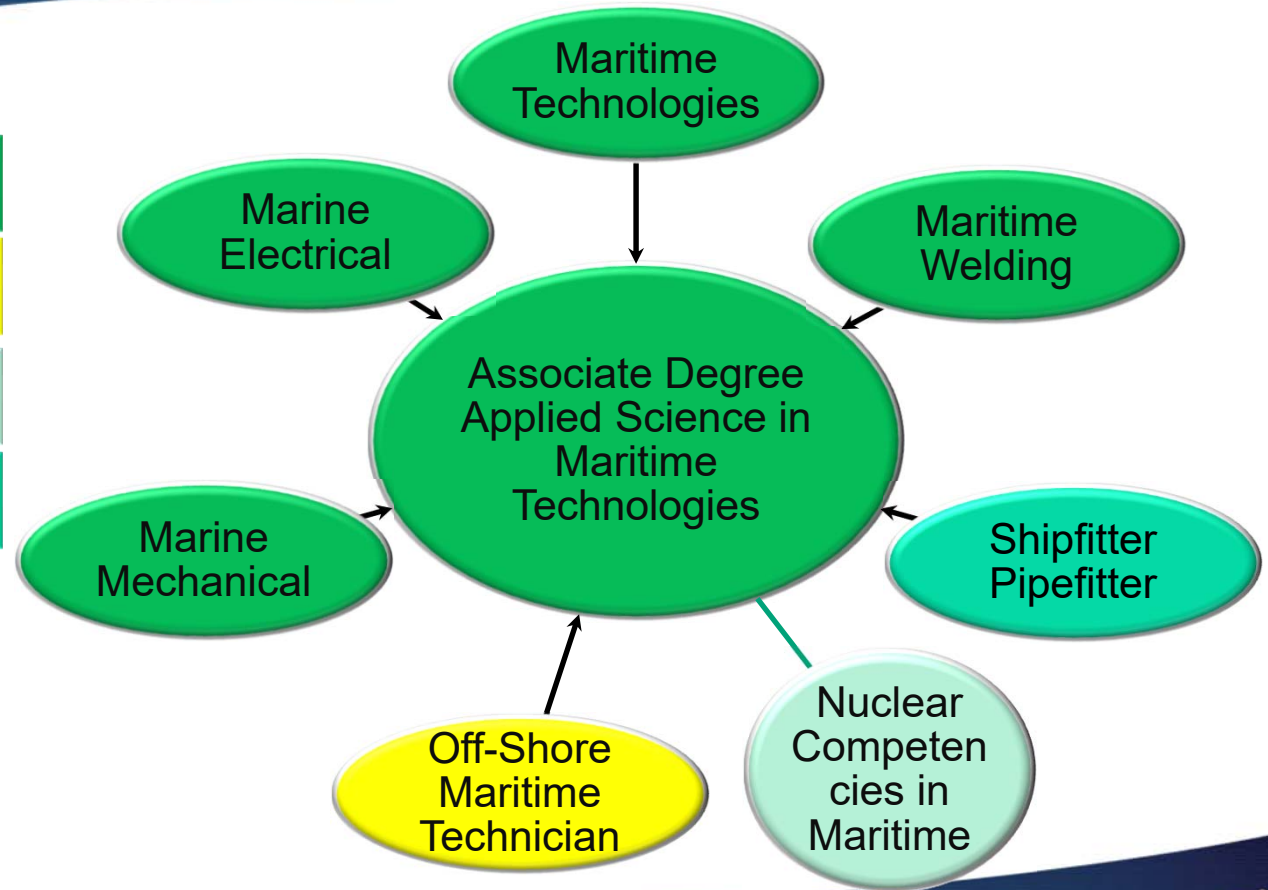


Cheryl Smith
Maritime Apprentice

Maritime Technologies Career Pathway



- Approved CSC
- Emerging Program
- Related Courses
- In Progress





Newport News Shipbuilding
A Division of Huntington Ingalls Industries



BAE SYSTEMS

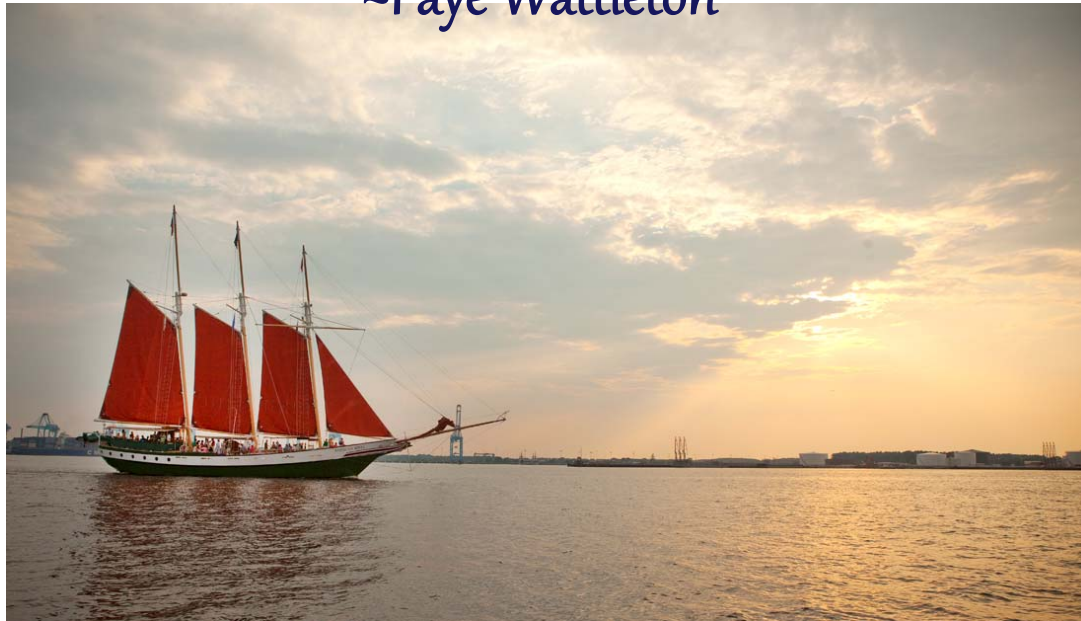


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SOUTHEAST MARITIME AND TRANSPORTATION CENTER



The only safe ship in a storm is leadership.
~Faye Wattleton



Panel Discussion

Thank you!

Undercar Technician – 1 semester

Course Title	Credits	Integrated Certifications	Mopar CAP Local Modules
Auto IT for Transportation	2	ShopKey Pro & SureTrack, Starrett 1: Tape & Rule and Starrett 2: Slide Caliper	The Role of a Service Technician, Connecting with the Customer, Introduction to TechCONNECT, wiTECH2.0 Fundamentals, Maintenance - MAINT01
Auto Service Fundamental	2	Hand Tool Safety & Electrical Tool Safety Training Certificates	Maintenance - MAINT02, MAINT03, MAINT04, MAINT05
Brake Systems	3	Pro-Cut, Starrett Mod 5: Micrometer and Starrett Mod: 6 Dial Indicator	Brake Service, Flight Recording with wiTECH 2.0, Technician Doc Requirements
Steering & Suspension Systems	3	Wheel Service Certifications: Pro42 Alignment, BFH1000 & RVF2000 Wheel Balancer, System V Tire Changer	Steering and Suspension Service, Module Software Flash Updates, New Vehicle Preparation

Automotive Maintenance Technician Diploma (Gen Ed and 1 additional semester)

Course Title	Credits	Integrated Certifications	Mopar CAP Local Modules
SEMESTER 1			
College Mathematics	3		
English Composition 1	3		
SEMESTER 2			
