

## ABSTRACT

**Applicant:** Robeson Community College, applying for a consortium of 10 community colleges in the NC Community College System: **City/State:** Lumberton, North Carolina

**Areas Served:** The service areas of the 10 community college partners in 17 counties, representing 11 of the 13 Congressional Districts in the state.

**Project Name:** The North Carolina Advanced Manufacturing Alliance

**Funding Level Requested:** \$18,835,604

**Priorities and Strategies addressed:** 1. Accelerate Progress for Low-Skilled and Other Workers; 2. Improve Retention and Achievement Rates to Reduce Time to Completion; 3. Build Programs That Meet Industry Needs, Including Developing Career Pathways, 4. Strengthen Online and Technology-Enabled Learning.

**Description of the Proposed Project:** Our strategies address the gaps in current education and training programs and include: 1) Providing comprehensive skills assessment at the student's point of entry, including an interview to ascertain strengths, interests and skill sets not just academic level. 2) We will offer *Flexible Learning* options, much like flexible manufacturing, giving the student a customizable, on-demand program that meets their unique needs, reducing attrition and increasing completion. 3) Developmental Education redesign including self-paced math and eight week mini sessions (*Semester Express*) of English and reading that will accelerate the student from pre-college to college level course work. 4) Student support services including a Success Manager who guides the student throughout, development of an Individual Guidance Plan and auxiliary services. 5) Mobile Learning, a complement to *Flexible Learning*, that will give students an opportunity to learn with a tablet computer through which they will access online courses, educational applications by the thousands along with training simulations, the

ability to maintain communication with their Success Manager, instructors and internship employer. 6) Carefully matched student internships in industry will be developed. Progress will be monitored and benefit to the employer assessed as well. At the conclusion upon receipt of a credential, students will be hired by the employer. 7) Career Pathways will develop a pipeline of students from high school to the college classrooms. Partnerships with Career and Tech Ed. programs and Early College High Schools will bring additional students into the available seats in the training programs. 8) An online repository via iTunes U sites at 5 Alliance institutions will be created into which courses; digital content, self-help and manufacturing career guidance will be located for students and the public free of charge. Underpinning all of these strategies will be technology-enabled teaching and learning.

**Targeted Industry and/or Occupations and Related Credentials:** Advanced Manufacturing-Certificate, Diploma and Associate degrees, Career Readiness Certification plus professional industry certifications including NIMS, Siemens, IFPS and MSSC.

**Populations to be Served, Including Identification of Trade-impacted Community to be Served:** The communities to be served by this project are those counties in the service areas of each partner community college as follows: Robeson, Beaufort County, Craven, Fayetteville Technical, Nash, Edgecombe, Davidson County, Surry, Haywood and Asheville-Buncombe Technical. These communities have amassed a total of 5,730 TAA certified workers during the period of 2007 to 2010 from 75 Dept. of Labor decisions in losses and/or threatened losses to China, Mexico, Canada, Honduras, Brazil, and the United Arab Emirates as well as to the flood of imports from around the world. Additionally, four of the consortium counties, Craven, Cumberland, Edgecombe and Surry, (15% of the state's total) appear on the 2011 TAA for Workers Significantly Impacted County List.

**Required Employer Partners:** Campbell Soup Supply Co., Carver Machine Works, Potash Corp, Keihin Carolina System, Sonoco Products, Consolidated Metco, West CATV Supplies, Inc, Austin Electric Enclosures, Ottenweller Company, Contempora Fabrics , Quickie Mfg, Tredegar Film Products, Mueller-Steam Specialty, Alamac American Knits, Elkay Mfg, Kayser-Roth Corp, Acme Electric, Graphic Packaging Company, International Paper & 16 others.

**Other Stakeholder Organizations from the Community Outreach and Project planning Activity that Remain Involved in the Implementation of the Project:** 10 Workforce Development Boards, 10 Public School Boards, JobLink Career Centers, multiple community service and employment organizations, economic development agencies, and many others.

**Projected Numbers for Each of the Seven Outcome Measures:** 1) Entered Employment Rate 60%; 2) Employment Retention Rate 84%; 3) Average 6 Months Earnings \$12,240; 4) Credit Attainment 90%/Year; 5) Attainment of Certificate in Less than 1 Year 49%/Year; 6) Attainment of Certificate in More than 1 Year 48%/Year; 7) Attainment of Degree 58%.

**Public Contact Information for the Grant:** RCC <http://www.robeson.edu>, Director of Grants and Sponsored Programs Ms. Lisa O. Hunt [lohunt@robeson.edu](mailto:lohunt@robeson.edu)

**Keywords/tags:** Accelerated Learning, Applications, Certificate Attainment, Career Pathways, Contextualized Learning, Degree Attainment, Developmental Education, Digital Materials, Education Redesign, Employer Partnership, Flexible Learning, Individual Guidance Plan, Industry-Recognized Credentials, Job Placement, Mobile Devices, On-the-Job Training, Online Teaching/Learning, Retention, Personalized Instruction, Podcast, SCORM, Self-Paced Learning, Simulation, Skill Assessments, Technology Enabled Learning

## BIBLIOGRAPHY

*An Integrated Approach to Fostering Family Economic Success: How Three Model Sites Are Implementing the Center for Working Families Approach.* (2010, January). Retrieved March 28, 2011, from The Annie E. Casey Foundation:

<http://www.aecf.org/KnowledgeCenter/Publications.aspx?pubguid=%7BF0C4C227-E25E-4B20-A005-0DE98C2FA82C%7D>

*Building Blocks for Building Skills.* (2006, June). Retrieved March 19, 2011, from The Council for Adult and Experiential Learning (CAEL):

[http://www.cael.org/pdf/publication\\_pdf/BuildingBlocksforBuildingSkills.pdf](http://www.cael.org/pdf/publication_pdf/BuildingBlocksforBuildingSkills.pdf)

*Executive Summary.* (2010). Retrieved March 22, 2011, from 2010 Horizon Report:

<http://wp.nmc.org/horizon2010/>

Goral, T. (January 2011). Take II Tablets. *University Business*, 47-49.

*Innovations That Could Change the Way We Manufacture.* (2011, March 10). Retrieved April 23, 2011, from Business Wire:

<http://www.businesswire.com/news/home/20110310006140/en/Innovations-Change-Manufacture>

*Iowa City's ACT Partnering with National Association of Manufacturers for Skills Certification.* (2009, March 5). Retrieved March 21 2011, from Iowa City Area Development:

<http://www.iowacityareadevelopment.com/news/actnam/>

*Literacy Information and Communication System.* (n.d.). Retrieved March 24, 2011, from Assessment Strategies & Reading Profiles: <http://lines.ed.gov>

Lynna J, A. (2004). *Taylor and Francis Group.* Retrieved March 19, 2011, from Course Design Elements Most Valued by Adult Learners in Blended Online Education Environment: An American Perspective:

<http://test.scripts.psu.edu/users/k/h/khk122/woty/OnlineAdultLearners/Ausbum%202004.pdf>

Melton, G. S. (2007). *North Carolina Chamber.* Retrieved March 28, 2011, from What North Carolina Makes, Makes North Carolina, Preliminary Report:

<http://www.ncchamber.net/docs/Press%20Room/PrelimReport%20WhatNCMakes%20Summit08.pdf>

Melton, G. S. (2008). *North Carolina Chamber.* Retrieved April 6, 2011, from What North Carolina Makes, Makes North Carolina:

<http://www.ncchamber.net/docs/Press%20Room/PrelimReport%20WhatNCMakes%20Summit08.pdf>

NACFAM. (2008, December 3). Retrieved March 17, 2011, from America's 21st Century Learning System: [http://www.nacfam.org/Portals/0/Workforce/21stCLS\\_WhitePaper\\_12-3-08.pdf](http://www.nacfam.org/Portals/0/Workforce/21stCLS_WhitePaper_12-3-08.pdf)

Perkins, D. S. (n.d.). *ACU Connected*. Retrieved March 18, 2011, from Abilene Christian University: <http://www.acu.edu/technology/mobilelearning/>

*Sales of semiconductor manufacturing equipment soared 148% in 2010*. (2011, March 09). Retrieved March 21, 2011, from Electronics Weekly: <http://www.electronicsweekly.com/SearchServices/Search.aspx?searchType=news&sKeywords=sales+of+semiconductor&content=site>

