



SCFutureMakers



TRAINING MANUAL

A GUIDE TO CAREERS IN MANUFACTURING, TECHNOLOGY, AND MORE

In partnership with

Microburst Learning

South Carolina Department of Commerce

South Carolina Department of Education

South Carolina Department of Employment and Workforce

South Carolina Education Oversight Committee

South Carolina Technical College System

STEM Premier



Presented by

South Carolina Manufacturers Alliance



A message from

SC Future Makers Chairman



The investments we make in our students today will help shape their future for years to come. Our students are destined to become high-performing professionals in the workforce.

SC Future Makers is an initiative designed to help students, parents, and educators access valuable information and make a connection to careers and postsecondary opportunities.

Our goal is to empower and connect students to pursue pathways that lead to success. We want South Carolina students to be well-equipped for top careers in advanced manufacturing, technology, and related industries that lead our state's economy.

This SC Future Makers training manual is a great resource to assist in preparing for a bright and successful future.



A handwritten signature in black ink, reading "Sidney S. Locke". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Sidney Locke | SC Future Makers Chairman

Director of Strategic Marketing and Communication,
Sage Automotive Interiors

A message for

Parents and Educators

If you're the parent, teacher, or counselor of a student interested in a career in STEAM (Science, Technology, Engineering, Arts, and Mathematics) – there's tremendous economic opportunity for their future in the State of South Carolina, and now is the time to help guide them.

A career in manufacturing is both accessible and advantageous, and with the right guidance and information, you can help your students get there. We have a lot of material within this manual to help spark your student's interest.

When it comes to planning for the future, don't let your student go alone, and don't let them go unseen.





Latika Dickerson
Boeing South Carolina



Austin Tate
BMW Manufacturing Co.



Kenneth Lybrand
& Nigeria Williams
MTU



Lyndsey Pippin
Red Ventures



Austin Chaney
Bridgestone

Who are the SC Future Makers?

They are individuals who discovered their passions,
connected to opportunities, and took the steps to get seen.

They are the people who will prosper economically and
are the persons who led by example of what it can mean
to take the steps to make their futures better.



View their stories at
SCFutureMakers.com

Why did we create SC Future Makers?

As the only statewide organization committed exclusively to the interests of South Carolina's manufacturing community, the South Carolina Manufacturers Alliance is keenly aware that the key to future economic development and to the prosperity of our citizens will be developing a world-class workforce to staff the facilities that are being recruited to the state.

We began this effort with a whitepaper in 2013, wherein manufacturers identified finding a world-class workforce to be the key challenge for them going forward.

The findings made it clear that due to the aging of our workforce, South Carolina would need more and more skilled workers to fill existing plants. Additionally, with the dramatic success that the state has had in recruiting new facilities and expansions of existing operations, the challenge would only grow.



Beginning with the premise that this state can train a world-class workforce as well as any other state in the nation, we realized the challenge was to tell the manufacturing and technology stories to the state's children and their parents. Our answer to that challenge is the South Carolina Future Makers program.

SC Future Makers is many things, but first and foremost it is a public-private partnership that fully engages South Carolina's manufacturing and technology communities with middle and high school students, technical college students, and four-year college students. We will show children and their parents the endless career opportunities available to them and pathways that they can follow to realize their dreams and make their futures come true.

What is the Goal of SC Future Makers and How Does It Work?

The goal of the SC Future Makers initiative is to expose and connect the next generation in the state of South Carolina to all of the opportunities it has to offer, close the STEAM skills gap, and provide a pathway to future employment.



- 1 Students create profiles on the STEM Premier platform – showcasing their talents and interests.
- 2 Colleges and companies also create profiles showcasing – all that they have to offer.
- 3 Partnerships with schools and businesses are made to create sustainable relationships for students and educators. Activities include tours of facilities and guest speakers.

South Carolina's Economic Situation

Our State has seen tremendous economic growth since 2011.