Electrical & Electronic Systems 1	2	Multimeter 596 Certification (Students purchase 596 Meter)	Intro to Electrical Phase 1, Intro to Electrical Phase 2, High Voltage Vehicle Safety and Awareness
Electrical & Electronic Systems 2	3		Electronic Control Systems Phase 1, Electronic Control Systems Phase 2, Starting and Charging Systems, Precision Tools and Techniques
Climate Control Systems	3		Intro to A/C, A/C System Service, Heating and Cooling Systems
Engine Repair 1	2	Starrett Mod 3: Gages, Finish and Starrett Mod 6: Dial Bore Gauge	Engine Diagnosis, Organic Additive Technology (OAT) Coolant
Economics	3		
Oral / Interpersonal Communication	3		32

Automotive Technology Associate Degree (2 additional semesters)

SEMESTER 3

Engine Performance 1	3	Ethos Plus Scan Tool Certification (Students Purchase an Et hos Plus Scan Tool)	Engine Management
Auto Instrumentation & Testing	4	Diagnostic Tool Certifications: Verus Pro, Solus Ultra, MODIS, and Advanced Diagnostics	
Electrical & Electronic Systems 3	3		Body Mechanical Diagnosis and Adjustments
Manual Drive Train & Axles	4		Introduction to Driveline, Driveline Light Maintenance
Sociology, Introduction to	3		
Psychology, Introduction to	3		

SEMESTER 4

Advanced Chassis Systems	2		
Engine Repair 2	3	Torque Theory Training Certificate & Torque Certifications: Mechanical & Electrical	Diesel Engine Fundamentals, Diesel Light Maintenance, CNG Vehicle Safety
Auto Transmission/Transaxle	4		Intro to Auto Transmissions, Auto Transmission Light Maintenance
Engine Performance 2	4		
Auto Service Simulation	2	Students Purchase Snap-on Tool Set & Toolbox	33
Technical Reporting	3		