*Student Produced Podcast: Results*. (2011, April 4). Retrieved April 15, 2011, from Enviromental History Teaching: <http://www.eh-teaching.org/podcast/results.html>

*The State: South Carolina Home Page*. (2011, April 7). Retrieved April 7, 2011, from Global exports grew record 14.5 percent in 2010: <http://www.thestate.com/2011/04/07/1768200/global-exports-grew-record-145.html>

*United States Department of Labor*. (2010, April). Retrieved March 16, 2011, from Employment and Training Administration: <http://www.doleta.gov/>

*Washington State Board for Community & Technical Colleges*. (2008, January). Retrieved March 16, 2011, from Research Report No. 08-1 Increasing Student Achievement for Basic Skills Student: <http://www.sbctc.edu/>

SAMPLE NOT TO BE REPRODUCED

A. Personnel:

The **Project Manager** will be a full time position housed at Robeson Community College and will report to the Vice President of Instruction and Support Services. Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$49,716      Year 2 =\$51,207      Year 3 =\$52,744

The site **Project Coordinator** is a part-time position that will direct day-to-day program administration, including central reporting, and supervising personnel and budgetary issues and will report to the Vice President of Instruction and Support Services. Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$37,700      Year 2 =\$38,831      Year 3 =\$39,996

The **Success Manager** will work with the project coordinator in identifying and screening qualified students for placement; assisting students in developing their Individual Guidance Plan, facilitating student internship placements among industries in the area, instructing and supervising students in those placements and conducting evaluations. Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$37,700      Year 2 =\$38,831      Year 3 =\$39,996

The **Recruiter** will be hired to assess and recruit dislocated workers and workers threatened by foreign trade for enrollment in the advanced manufacturing training program. This part-time position will be housed at each community college's local employment or JobLink agency. This position will be required for the first two years of the project. This is a part-time position that will work 20 hours a week @ \$20 per hour. Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$20,800      Year 2 =\$21,424      Year 3 =\$0

The **Instructional Designer** is a full-time position will work with project team members and faculty to design instructional material for advanced manufacturing training courses to be disseminated online via the repository. This Salary information is as follows and assumes a 3% cost of living increase each year:      Year 1 =\$66,000      Year 2 =\$67,980      Year 3 =\$0

The **Multimedia Designer** is a full-time position will work with project team members and faculty to design instructional material for advanced manufacturing training courses to be disseminated online via the repository. This Salary information is as follows and assumes a 3% cost of living increase each year:      Year 1 =\$66,000      Year 2 =\$67,980      Year 3 =\$0

The **Lead Content Developer** is a full-time position will work with project team members. This Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$49,716      Year 2 =\$51,207      Year 3 =\$0

The **Grant Accountant Assistant** will be a full-time position responsible for organizing, maintaining and protecting fiscal records of the Alliance. Salary information is as follows and assumes a 3% cost of living increase each year:

Year 1 =\$34,354      Year 2 =\$35,385      Year 3 =\$36,447

**B. Fringe Benefits**

Fringe Benefits are as follows:

	Year 1	Year 2	Year 3
FICA	7.65%	7.65%	7.65%
Retirement	10.61%	10.91%	11.00%
Medical	\$4,952	\$4,952	\$4,952
Other Fringe	2%	2%	2%

Other fringe benefits include worker’s compensation and unemployment. Part-time personnel accrue FICA and other fringe only.

**C. Travel**

Domestic travel-for project staff within the state via automobile to include: supervising intern placements, recruitment and outreach 500 miles per month x 12 months at current college reimbursement rate of .40/mile = \$2,400 a year

Conference/Workshop Travel-ETA training event in Washington, D.C.-2 people required to attend two events- Lodging \$215/night for three nights/Per Diem \$37.50/day/mileage approximately 686 miles @ .40/mile- \$870 per event-\$1,740 total for two events

**D. Equipment**

Upgraded Welding Shop	201,000
AutoCAD classroom set-up	74,300
Apple Inc. Education	1,470,014

**E. Supplies**

\$3,000 per year- Three year total = \$9,000

**F. Contractual**

<b>Asheville-Buncombe Technical Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	63,400	65,302	66,779	195,481

Fringe	22,324	22,778	23,106	68,208
Equipment	85,000	0	0	85,000
Travel	1,235	1,235	1,235	3,705
Other Direct Costs	2,250	2,250	250	5,250
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>174,460</b>	<b>91,815</b>	<b>91,370</b>	<b>357,645</b>

<b>Beaufort Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	121,200	124,086	104,992	350,278
Fringe	11,696	11,974	10,132	33,802
Equipment	1,847,219	0	0	1,847,219
Travel	1,200	1,200	1,200	3,600
Other Direct Costs	0	0	0	0
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>1,981,315</b>	<b>137,260</b>	<b>116,324</b>	<b>2,234,899</b>

<b>Craven Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	281,000	287,932	104,109	673,036
Fringe	81,691	83,959	46,258	211,908
Equipment	536,205	0	0	536,205
Travel	1,235	1,235	1,235	3,705
Other Direct Costs	11,583	11,582	8,320	31,485
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>911,713</b>	<b>384,708</b>	<b>159,922</b>	<b>1,456,343</b>

<b>Davidson Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	360,000	370,800	140,039	870,839
Fringe	107,600	110,900	63,582	282,082
Equipment	1,168,900	0	0	1,168,900
Travel	500	500	500	1,500
Other Direct Costs	0	0	0	0
Indirect Costs	144,000	148,320	56,016	348,336
<b>Total Costs</b>	<b>1,781,000</b>	<b>630,520</b>	<b>260,136</b>	<b>2,671,657</b>



<b>Edgecombe Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	97,800	99,984	80,167	277,951
Fringe	19,907	20,444	18,756	59,107
Equipment	887,000	0	0	887,000
Travel	450	450	450	1350
Other Direct Costs	0	0	0	0
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>1,005,157</b>	<b>120,878</b>	<b>99,373</b>	<b>1,225,408</b>

<b>Fayetteville Technical Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	149,500	11,835	10,502	33,774
Fringe	25,108	25,949	24,501	75,559
Equipment	495,000	0	0	495,000
Travel	128	128	128	128
Other Direct Costs	0	0	0	0
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>669,736</b>	<b>180,783</b>	<b>161,910</b>	<b>1,012,429</b>

<b>Haywood Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	203,000	209,090	215,363	627,453
Fringe	66,780	68,519	69,877	205,176
Equipment	900,000	0	0	900,000
Travel	3,000	3,000	3,000	9,000
Other Direct Costs	170,000	80,000	60,000	310,000
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>1,342,780</b>	<b>360,609</b>	<b>348,240</b>	<b>2,051,629</b>

<b>Nash Community College</b>	Year 1	Year 2	Year 3	Total
Personnel	317,700	327,231	95,163	740,094
Fringe	74,657	77,007	9,183	160,847
Equipment	824,475	189,350	0	1,013,825
Travel	13,500	13,500	13,500	40,500
Other Direct Costs	0	4,000	4,000	8,000
Indirect Costs	0	0	0	0

<b>Total Costs</b>	<b>1,230,332</b>	<b>611,088</b>	<b>121,846</b>	<b>1,963,266</b>
--------------------	------------------	----------------	----------------	------------------

<b>Surry Community College</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
Personnel	275,800	284,074	79,568	639,442
Fringe	70,826	73,067	33,321	177,214
Equipment	912,378	0	0	912,378
Travel	1,338	1,338	1,338	4,014
Other Direct Costs	0	0	0	0
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>1,260,342</b>	<b>358,479</b>	<b>114,227</b>	<b>1,733,047</b>

<b>Other Contractual Items</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
Personnel	0	0	0	0
Fringe	0	0	0	0
Equipment	0	0	0	0
Travel	0	0	0	0
Other Direct Costs	388,386	72,286	0	460,672
Indirect Costs	0	0	0	0
<b>Total Costs</b>	<b>388,386</b>	<b>72,286</b>	<b>0</b>	<b>460,672</b>

G. Construction: NONE

H. Other: NONE

I. Total Direct Charges **Year 1** \$12,913,538 **Year 2** \$3,344,802 **Year 3** \$1,721,255

J. Indirect Charges **Year 1** \$341,949 **Year 2** \$351,435 **Year 3** \$162,625

K. Totals **1** \$13,255,487 **Year 2** \$3,696,237 **Year 3** \$1,883,880

**TOTAL PROJECT: \$18,835,604**

**Community Outreach**

The Alliance reached out to its industry contacts and partners via personal interviews and a survey to assess the needs and deficiencies related to advanced manufacturing. The survey instrument proved to be a valuable tool to help define the project strategies and to develop the work plan.