\$18 Billion in New Investments



80K New Job Announcements



Manufacturers Earn 30% More
Compared to the Average
Salary in South Carolina

South Carolina's Aging Workforce

The advanced manufacturing workforce is getting older and more competitive.



**In the next
5-10 years:**



**“NOW is the time
to showcase
this opportunity
to emerging talent.”**



10-20% of the current workforce will be eligible to retire according to US Census Data.



40-50% of the current workforce at some existing facilities will be eligible to retire.

Education Reality

The average student loan debt in South Carolina is \$28,000. Students are choosing education paths that sometimes do not result in careers that present long-term economic opportunity. That's time wasted and presents the trap of making choices for student loans that can result in long-term financial strains.



Example:



2016 Graduate: Average \$37,000 in Student Debt – Up 6% from 2015



Will take 10 Years at \$350 per month, to payoff \$37,000

\$770K

EXAMPLE OF ECONOMIC LOSS

If you invested \$350 a month (from age 22-32) for retirement instead of loan repayment – you'd have over \$770,000 by age 65 assuming an 8% average annual return through a stock-focused portfolio.

Growing Career Paths

Data compiled from the O*NET database.

Electrical Engineering Technician

SOC 17-3023

Description

Test or modify developmental or operational electrical machinery, electrical control equipment, and circuitry in industrial or commercial plants.

Starting hourly wage:
\$17.39

Average hourly wage:
\$28.53

Experienced hourly wage:
\$43.87

Education Needed:
On-the-Job Training
or Associates Degree

Machinist/Mechanic

SOC 51-4041

Description

Set up and operate a variety of machine tools to produce precision parts and instruments. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.

Starting hourly wage: \$12.13

Average hourly wage: \$18.55

Experienced hourly wage:
\$29.52

Education Needed: On-the-Job
Training or Associates Degree

Maintenance and Reliability Technician

SOC 49-9043

Description:

Lubricate machinery, change parts, or perform other routine machinery maintenance.

Starting hourly wage:
\$13.99

Average hourly wage:
\$21.82

Experienced hourly wage:
\$31.98

Education Needed:
On-the-Job Training
or Associates Degree

Growing Career Paths

Chemical Technician

SOC 19-4031

Description

Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.

Starting hourly wage: \$12.93

Average hourly wage: \$19.95

Experienced hourly wage:
\$30.19

Education Needed: On-the-Job Training or Associate Degree

Industrial Engineering Technical

SOC 17-3026

Description:

Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.

Starting hourly wage: \$15.75

Average hourly wage: \$22.49

Experienced hourly wage:
\$33.85

Education Needed: On-the-Job Training or Associate Degree

CNC (Controlled Machine Tool) Operators

SOC 51-4011

Description:

Operate computer-controlled machines or robots to perform one or more machine functions on metal or plastic work pieces.

Starting hourly wage:
\$11.84

Average hourly wage:
\$18.10

Experienced hourly wage:
\$23.62

Education Needed:
On-the-Job Training
or Associate Degree

Growing Career Paths

Computer Systems Analysts

SOC 15-1142

Description

Analyze science, engineering, business, and other data processing problems to implement and improve computer systems. Analyze user requirements, procedures, and problems to automate or improve existing systems and review computer system capabilities, workflow, and scheduling limitations. May analyze or recommend commercially available software.

Starting hourly wage: \$20.09

Median hourly wage: \$34.52

Experienced hourly wage: \$54.06

Education Needed: Bachelor's Degree

Network Administrator

SOC 15-1142

Description

Install, configure, and support an organization's network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May supervise computer user support specialists and network security.

Starting hourly wage: \$19.89

Median hourly wage: \$31.57

Experienced hourly wage: \$53.10

Education Needed: Bachelor's Degree

Mechanical Engineers

SOC 17-2141

Description

Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of equipment.

Starting hourly wage: \$24.51

Median hourly wage: \$41.51

Experienced hourly wage: \$62.00

Education Needed: Bachelor's Degree

Growing Career Paths

Industrial Designer

SOC 27-1021

Description

Develop and design manufactured products. Combine artistic talent with research on product use, marketing, and materials to create functional and appealing product design.