Number of companies surveyed	How many current jobs would benefit from the training	How many jobs require proposed training	New Jobs Created in Year 1	New Jobs Created in 3 Years	New Jobs Created in 5 Years	Anticipated amount of job replacements	Year 3	Year 5
62	3,741	3,191	325	602	1,162	461	659	1,615

*Demographics of Targeted TAA workers*

Age Range	Race	Gender
16-19 1%	American Indian 6%	Male
20-24 10%	Asian 1%	59%
25-34 25%	Black 30%	Female
35-44 24%	White, non Hispanic 55%	41%
45-54 23%	Other 6%	
55-64 14%		

*Characteristics and skill needs of workers receiving TAA*

Identified skills needs of workers include, but are not limited to, job search assistance, skills training, relocation assistance and income replacement.

*Barriers to education and work involvement*

Findings from the local workforce agencies and state employment sites indicate the lack of monetary resources and flexible class scheduling, as two of the primary education and work involvement barriers related to the targeted TAA population. Other barriers include lack of counseling services, lack of support from employers, family and limited educational background.

*Characteristics and needs of local employers*

Of the 65 North Carolina employers surveyed, 85% noted that the lack of skilled workers is the greatest need of industry. Employer comments indicate that today's workers need to be problem-solvers, creative thinkers, and self-directed learners to be successful. Other significant needs of surveyed employers are training, more communication with educational institutions relative to workplace skills. Additionally, industries are looking for better prepared workers that come with certifications and portable skills, such as industry-recognized skills certifications and Work Keys™.

*Inventory of educational programs serving adults workers*

Due to restricted funding to non-educational agencies, many community services have limited or non-existent educational programs for adult workers. Each Alliance member has a least one community service in their area that offers adult services, such as literacy and/or referral services. These agencies include local Church and Community Centers, Centers for Community Action and Tribal Organizations. Each Alliance member has a full-service basic education/literacy program at their institution.

*Best practices*

Alliance members agree that industry "buy-in" and support of curriculum programs has been one of the most effective best practices, leading to placement of student interns and permanent job placements. Robeson Community College, Beaufort County Community College along with Nash Community College has noted success in job internships with their students. Beaufort also has a state-recognized welding program and faculty member who has various certifications in the area. Craven Community College has experienced much success with their 9-12 pathways with their LEA's and Davidson County Community College has a recognized Basic Skills program.

Institution	Outreach
Asheville Buncombe Technical College	<p>(Workforce) Mountain Area Workforce Development Board and Buncombe County JobLink.</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul> <p>(Industry) Silverline Products, AvL Technologies and Smokey Mountain Machinery.</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul> <p>(Community Services) Goodwill Industries and \ Asheville Area Chamber of Commerce.</p> <ul style="list-style-type: none"> <li>• The community services partners will serve as a referral source for displaced workers interested in advanced job manufacturing training. The Chamber of Commerce will assist in marketing the project to area communities.</li> </ul>
Beaufort County Community College	<p>(Workforce) Region Q Workforce Development Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul> <p>(Industry) contacts Carver Machine Works and Potash Corporation.</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
Craven Community College	<p>(Workforce) Craven Employment Security Commission/Job Link and East Carolina Workforce Development</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling. Part-time project recruiter will be housed at the JobLink Center to recruit displaced workers into the training program.</li> <li>• Craven CC has a presence on the ECWD Board</li> </ul> <p>(Industry) Craven Carolina Technical</p>
Davidson Community College	<p>(Workforce) Davidson County Workforce Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling</li> </ul> <p>(Industry) Ingersoll Rand and Kimberly Clark, Inc.</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
Edgecombe Community College	<p>(Workforce) Turning Point Workforce Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul> <p>(Education) Edgecombe County Public Schools</p> <ul style="list-style-type: none"> <li>• Active partner in helping establish educational transition to community college for those students interested in manufacturing careers.</li> </ul> <p>(Industry) Keihin Carolina System Technology</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
Fayetteville Technical Community College	<p>(Workforce) Cumberland County Workforce Development Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul> <p>(Industry) DuPont USA, Purolator, Inc. and Eaton Corporation</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
Haywood Community College	<p>(Workforce) Southwestern Workforce Development Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul>

	<p>(Industry) ALLTEC Corporation, Consolidated Metco, Evergreen Packaging, Giles Chemical, Sonoco Plastics and West 1 CATV Supplies and (Community Services) contact Haywood Vocational Opportunities</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
<p>Nash Community College</p>	<p>(Workforce) Turning Point Workforce Development Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling. Part-time project recruiter will be housed at the JobLink Center to recruit displaced workers into the training program.</li> </ul> <p>(Education) Nash/Rocky Mount Public Schools</p> <ul style="list-style-type: none"> <li>• Active partner in helping establish educational transition to community college for those students interested in manufacturing careers.</li> </ul> <p>(Industry) contacts Atlantic Natural Foods Corporation, Cummins Diesel, Kaba Ilco and Bridgestone Tires</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>
<p>Robeson Community College</p>	<p>(Workforce) Lumber River Workforce Development Board and Robeson Employment Security Commission/JobLink</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling. Part-time project recruiter will be housed at the JobLink Center to recruit displaced workers into the training program.</li> <li>• RCC has a presence on the LRWD Board.</li> </ul> <p>(Education) Public Schools of Robeson County</p> <ul style="list-style-type: none"> <li>• The proposed grant activities will serve as an educational pathway for grades 9-12 students who are interested in pursuing careers in advanced manufacturing related areas</li> <li>• Supporter of allowing Work Keys™ testing to graduating high school seniors</li> </ul> <p>(Community Services) Robeson County Church and Community Center, Lumbee Regional Development Association, Four County Services, and the Center for Community Action</p> <ul style="list-style-type: none"> <li>• The community services partners will serve as a referral source for displaced workers interested in advanced job manufacturing training.</li> </ul> <p>(Industry) Contempora Fabrics, Southeastern Regional Medical Center, Quickie Manufacturing, Campbell Soup Company, Tredegar Film Products, Muller Steam Specialty, Alamac American Knits, Elkay Manufacturing, Kayser-Roth Hosiery, Acme Electric, Graphic Packaging and International Paper.</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul> <p>(Government) Robeson County Economic Development Commission</p> <ul style="list-style-type: none"> <li>• Serve as a marketing resource to help attract and retain new industries to the area.</li> <li>• Provider of resources to allow high school seniors to participate in Work Keys™ testing.</li> </ul>
<p>Surry Community College</p>	<p>(Workforce) Northwest Piedmont Workforce Development Board</p> <ul style="list-style-type: none"> <li>• Serve as a resource to access workforce data relative to reporting and job market/industry profiling.</li> </ul> <p>(Industry) Austin Electric, Advanced Electric Systems, Unilin Flooring, Xceldyne Industries and Ottenweller</p> <ul style="list-style-type: none"> <li>• Commitment to provide resources, internships and job placements, as they become available to job training completers.</li> </ul>

## North Carolina Advanced Manufacturing Alliance

### 1. Statement of Need: Impact of foreign trade in the communities to be served

The **North Carolina Advanced Manufacturing Alliance** is a **consortium** of ten community colleges, local Workforce Investment Boards (WIBs), industries, non-profit entities, and local education authorities that will increase the number of North Carolinians with certificates, diplomas and degrees in advanced manufacturing disciplines within a two year period. This Alliance is representative of North Carolina's wonderful diversity from the Blue Ridge Mountains in the west to the waters of the Pamlico Sound in the east and encompasses a wide range of individuals served through 21 manufacturing-related education and training programs.

**The communities to be served by this project** are those counties in the service areas of each partner community college as follows: Robeson Community College located in the southeast, Beaufort County and Craven Community Colleges in the east, Fayetteville Community College in the east central area, Nash and Edgecombe Community Colleges in the northeast, Davidson County Community College in the west central area, Surry Community College in the northwest and, Haywood and Asheville-Buncombe Technical Community Colleges in the west. These communities have all severely and historically been impacted by foreign trade. From 2001 to 2008, they experienced 56,100 or 59% of NC's total manufacturing job losses to China, according to a 2010 study by Robert E. Scott, and had three of the nation's top 50 Congressional districts nationwide (District 4 ranked at # 15, District 6 ranked at #13 and District 5 at #18) that suffered the greatest net job loss due to growing trade deficits with China.<sup>1</sup>

---

<sup>1</sup> Robert E. Scott, 2010

More recently, these communities have amassed a total of 5,730 TAA certified workers during the period of 2007 to 2010 from 75 **Department of Labor decisions** in losses and/or threatened losses to China, Mexico, Canada, Honduras, Brazil, and the United Arab Emirates as well as to the flood of imports from around the world. Additionally, four of the consortium counties, Craven, Cumberland, Edgecombe and Surry, (15% of the state's total) appear on the **2011 TAA for Workers Significantly Impacted County List**.

The impact of these foreign trade actions have yielded devastating closures and the downsizing of industries across the Alliance ranging from Hatteras Yachts (*TAA Decision 64496 02/05/09*), a custom motor yacht and sport fishing vessel manufacturer in New Bern that lost 830 jobs due to increases of imports like or directly competitive with its own, to the loss of 17 jobs at DuPont Teijin Films (*TAA Decision 73266 03/12/10*) in Fayetteville after finding that the company and the U.S. had been, "threatened with material injury by reason of imports from Brazil, China, and the United Arab Emirates of materials that have been found by the Department of Commerce to be sold in the United states at less than fair value," to Jockey International, Inc. (*TAA Decision 63568 07/10/08*) a knitted fabric manufacturer in Mocksville suffering the effects of competition from cheaper foreign imports that resulted in the loss of 201 jobs, to the first downsizing of Acme Electric (*TAA Decision 63673 08/14/08*) an electrical transformer manufacturer in Lumberton in 2008, resulting in the loss of 54 jobs and a subsequent downsizing in 2010 (*TAA Decision 74491 09/27/10*) resulting in the loss of 6 additional jobs, and many more across the state.

In the case of Acme Electric, the Department of Labor Employment and Training Administration investigation found in *TAA Decision 74491* that, "workers of Acme Electric, who are engaged in activities related to the production of electrical transformers for power



conditioning equipment, meet the criteria for certification...because a significant proportion of workers have been separated during the relevant period; because the workers' firm has shifted to a foreign country the production of articles like or directly competitive with the electrical transformers for power conditioning equipment produced by the workers; and, because the shift in production of electrical transformers for power conditioning equipment by Acme Electric contributed importantly to worker group separations at the Lumberton, North Carolina facility.”

Within these 75 TAA certification decisions were **jobs** that had previously paid a living wage and helped to sustain families throughout all of the communities including production, maintenance, electrician and repair technicians, machinists and quality control workers along with final assembly, finishing, testing, warehouse, inventory, packaging and transportation services workers.

The TAA certified workers in these cases are living in counties that are also included in the N.C. Dept. of Commerce three tier index of economic well being upon which foreign trade has also had an impact. The rankings are based on an assessment of each county's, "unemployment rate, median household income, population growth, and assessed property value per capita. In addition, any county with a population of less than 12,000 or a county with a population of fewer than 50,000 residents with 19 percent or more of those people living below the federal poverty level automatically are designated as among the most distressed counties.<sup>2</sup>" In 2011, of the 17 counties within the Alliance service areas, six counties are ranked as the most economically distressed Tier 1, eight are ranked as Tier 2, and three are ranked as Tier 3.

All of the colleges in the Alliance serve populations that are struggling with low income and high unemployment and ***every one has TAA certified workers in its service area***. In particular, Edgecombe Community College is serving a designated low wealth area that experienced a

---

<sup>2</sup> NC Department of Commerce 2010

15.3% unemployment rate in January 2011 while Nash, Craven and Robeson Community College service areas all had unemployment rates hovering around 11%. Beaufort County, Robeson and Haywood Community Colleges all have student populations of predominantly low income, first generation college students. Fayetteville Technical Community College, the fourth largest in the NC Community College System, is a Minority Serving Institution that also serves a large population of veterans due to its location adjacent to the Fort Bragg U.S. Army installation. Davidson County Community College is located near the heart of the once thriving furniture industry and Nash Community College is one of several institutions located in the heart of tobacco country where farms previously thrived alongside low-skilled manufacturing centers. Finally, Surry and Asheville-Buncombe Technical Community Colleges both serve large mountain areas with challenging geographies. Each of the institutions has manufacturing training programs and serves as a vital training resource for existing industries, some that have persisted for many years, some brand new and sporting the latest in automated technology. The **industries in these communities** vary from wood products and furniture manufacturers to plastic, foam and glass makers to food manufacturers and chemical companies to automotive parts and recreational vessel manufacturers.

The consortium is led by Robeson Community College (RCC) a U.S. Dept. of Ed. designated Minority Serving Institution with Native American, African American and first generation students. RCC's well established Industrial Systems Technology, Electrical/Electronics and Machining Technology programs with its new flexible advanced manufacturing mechatronics training lab, the first of its kind in the state, set the pace for the consortium that is striving to improve existing programs of training and education, fill the gaps in instruction and technology

and incorporate exceptionally novel ideas to produce highly skilled workers ready for advanced manufacturing positions that are beginning to emerge and are projected throughout the state.

Through a research-based, nimble and innovative program responsive to the specific needs of the eligible population and its industry employers, the Alliance plans to implement a program that will swiftly and comprehensively assess, remediate, train and certify the technical competencies of displaced and underemployed manufacturing workers in communities that have been outsourced, downsized and adversely impacted by foreign trade from the mountains to the coast.

**The target population in the communities to be served** is the unemployed and threatened TAA certified workers (then any others qualified) in the communities identified above. **The industries in which the target population was employed** and are currently employed include: Food processing; textiles/apparel; home and consumer products; motor yacht and sport fishing vessels; furniture; industrial parts and equipment; automotive parts; tires and rubber; paper products; wood products; chemical and foam products; glue and adhesive products; glass; plastics; and, electrical assemblies and transformers. These industries include: Acme Face Veneer Co., Inc.; Lexington Furniture Industries; Hill Hosiery Mill, Inc.; Prelude Foam Products, Inc.; Diebold, Inc.; Thomasville Furniture Industries, Inc.; MJ Soffe; Consolidated Metco, Inc.; Bodet Horst; Carolina Glue Chip, Inc.; DuPont; and Technimark, LLC.

**The current level of educational attainment of the targeted population**, numbering more than 5,700, is projected based upon data obtained from the NC Employment Security Commission, the colleges and the WIBs. Of the total target population, greater than 70% have a high school education or below while only approximately 25% have some post secondary education. Many of these workers have skills that have required from six (short-term) to twelve

months (moderate-term) of on-the-job training to acquire. Only a fraction has skills that required post secondary education for positions such as electrician and electrical technicians.

According to Paul Fowler of the National Association of Advanced Manufacturing, “The Advanced Manufacturing entity makes extensive use of computer, high precision, and information technologies integrated with a high performance workforce in a production system capable of furnishing a heterogeneous mix of products in small or large volumes with both the efficiency of mass production and the flexibility of custom manufacturing in order to respond quickly to customer demands.” More and more of the existing industries in the service area are transitioning to this equipment in order to increase production capacity and efficiency and remain competitive. As a result, the skill level required in these industries is increasing as well.

Based upon the above understanding, the expectation of a high performance workforce and upon the information learned in interactions with industries during our project outreach, the Alliance has adopted the Advanced Manufacturing Competency Model<sup>3</sup> to define and delineate the **knowledge and competencies required of workers** in these positions. The model’s Foundation Competencies of Personal Effectiveness, Academic Competencies and Workplace Competencies, are required in order to enter the workplace; Industry Competencies are those that are specific to the industry sector and include Industry-wide Technical Competencies and Industry-Sector Technical Competencies; and, finally, the Specialization competencies are those that occur within the specific occupations in an industry.