Starting hourly wage:

\$21.73

Average hourly wage:

\$34.49

Experienced hourly wage:

\$55.27

Education Needed:

Associate Degree
or Bachelor's Degree

Assembler

SOC 51-2092

Description

Work as part of a team having responsibility for assembling an entire product or component of a product. Assemblers can perform all tasks conducted by the team in the assembly process and rotate through all or most of them rather than being assigned to a specific task on a permanent basis. May participate in making management decisions affecting the work.

Starting hourly wage: \$9.25

Average hourly wage: \$14.52

Experienced hourly wage:

\$23.88

Education Needed: On-the-Job Training or Certificate

Logistics Manager

SOC 13-1081

Description

Analyze and coordinate the logistical functions of a firm or organization. Responsible for the entire life cycle of a product, including acquisition, distribution, internal allocation, delivery, and final disposal of resources.

Starting hourly wage:

\$20.04

Average hourly wage:

\$30.14

Experienced hourly wage:

\$51.58

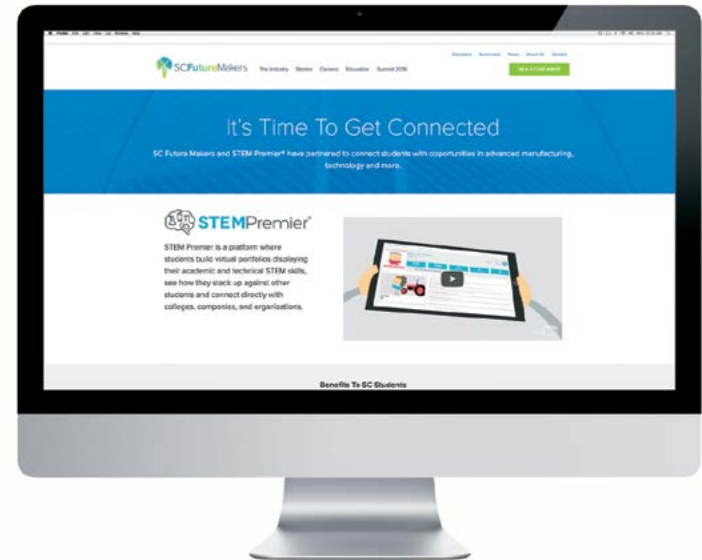
Education Needed:

Bachelor's Degree

We've Shown You the Opportunity – Now Let's Connect

SC Future Makers is powered by STEM Premier - a free online platform that connects students, ages 13+, to colleges, companies, and organizations looking to connect with the next generation of talent in the STEAM fields and more.

Students sign up, build digital portfolios showcasing their skills and talents, and get directly connected to opportunities in higher education and the workforce. It's a virtual hub that brings everyone together.



STEM Premier Contact Information:

Shea Tighe | 855.765.7836 x705
stighe@stempremier.com

Ensure Your Students Have Strong Profiles

*Earn your star rating

Earn a 1-5 star rating based on the overall strength & completeness of your profile.

Upload a profile pic

Colleges and companies want to see the face behind your talent!

Add scores & interests

Show your aptitude and indicate what career fields you want to explore.

Shine with videos

You're more than grades - show personality, skills and involvement with videos!

Request Digital Badges

Request, earn and display your digital badges on your STEM Premier profile.

Share Profile

Taylor Rhodes
FORT DORCHESTER HIGH - SC
CLASS OF 2015
Science, Technology, Engineering & Mathematics - Engineering & Technology

★★★★★
RATING

3.17 GPA
28 ACT
5 ACT WORKKEYS
2 PLTW TESTS
5 SKILLS

CAREER INTERESTS: Radiation Therapists, Radiologists, Software Developers
LANGUAGES: English, Spanish

Video
Allen VEX Robotics Competitio...

Accomplishments
AutoDesk AutoCAD Certification 9/9/12 - Present
The Autodesk Certification program was developed to objectively validate the skills and knowledge of anyone - student or professional - who uses Autodesk® software.
Microsoft Office Certification 6/12/12 - Present
Demonstrate that you have the skills needed to get the most out of Microsoft Office by earning a Microsoft Office Specialist certification in a specific Office program.
National Honor Society 3/12/12 - Present
More than just an honor roll, NHS and NJHS serve to honor those students who have demonstrated excellence in the areas of Scholarship, Leadership, Service, and Character (and Citizenship for NHS).
PLTW Portfolio - Intro to Engineering & Design 08/30/2014 - 05/30/2015
This is my portfolio showcasing all my work from my PLTW - Introduction to Engineering & Design Courses for 2015. Please click on the link provided to view my full profile.
National Technical Honor Society 01/15/2014 - Present
Identified as a leader in the career and technology space through academic and extracurricular achievements.

Interview Extracurricular
1 2 3 4 5 6

Digital Badges
FFA, DreamLeague, TSA, NMSI, PLTW

Extracurricular / Community Service
Future Farmers of America Member (FFA) 06/19/2011 - Present
Member of the FFA chapter for 3 years. Traveled with other members to various state and national conventions and competing in agricultural-related events is what I enjoyed the most in FFA. During my membership I completed a project in the last school year on the effects of acid on wood, which placed second in the state.
Girl Scout Project 08/07/2011 - Present
Taylor tackled the issue of literacy in children that are in the hospital long-term with her Gold Award project, "Plant a Seed and Read." In doing so, she created a sustainable literacy corner for children at a local hospital.
2 year Varsity lettermen in Basketball 01/24/2013 - Present
Started all 14 games at point guard.

Highlight activities

Add all the things you're involved in like experiences & accomplishments.

Add schools of interest

Showcase the colleges and technical schools you're interested in attending.

Courses, Grades & Files

Complete your digital portfolio by adding your courses, grades and files such as school projects, recommendations, earned certificates and more!

The screenshot shows a digital portfolio form with several sections. Callouts from the text blocks point to specific areas: 'Highlight activities' points to the 'Experience' section; 'Add schools of interest' points to the 'College Tracker' table; 'Courses, Grades & Files' points to the 'Scores' section.

CAREER INTERESTS: Radiation Therapists, Radiologists, Software Developers

SKILLS: Collaboration, Critical Thinking

CREDENTIALS: Adobe Photoshop, Microsoft Office

GEOGRAPHIC PREFERENCES: California, Delaware, Georgia, South Carolina

ASSOCIATIONS: National Technical Honor Society (NTHS)

Experience

- Internship at SPARC** 06/9/2012 - 08/15/2012
Worked with a team to implement software platform for the Department of Defense.
- Girl Scout Camp Counselor** 06/01/2011 - 07/05/2011
I was responsible for leading a group of 10 girls on a camping trip. Skills used where time management, organization and leadership.

Publications

- Local Students Excel at Robotics Championships** 9/28/2012
Vex Robotics Competition
- Group of High School Students Give Back** 10/28/13
Habitat for Humanity project
- Students outlook on Technology of the Future** 04/27/2013
Column I wrote in school magazine

College Tracker

College	Status
United States Military Academy	Applied
University of Alabama at Birmingham	Applied
University of Georgia	Interested
Auburn University	Accepted by Admissions
Georgia Institute of Technology-Main Campus	Interested
Clemson University	Interested
Carnegie Mellon University	Applied
Alabama A & M University	Interested
University of Pittsburgh-Pittsburgh Campus	Committed
Duke University	Interested

Scores

ACT® Composite		28	
Math	30	Science	25
English	28	Reading	29

Only high school students have the ability to be rated & ranked on STEM Premier®.



STEMPremier®
Student Profile

Make Sure Your Students See the Opportunity



Student Dashboard



Home - STEM Premier

Home - SC Future Makers - SC

Will

<https://demo.stempremier.com/home>

STEMPremier®

Dashboard

Profile

CHRIS

Rating and ranking public: ☒

100% COMPLETE

✓ Your profile is completed

SCORE

ACT® Science
 You are just behind the pack with this Science score.