A survey of and outreach contacts with 65 industries found that the **education, training and credentials** required to enter the jobs available currently and in future projections will vary slightly by process but require higher skill (particularly mathematics and critical thinking) than positions in previous years. The minimum currently required for the technician jobs posted is a

---

<sup>3</sup> Employment and Training Administration United States Department of Labor

high school diploma and one year of experience plus “soft skills,” or the Personal Effectiveness Competencies of the Advanced Manufacturing Competency Model- and for some, a Career Readiness Certificate (CRC). Projections from the NC Employment Security Commission indicate an increase over previous years in positions requiring Associate degrees (Industrial Engineering & Mechanical Engineering Technicians, Medical Equipment Repairers, Chemical Technicians, etc.) and post secondary vocational training (Avionics Technicians, Electrical/Electronic Installers- Repairers, Computer/Automated Teller/Office Machine Repair). Industry employers within the service area indicate an increasing reliance upon a specialized credential. Statewide the Career Readiness Certificate is becoming accepted as evidence of required skills but more and more, professional industrial credentials will become a requirement as the complexity of the manufacturing processes increase.

The survey of employers in the Alliance and of current job openings posted by the NC Employment Security Commission throughout the state finds that every job in a manufacturing related field requires experience creating a **significant barrier to employment** for our target population. That requirement ranges from as little as six months in a single posting to as much as five years in several postings with most requiring a minimum of two years experience. This is a trend found among postings consistently over the last several years. However, the TAA certified workers frequently lack the experience necessary to qualify for the positions without some kind of on-the-job training or internship program.

Another barrier is the need for soft skills or interpersonal skills that demonstrate the ability to work effectively with others. These are skills that are more difficult to teach and assess in a classroom setting yet are essential to be successful in obtaining and retaining a job. Examples of

these skills include listening, displaying acceptable work behaviors, dependability and ethical behavior. These behaviors are better relayed in a mentoring or coaching relationship.

A truly significant barrier to the target population when seeking employment in an increasingly technologically advanced field is the lack of a credential. The need for parents or caregivers to get back to work quickly after a job loss necessitates leaving the classroom early before receipt of a credential. Alliance members report that the returning adult student will stay only long enough to gain the skills needed to qualify for the first available job opening because they are seeking the quickest possible route back to employment.

In a survey of **targeted industries** throughout the communities, the Alliance queried employers regarding their *projections for new jobs* in one year, three and five years from now that, “would rely on skills and technology training that could be provided in the proposed project” and, their *projections for the number of job replacements* that may occur in one year, three and five years. The employers responded that within one year, a total of approximately 469 replacement jobs are anticipated to be available while 693 would become available within 3 years and 1651 within 5 years. New job creation is anticipated to be almost as strong with 333 new jobs projected within one year, 627 within three years and 1192 within 5 years. A total of **4965** jobs within the service areas *alone* will be available within the five year period.

According to NC Employment Security Commission **job projection data** developed in 2006, manufacturing jobs in chemical, computer and electronics, food, metal and transportation equipment products are forecast to make gains annually through 2016. Among those requiring a minimum of an Associate degree, the job gains will be most significant among Industrial Engineering, Mechanical Engineering and, Electrical and Electronic Engineering Technicians, while Commercial Electrical, Electrical/Electronic Installers, Avionics Technicians,

Computer/Automated Machinery Installers/Repairers, and Electronic Repair Technician jobs requiring a minimum of post secondary vocational training are projected for growth.

In addition to the projected replacement and new jobs over the next five years, 35 industries have already agreed to assist in the education and training of students through **internship placements and have committed to hiring these students** when they have completed their training and have received their credential. (See letters in attachments.) The Alliance will continue to recruit additional industry partners. Outcome data from the RCC Career Cooperative Program indicates that this model of placement coupled with intensive student support and industry relations has been extremely beneficial to both students and employers in our target area as nearly 60% of completers obtained full time employment.

The colleges of the Alliance studied their existing programs and services to determine **gaps in meeting the demonstrated demand for education and training** in advanced manufacturing for the communities to be served. While the institutions offered programs including Industrial Systems, Machining, Manufacturing, and Mechanical Engineering Technologies, along with Electronics Engineering, Welding, and, Electrical/Electronics Technology, there were seven distinct gaps identified to be addressed: 1) Curriculum Enhancement; 2) Training Equipment; 3) Additional Instructors/Expertise; 4) Professional Certifications; 5) Online Course Enhancement; 6) Course Options; and, 7) Student Support Services.

Each institution needs to enhance program curricula to incorporate the advanced processes and technologies in use and in development for use in the actual workplace. Students will need to be proficient in higher level mathematics and science courses. For example; RCC will begin requiring a Physics course in the Industrial Technology curriculum program next semester and

will begin incorporating new curricula for use with the mechatronics lab equipment as it requires higher level math and critical thinking skills for operation.

Several institutions need to add training equipment to their laboratories to replace outdated pieces no longer found in industry such as the Korean war-era relic found in the lab at Fayetteville Technical Community College. **Faculty infrastructure** must be addressed as well. Additional instructors with expertise in these processes and with this equipment will be needed in most institutions. Additional faculty are also needed to allow for **increased capacity** as both curriculum and continuing education enrollments will bring increases to all of these institutions.

Some institutions will need to add the Career Readiness Certification (CRC) program while some already have it in place. “North Carolina’s CRC offers a reliable means of determining whether a potential employee has the necessary literacy, numeracy and problem solving skills to be “job ready.” The CRC is based upon WorkKeys, a nationally recognized, skills assessment tool developed by ACT Inc.”<sup>4</sup> Others need to add industrial certification programs that, though costly, will provide graduates with better prospects for employment.

**Due to limitations in the quantity, content and quality of courses**, the enhancement of online courses, course scheduling and course options will be necessary to meet the needs of the students, assure success in retention and completion, and increase capacity. Every institution indicated that demand is high for online course options as students are frequently unable to attend classes on campus and desire convenient access. Additionally, employers are providing input regarding the training relevant to their needs therefore there is a need to develop and disseminate online course modules contextualizing the skills into the curriculum. A benefit of increasing the number and quality of online course offerings will be an increase in the capacity

---

<sup>4</sup> www.crcnc.com



of all institutions to serve students within and well beyond their geographies. Adding versatility through mobile technology will further enhance offerings, options, experiences and outcomes.

Finally, each institution expressed a need for additional student support services and the operation of services in conjunction with local employment offices. For example, at Craven Community College, there are only three counselors serving more than 3,680 students giving each a caseload of 1,227 students to advise and support. The risk of attrition in this situation is extremely high, particularly for the unemployed adult student apprehensive about returning to the classroom.

Within the colleges in the Alliance as well as the workforce development professionals and several community-based programs, agreement was easily reached regarding **factors contributing to attrition among low-skilled adult students** who are returning to our classrooms, particularly if they have recently lost a job. Pressure to return to employment as quickly as possible will often cause an adult low-skilled student to remain in a training or education program only as long as it takes to gain the minimum skills to obtain the first available job, leaving the program prior to attainment of a credential. Additionally, these students are usually less prepared psychologically to re-enter an academic environment and frequently require remediation which causes them to remain in programs longer creating frustration and confidence issues. Many also find tuition and fees for training prohibitive.

While conducting the gap analysis of the education and training, the need for student support services for issues specific to adult learners was identified as was the need to provide more relevance and more options regarding when their learning takes place. These local findings are supported and augmented by adult education theory and literature that, “stress the expectations of adults for personal relevance in what they learn, participation in setting their

learning outcomes based on their real-world needs, self-direction of their learning resources and pathways, and establishment of an active learning community.”<sup>5</sup>

The Alliance will address the **factors contributing to attrition and substandard completion rates** through providing comprehensive student support services designed specifically to increase confidence and reduce anxiety about returning to the classroom, by redesigning developmental education thereby reducing the amount of time the student must dedicate to earn a credential, by building relevance into the learning experience so the student knows they will emerge with applicable skills and is immediately employable, and by building the program upon a foundation of flexibility that parallels contemporary manufacturing as well as contemporary lives.