SCORE

ACT® Math
 This is a strong math score.

SCORE

ACT® Composite
 Great score!

SCHOLARSHIPS

All students on STEM Premier are eligible for the \$500 STEM Premier Scholarship.

 To apply, simply answer this question:

How did you first get into science, technology, engineering or math?

ANSWER NOW

TOOLS

ACT Profile is a first-of-its-kind college and career planning community, built on 30+ years of ACT research. Mobile, social, and free to the public, ACT Profile delivers powerful, personalized insights to inform individuals as they navigate through life's key decision points. [Create your profile today!](#)

MATCH AMOUNT

\$196,617

View Matches Now

Find Financial Aid

MATCH SCORE

87%

Find Opportunities

Financial aid powered by Red Kite

Red Kite looks at your STEM Premier profile and instantly filters through \$20 billion in scholarships to find the ones that fit you.

LINKED

EXPLORE ORGANIZATIONS

Get Feedback?

MAJORS

Construction Trades, Other.

 Any instructional program in construction trades not listed above.

[click to view full description](#)

JOBS

Laborer

 Castcampa Construction, LLC.
 Long Island City, NY
 We are currently in search of fulltime non-union **laborers** with concrete foundation experience. Must have 10 hour OSHA Certificate, Confined Space Training... [more info](#)

EVENTS

16 NOV

BoomTown "Go For It" Scholars...
 (Jun 02,2016 - Dec 01,2016)

16 NOV

FBI Cyber Internship Program
 (Jul 04,2016 - Jun 01,2017)

16 NOV

FBI Honors Internship Program
 (Jul 07,2016 - Nov 30,2016)

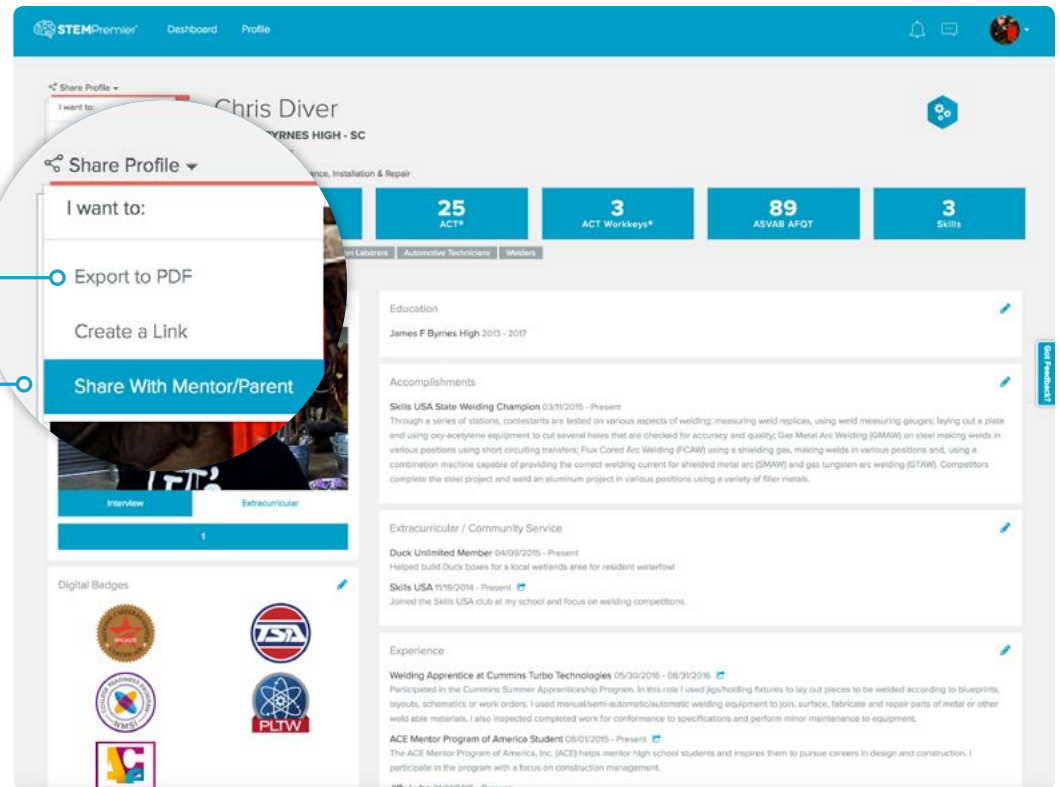
How to Utilize the Platform in the IGP Process

EXPORT

Have your student print out their profile

SHARE

Have your student share their profile with you ahead of time



COMPANIES & COLLEGES

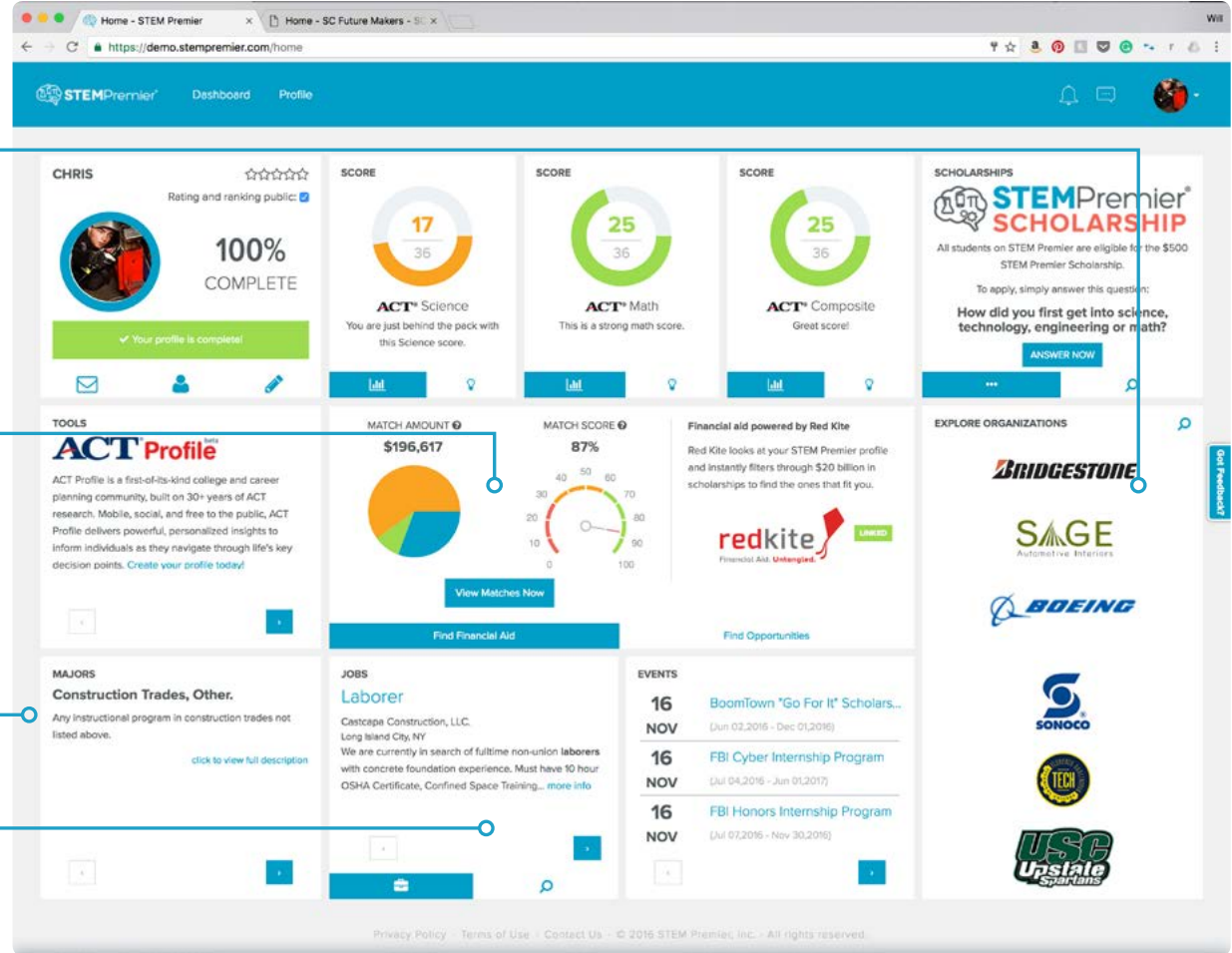
Make sure your student is viewing the companies and colleges that line up with their interests