**Specialized equipment will be needed** to train these workers for current and future jobs in the manufacturing industry. As reported by Electronics Weekly on March 9, 2011, sales of semiconductor manufacturing equipment soared 70% in North America in 2010, indicating a surge in assembly processes across the country.<sup>6</sup> And from Grant Thornton’s Nov. 2010 Business Optimism Index survey of manufacturing companies across the U.S., 49% plan to increase staff in the next 6 months while only 13% plan to decrease; 81% are optimistic about their business and hopeful for growth over the next 6 months; 47% plan to increase spending on capital equipment purchases, etc. Manufacturers have been able to improve their efficiency and productivity in the last three years and they want to continue that trend.<sup>7</sup> They will not, however, be able to achieve that objective with employees who have been trained on outdated equipment.

Each institution in the Alliance has sought input from industry employers in their service areas regarding specialized training equipment to be certain that the programs provide graduates

---

<sup>5</sup> Lynna J Ausburn, 2004

<sup>6</sup> ElectronicsWeekly.com

<sup>7</sup> Industry Week 2011

that will be credentialed and ready to work. While RCC is fortunate to have a newly renovated lab with some flexible mechatronics training equipment and Davidson County Community College has some advanced hydraulic trainers and an automation lab provided through a grant at their main campus, it is not complete and their Davie County site is still without *any* modern equipment. Some of the institutions are in desperate need like Fayetteville Tech that finds in its machining technology lab a trainer that was manufactured in 1953 yet the curriculum for the program will be updated to Computer Integrated Machining beginning in the fall semester. Nash Community College is in need of a Flexible Manufacturing System trainer in order to integrate advanced topics in manufacturing with hands-on experience using the technology found in the areas' primary industry employer. By having the same machines in the educational facilities that are found in the manufacturing facilities, students will be provided a simulation experience that allows analyzing, understanding and mastery of the interaction of mechanics, pneumatics, electrical engineering, control technology and communication interfaces- all absolutely critical for proper and successful management of processing systems. Other identified training equipment includes PLCs, robots, hydraulic trainers, and pneumatic trainers, robotics, motor controls, and rapid prototyping machines among others.

## **2. Work Plan and Project Management**

The project will: recruit participants at JobLink Centers and in the community; assess academic and work skills plus career interests via interviews and instruments prior to placement in training programs; provide student support services from entry to job placement; implement developmental education redesign, curriculum enhancement, contextualized learning and technology-enabled teaching and learning; develop career pathways for students from high school through college; develop an online repository for courses, self-help guides, student

developed content and career guidance; provide carefully matched internships beneficial to student & employer for long-term retention; provide industry relations; and, utilize mobile technology to accelerate learning, increase retention and completion rates; and, assure a highly skilled workforce for advanced manufacturing technology in North Carolina.

**The design of this project will replicate the best practices from four evidence-based models as well as implement innovative strategies supported by related research findings.** The national model employed is the “I-BEST” Increasing Student Achievement for Basic Skills Students program. The I-BEST program results indicated that students achieved significantly higher academically, were retained at higher rates and completed their programs at higher rates than non-I-BEST students. The best practices adapted from this model are the infusing of college content for students who are also enrolled in basic skills level courses bridging them from pre-college to college-level course work; providing student support services including comprehensive goal setting and information on transition opportunities; and, contextualized learning in the form of apprenticeships or internships.

The Career Pathways Initiative provides a model for the significance of the transitions between each educational level toward employment. By adequately preparing students with information about their potential career and the competencies associated with it, they are better able to make the decisions regarding course work to prepare for the next level in the educational process. This project will work with public schools to inform students about the careers and competencies in advanced manufacturing and even initiate a pilot shared faculty program between RCC and the Early College High School to smoothly transition students into the Industrial Technology or Electrical/Electronics Technology programs.

The local model employed is the RCC GoldenLEAF Foundation funded GLOW Career Cooperative Program. The outcome from this employment training program was a full time job placement rate of nearly 60%. The best practices adapted from this model include a comprehensive career and skills assessment of student applicants; matching of the student to an appropriate training program based on the outcome of assessments; provision of student support services in pathway planning and development of an internship placement with industry; and, industry relations.

A model for developmental education redesign is the National Center for Academic Transformation “Increasing Student Success: Redesigning Mathematics” project. NCAT’s work has demonstrated that, “students learn math by doing math, not by listening to someone talk about doing math.” The best practices adapted from NCAT’s Emporium model include using interactive computer software combined with personalized, on-demand assistance and mandatory student participation in self-paced mathematics instruction. An additional strategy for redesign of English and reading into *Semester Express*, 8 week mini semesters of pre-college level classes intended to accelerate the student through the subject matter, is based upon the Literacy Information and Communication System “Assessment Strategies and Reading Profiles.” Research indicates that most developmental difficulties in reading and English are rooted in spelling and word recognition. The best practices adapted from LINCS include reading comprehension strategies with spelling word segmentation/chunking practices, vocabulary word exercises employing word sounds and definitions, word analysis, silent reading and engagement of visual memory. These exercises will be further accelerated through the introduction of tablet computers with interactive technology for visual, written and phonetic work.

According to studies at Oklahoma State University regarding modern adult learning, adults valued learning in “blended learning environments”, that is a combination of Web-based and face-to-face instruction. Adding to that is a demand for customization and multiple options so, as Ausburn (2004) stated, “successful implementation of customized course and materials design can be accomplished by a combination of the flexibility of object-based instructional design with reusable learning objects (RLOs) and new systems of digital asset management.”<sup>8</sup> Taking these RLOs and digital asset management and using them with mobile computing technology inside and well beyond the confines of a classroom will allow our students the freedom to learn where they choose and on their own schedules. This has been highly successful at Abilene Christian University in Texas. With mobiles they can, for example, study the processes of the lab, review and take notes on what they learn, visualize it in 3D, see the reactions taking place- and then test their understanding. The mobiles will also allow students to receive textbooks digitally and at substantially reduced costs (sustainability), simultaneously allowing them to review, summarize and take notes. With digital content, students will be more likely to engage in self-directed learning, interactive experiences and multi-modal immersive activities, the exploration that deepens understanding that can also accelerate learning and achievement.

Another 3D experience for the students is simulation. Simulation experiences will be achieved in laboratories with the same equipment as found in the industrial workplace. Just as Morris Keeton of the Council for Adult and Experiential Learning highlights in the eight principles to achieve effectiveness and efficiency in learning, actually doing the work gets students engaged. Through learning how to safely navigate the technological processes and controls, calculate the programmable networks and successfully generate outputs, students receive a genuine experience and become valuable, productive employees.

---

<sup>8</sup> Ausburn 2004

**This project will address the priorities** of 1. Accelerate Progress for Low-Skilled and Other Workers; 2. Improve Retention and Achievement Rates to Reduce Time to Completion; 3. Build Programs That Meet Industry Needs, Including Developing Career Pathways, 4. Strengthen Online and Technology-Enabled Learning. In addressing these priorities, all of the identified gaps will be effectively addressed as well.

**This project will meet the needs of both the targeted population and employers in each community.** The targeted population will have access to a training program that provides a credential plus work experience vital to obtaining a job in the current market. It will meet the employer's needs through the careful matching of student's skills and interests prior to the internship placement, thereby increasing the likelihood for productivity, efficiency and meeting deliverables as well as reducing the time and expense of interviewing and training new staff.

As a result of input from employers, the Alliance designed a three track training system to optimize opportunities for retention and completion for students as well as to produce highly qualified employees for industries. The completers of this program will receive a **certificate, diploma or Associate degree** plus a Career Readiness Certificate **credential**. They will also have an opportunity to receive a professional **credential** such as the National Institute of Metalworking Skills, Fanuc Certification in Robotics, AWS in welding or ETAI in electronics.

The **technical feasibility of the design, technologies and delivery methods for the online and technology-enabled teaching and learning strategies** employed in this project is sound as the mobile tablets and podcasting hardware and peripherals are all Apple products and Shareable Content Object Reference Model (SCORM) compliant. iTunes U, home to more than 350,000 free lectures, videos, books, and podcasts from learning institutions all over the world, will house the course modules, materials, self-help videos and other digital content for the

Alliance that will be free, available to the public and sustaining beyond the funding period. As Apple notes, iTunes U is an easy way to get content into the hands of students as it can be downloaded to any Mac, PC, iPad, iPod touch, or iPhone.