SCHOLARSHIPS

Make sure your student is viewing the scholarship database

JOBS & MAJORS

Make sure your student is viewing the majors and jobs that line up with their interests



**We've shown you the opportunity and how to connect
– let's make sure they're prepared for the professional market.**



Microburst Learning's EmployABILITY Soft Skills

Employers require their workforce to demonstrate EmployABILITY Soft Skills. Based on over 30 years of soft skills training experience in the global private business sector, Microburst Learning developed a turn-key certification system for cultivating students' soft skills.



The approach includes:

- 1 Online Pre-Assessment and Individualized Evaluation Report
- 2 Interactive Online Lessons
- 3 Instructor Certification
- 4 Comprehensive Instructor Guides
- 5 Post-Assessments
- 6 Student Certification

What the research and the literature says about the importance of Soft Skills:

59%

According to LinkedIn, 59% of hiring managers surveyed believe that soft skills are difficult to find.

9 of 10

According to a survey by Talent Q, part of Hay Group, nine out of ten employers indicate that soft skills will become even more important as globalization increases. Unfortunately, the 2014 Hay Group study finds that 80% of employers were struggling to find graduates with the soft skills they need.

77%

In a National survey of hiring managers sponsored by CareerBuilder, over 77% stated that soft skills are just as important as hard skills. The National survey was conducted online by Harris Poll on behalf of CareerBuilder from February 10 to March 4, 2014, and included a representative sample of 2,138 hiring managers and human resource professionals across industries and company sizes.

85%

Research shows that only 15% of worker success is determined by what they know (hard skills). The other 85% of success is determined by soft skills.

46%

In the article, "Hire for Attitude" Forbes, January 23, 2012, the author indicated that 46% of newly hired employees will fail before their 18th month anniversary.

Being a Professional

What you do now can impact
your future career



PLAN

Do not plan on changing a lifetime of habits the day you seek a job. Imagine a professional athlete never practicing and improving their skills until the day of the big game. Results, failure!



ASSESS

Assess your soft skill abilities in each of the ten EmployABILITY Soft Skill categories. You may want to take the Microburst Learning Soft Skills Pre-Assessment and determine if your current behaviors and abilities place you as a Bronze, Silver, or Gold Soft Skills practitioner.



PRACTICE

Practice successful Interpersonal Skills. Professionals know when to listen, when to talk and what to say when they do speak.

What students can do now to prepare for the future

- Participate in class.
- Help others with assignments.
- Figure out how to solve problems;
do not get defeated by barriers.
- Work with others, demonstrate a positive attitude.
- Don't get pulled down by negative Nancy or Ned.
- Be dependable in your actions and words.

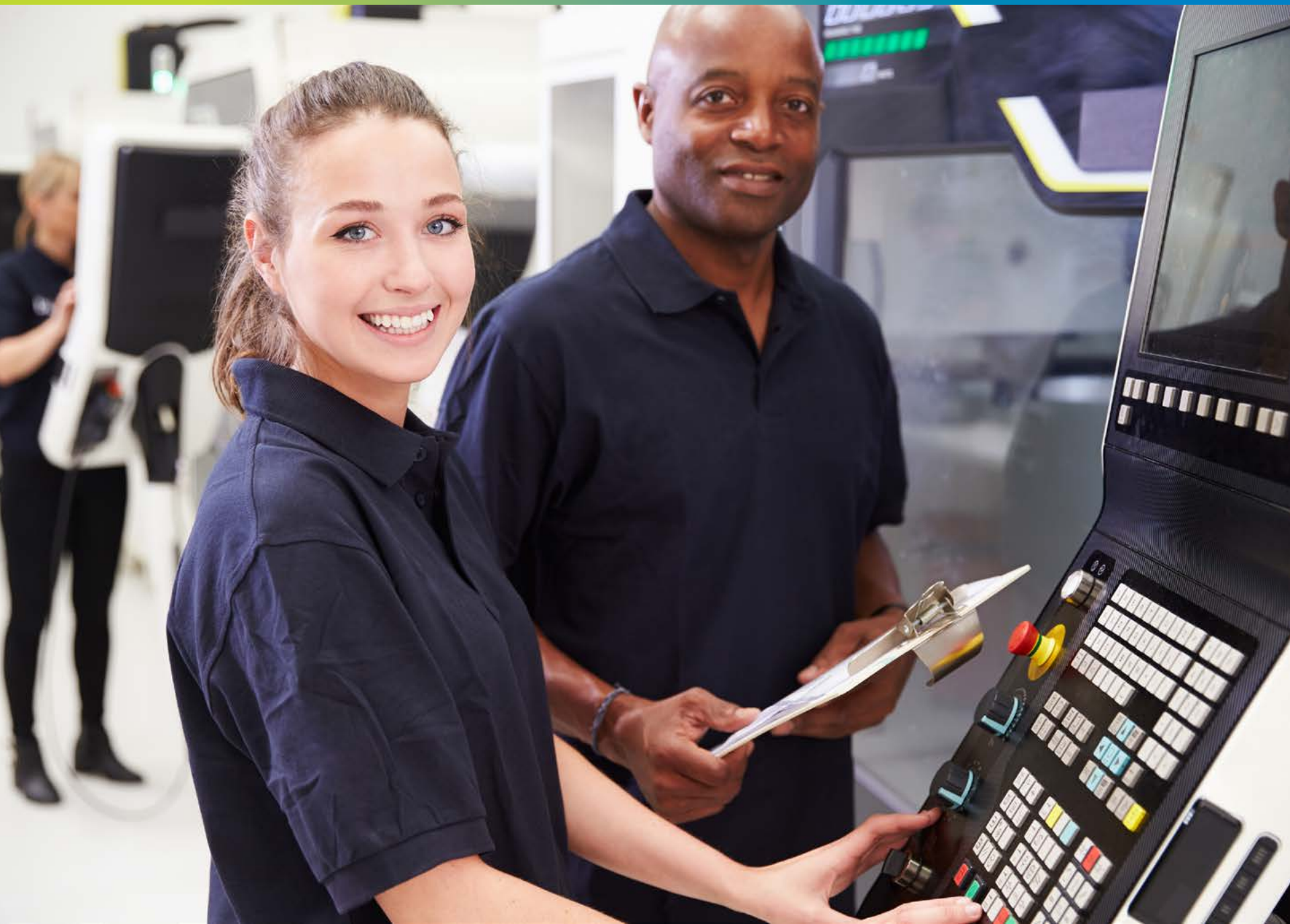


MicroburstLearning.org

Microburst Learning Contact Information:

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SC Future Makers is a first-in-the-nation initiative that connects students, educators, colleges, and businesses - creating a clearer understanding of opportunities available throughout South Carolina's dynamic economy. There's never been a more exciting time in South Carolina and the United States for advanced manufacturing and technology.

Through innovative networks, the world is interconnected like never before, and moves at lightning fast speeds. This reality means tremendous opportunity for those who take the steps to prepare themselves to compete, innovate, and lead. Make sure your students understand that they can either wait for their future or make their future.

Discover your **PASSION**. Connect to **OPPORTUNITIES**.
And don't go **UNSEEN**.



SCFutureMakers.com

@SCFutureMakers   