### **Project work plan**

**Project Management:** Dr. Charles Chrestman, President of RCC, will be responsible for the vision, mission and overall project management. Dr. Chrestman and the College's governing board members are fully supportive of the proposed activities and objectives in the Project Management Plan. RCC is the consortium's lead institution, and along with the other nine member institutions, make up the consortium affiliates. Contract agreements between each institution and RCC will be established upon award and renewed annually as part of the Alliance proposal process. The Alliance structure will allow each partner to play a role in management of the project.

**Project Manager:** The Project Manager (TBA) will be responsible for the day-to-day operations of the project, will report to the Vice President of Instruction and Support Services, will commit 100% time to the project, and will be selected within the first two months of the notice of grant award, contingent upon the approval of the U.S. Department of Labor. The Project Manager must have a minimum of a Master's degree in a business or education administration discipline with experience in project management. The Project Manager will be housed at RCC; will be responsible for supervision of RCC's project personnel, scheduling meetings of the consortium, working with external partners, managing the budget, reporting and institutionalization. The Project Manager will manage the independent facets of the project through an Alliance implementation committee; comprised of the College's President, Vice President of Instruction



and Support Services, Assistant Vice President of Public Services & Applied Technology Programs and the Chair of Industrial Programs.

The Alliance will **utilize the expertise and resources** of content experts in advanced manufacturing and industrialists to inform the development of curriculum and to provide professional development for the certification of new faculty for professional credentialing. Multimedia design specialists, videographers, digital content specialists and media integration professionals will be utilized to aid in the development of podcasts, multimedia and digital content for dissemination in the online repository. A professional evaluator will be retained for careful project review and redesign as necessary. Resources leveraged include the AB-Tech Global Institute for Sustainability Technologies, a multiple professionally certified instructor at Beaufort County Community College, the Institute of Aeronautical Technology at Craven Community College, the NSF, Duke Energy and TRIO grants along with the lab of Davidson County Community College, CIM lab and expertise of Workforce Development staff at Edgecombe Community College, the Advanced Visualization & Interactive Design Center as well as Podcasting capabilities and experience of Fayetteville Tech, the Advanced Machining Center of Haywood Community College, the Fanuc Certified Education Robot Training Program at Nash Community College, the flexible mechatronics lab and multiple grants of Robeson Community College, and, the Workforce Development Center of Surry Community College.

Each Alliance member will be responsible for **other project personnel** hired at its respective location. Each participating institution will hire a Project Coordinator to implement and manage proposed activities at their location.

**Project Coordinator Responsibilities:** The site Project Coordinator will direct day-to-day program administration, including reporting, supervising personnel and budgetary issues. The

position will support the project manager through the collection of data and maintaining comprehensive grant files including time and effort documentation, financial reports and project activities. The Coordinator will work closely with the Instructional Designers and faculty in the development of curriculum content for online and hybrid courses. The site Coordinator will report to the appropriate Vice President at the respective institution. *Qualifications:* The Project Coordinator must have a minimum of a Bachelor's level degree; Master's preferred in a business or higher education field with experience in higher education and/or workforce development.

**Success Manager Responsibilities:** The Success Manager will work with the project coordinator in identifying and screening qualified students for placement; assisting students in developing their Individual Guidance Plan, facilitating student internship placements among industries in the area, instructing and supervising students in those placements and conducting evaluations. The Success Manager will also conduct on-site employer visits and follow-up to insure employer needs are addressed. *Qualifications:* A minimum of a Bachelor's Degree, Master's Degree preferred in Business Administration.

**Recruiter Responsibilities:** The Recruiter will be hired to assess and recruit dislocated workers and workers threatened by foreign trade for enrollment in the advanced manufacturing training program. This part-time position will be housed at each community college's local employment or JobLink agency. This position will be required for the first two years of the project.

*Qualifications:* A minimum of a Bachelor's degree in Business or Social Science-related area is required. Knowledge of Workforce Investment Act (WIA) policies and case management skills preferred.

**Instructional Designer Responsibilities:** This position will work with project team members and faculty to design instructional material for advanced manufacturing training courses to be

disseminated online via the repository. The Instructional Designer will advise faculty in determining appropriate instructional goals and objectives, design and deliver workshops and seminars and consult with faculty and project staff regarding the integration of curriculum with multimedia educational technology. *Qualifications:* A minimum of a Bachelor's level degree, Master's preferred in a digital content related area. This position will be required for the first two years of the project.

**Grant Accountant Assistant Responsibilities:** The Grant Accountant Assistant will be responsible for organizing, maintaining and protecting fiscal records of the Alliance. The Grant Accountant Assistant will support the Grant Accountant in reviewing invoices for accuracy and compliance, insuring payment, maintaining a database of fiscal report deadlines, preparing data for reports and assisting with annual audit procedures. *Qualifications:* A minimum of an Associate's degree in Accounting, Business Administration or related field, with one year experience in accounts receivable/payables, grant experience preferred.

**RCC has significant experience in successfully administering externally funded projects.** RCC currently manages more than \$5,500,000 in grants and contracts and more than \$9,000,000 in student Pell Grants. What follows are processes planned to monitor the project.

Alliance Implementation Team. Weekly meetings via telephone conference will be held of the Team composed of the staff and appropriate supervising college personnel, becoming bi-monthly when the program is well underway. The Team will be a forum for reporting progress, problem solving, conducting evaluation, and other monitoring/management functions. The Project Manager and site Coordinators will meet (physically and/or virtually) once the program is fully operational.

**Procurement Processes:** NC General Statutes require community colleges to make purchases by or with the approval of the Division of Purchase or the Department of Administration, thus all consortium members utilize the (electronic) E-Procurement System. The state's purchasing program is based on sound competitive purchasing procedures and carefully defines terms, processes and procedures including approvals, delegation of authority, ethics and code of conduct. All procurement for this project will adhere to these established procedures.

**Financial and Reporting Systems/Fiscal Management:** RCC will provide sound overall project and fiscal management based on established policies and principles. The RCC Business Office oversees the administration of purchasing, accounts payable, payroll, fiscal monitoring and reporting compliance including grant funds. Grant funds are also governed by United States Office of Management and Budget Circular A-21.

All community colleges in the state follow a System Accounting Procedures Manual and are audited by the NC Office of the State Auditor to evaluate financial accuracy and compliance; copies are available on Office of the State Auditors website. RCC effects fiscal responsibility by maintaining a **financial management system** that adheres to generally accepted accounting practices, is audited as prescribed by the state and accrediting entities, and provides financial stability necessary to the successful operation of the institution. All consortium members utilize Datatel, a module-based fund accounting system that includes a flexible, user defined chart of accounts, budgeting, grant and project accounting, e-Procurement, asset and property management and analytic and strategic reporting solutions. The system defines business rules, workflows, and establishes a comprehensive audit trail of all transactions, leading to well managed and clean financial audits.

The **roles for the public workforce system and employers in the design and development** of the Alliance project were both broad and deep. NC community colleges work closely with area workforce investment boards through their participation in WIA programs therefore the institutions invited the involvement of the WIBs from each service area immediately. The insights provided by the WIBs regarding their work with dislocated workers and their ability to partner in the data collection as well as their knowledge of services in the community were invaluable in informing the activities of the project. Likewise, each institution's relationship with employers allowed for a mutual exchange of information, rapid dissemination of the employer survey and above average survey participation rate. Employers were quite clear regarding their needs for productivity and efficiency in order to remain competitive in the current economy. They are anxious to begin the program and to have interns placed in their facilities.

The **public workforce system and employers will play significant roles in the implementation** of the project as well. Each consortium has the support and commitment of their respective workforce agencies and JobLink partners to assist in: (1) providing work space for a project recruiter to assist in identifying, assessing and referring individuals to the advanced manufacturing training program; (2) assist in the development of job opportunities and provide job search services for students enrolled in the advanced manufacturing program; (3) assist the program with establishing an outcomes data and tracking system; and, (4) identifying additional community partners and resources in the service area throughout the life of the project. Likewise, employers have agreed to assure alignment of advanced manufacturing curricula to the workplace; to provide appropriate internship placements, giving performance feedback to the Success Manager; and, to hire qualified completers. Throughout the life of the project, additional employers will be recruited to insure adequate internship and job placements.

**Evaluation plan:** Dr. Ottis Murray will lead the evaluation efforts of the project. An Associate Professor in the Sociology Department at UNC Pembroke, Dr. Murray also has experience in workforce development administration and has served as an evaluator for federal programs. Evaluation procedures will be both formative as well as summative. The formative evaluations will occur annually during each academic term and summer term. Dr. Murray will conduct focus groups to better measure the progress of activities. Additionally, Dr. Murray will develop and deliver training sessions for project personnel to provide a clear understanding of the Geographics Solutions™ tracking software that will be purchased and employed in this program. He will also gather relevant data from existing organizational sources; develop surveys and conduct assessments to provide timely feedback to the project.

Dr. Murray will require that each site Coordinator prepare an annual report (due at the end of the grant year) and at the end of the three-year project period. This comprehensive report will detail how the objectives of each activity were accomplished; the validity of the proposed implementation strategies and how successful completion of the grant has affected the areas.

**A list or description of the student services available to the targeted group of TAA eligible online learners:** Online learners will have the convenience of communicating with the project staff online, virtually 24 hours a day, 7 days a week. Online learners will be able to view academic and class schedules and register for classes through communication with the Success Manager and their campus Web portals.

Each **consortium member's role** in the Alliance has been critical in the design and development of the project. A representative from each community college was present at the initial planning meeting held at the NC Community College System office in February 2011 as was a representative of Apple. It was decided that the group would form a consortium and that

community partners would be actively sought starting with long term collaborators, the Workforce Investment Boards and the public school systems. The WIB and JobLink Centers helped to gather employment and service information and provided input on project strategies. Input and information was also sought from the NC Community College System office and local economic development offices.

Outreach to 65 industry employers was beneficial in assessing the training needs, projecting the availability of new and replacement jobs, and securing student internship placements. Employers were excited to learn of the project, readily agreed to participate in the consortium and requested an early start date for the training. Public school partners were also eager to offer information on Career and Technical Education programs and to participate in both planning and implementation of the career pathways component of the project. Community agencies provided data from employment-related social programs and agreed to serve during implementation.

The Alliance is committed to the **sustainability** of the project and to continue the innovative practices that will emerge through strengthened collaborative efforts with all partners. The courses, materials, digital content and videos uploaded to iTunes U will be self-sustaining beyond the funding period, and the technology combined with the expertise in the project may generate additional creation of content and applications beneficial for sustainability. Digital textbooks also create sustainability through the affordability and the use of innovative technology in the project will attract a larger pool of high school students to advanced manufacturing, thereby increasing opportunities for colleges and K-12 institutions to seek funding. Industry partners will experience a return on investment through their time and effort in student apprenticeships and work experiences, therefore committing to additional placements.

### **3. Measurement of Progress and Outcomes**

**Progress and implementation measures:** The Alliance will implement tracking software that will assist in providing comprehensive management of the project through Geographic Solutions. It will implement a reporting system that provides case management, real-time reporting, core services for staff managing individuals and an independent web portal that is available 24/7. Geographic Solutions has worked with other state agencies to provide tracking systems that offers accountability and improves overall performance of client tracking.

Through the use of Geographic Solutions Virtual One Stop™ system, the project staff will have full 24/7 access to registration, entry of case notes, academic progress and creation of management reports to track work experience and employment status. The Virtual One Stop system will provide the means to track performance goals and prepare data for quarterly and annual progress/performance reports. Follow up will be provided for 3 years after the students exit the program to inquire of their recent employment history, career advancement and any additional training or educational opportunities in which they have participated. The follow-up results will be documented and entered into the tracking system.

During the first quarter, the evaluator will provide data collection training for the Project Manager, site coordinators and success managers. In addition, Geographic Solutions will provide extensive training for the implementation of the data tracking system (access restricted). Each participant will be monitored through an Individual Guidance Plan that will outline their educational and career goals, meeting quarterly with their Success Manager for review. The Success Manager will be responsible for uploading data. The comparison cohort will be tracked through the same system as the target population to better define outcomes. The Project Coordinator and Success Manager will document the comparison cohort, working with faculty and counselors to monitor results.



Currently, case management tracking for dislocated workers who receive WIA is monitored through the WorkForce Plus™ system. This system is only available to those receiving WIA.

<b>Activity 1: Accelerate Progress for Low-Skilled and Other Workers</b>
Goal 1: The colleges will offer developmental education redesign including self-paced math and reading for eight week mini sessions.
Goal 2: Offer flexible learning options, giving the student a customizable, on-demand program that meets their unique needs, reducing attrition and increasing completions.

*Progress measures:*

*Participants enrolled in the self-paced math and Semester Express modules, will matriculate to college curriculum courses at a rate of 50% faster than the participants in the comparison cohort.*  
*Participants that are given flexible learning options and can tailor their learning to a most customizable level, will have a significant (75%) completion rate beyond participants in the comparison cohort.*

<b>Activity 2: Improve Retention and Achievement Rates to Reduce Time to Completion</b>
Goal 1: Each college will provide a comprehensive skills assessment at the student’s point of entry, including an interview to ascertain strengths, interests and skills sets not just academic level.
Goal 2: Each campus will employ a Success Manager who guides the student throughout, and will develop an Individual Guidance Plan for academic success.

*Progress measures:*

*By June 30, 2012 85% of participants pursuing an associates-degree track will have successfully completed 45% of their required curriculum.*  
*By June 30, 2012 90% of participants pursuing a certificate credential will have successfully completed their course of study.*  
*By June 30, 2012 85% of students pursuing a diploma will have successfully completed 75% of their course of study.*

<b>Activity 3: Build Programs that Meet Industry Needs</b>
Goal 1: Student internships in industry will be developed, with careful monitoring of the student. Upon the completion of internship and receipt of credential, students will be hired by the employer.
Goal 2: Increase offerings of advanced manufacturing credentials (certifications/licensures).

*Progress measures:*

*By the end of Year 3 70% of participants who have successfully completed the training jobs will have found gain employment.*  
*Industry partners will rate the skills of job internship participants 80% higher than those hires who did not participate in the job training.*

<b>Activity 4: Strengthen Online Technology-Enabled Learning</b>
Goal 1: An online repository via iTunes U sites at 6 Alliance institutions will be created into which courses; digital content, self-help and manufacturing career guidance will be located for students and the public free of charge.
Goal 2: Training modules will be sustainable through the use of online technology.

*Progress measures:*

*By the end of Year 1 each Alliance will have utilized iTunes U for posting digital content a minimum of five times.*

By the end of Year 2 each Alliance will engage students in iTunes U posting for self-help sessions a minimum of 10 times.

**Outcome measures:**

Annual Outcome Measures		
Measure	Target for TAACCCT	Comparison Cohort
<b>Demographics</b>		
<b>Age (26-45)</b>	60%	38%
<b>Gender (female)</b>	69%	72.4%
<b>Ethnicity (Hispanic)</b>	3%	0.5%
<b>Race (White, Non-Hispanic)</b>	59%	57.4%
<b>Disability Status (Handicap)</b>	2%	0.3%
<b>Veteran Status</b>	10%	3%
<b>Degree-seeking Status (full or part-time)</b> Note: Three track program for students, certificate, diploma and Associate Degree. Population numbers separated between programs.	Certificate: 30% Diploma: 55% Associate Degree: 15% (Total=2300)	Certificate: 35% Diploma: 55% Associate Degree: 10% (Total=2214)
<b>Entered Employment Rate</b> (numerator and denominator)	1380/2300 = 60%	1064/2214 = 48%
<b>Employment Retention Rate</b> (numerator and denominator)	1160/1380 = 84%	745/1064=70%
<b>Average Earnings</b> (numerator and denominator)	14,198,000/1160 = \$12,200	8,325,250/745 = \$11,175
<b>Credit Attainment Rate (# of credits/#students)</b> Annual number and percentage of students completing credit hours within first year in the program.	Annual Number: 1150 90%	Annual Number: 1107 87%
<b>Attainment of Industry- Recognized Certificate (less than one year)</b> (numerator and denominator) Annual number and percentage of certificates awarded.	338/690=49% Per Year Certificate	357/775=46% Per Year Certificate
<b>Attainment of Industry- Recognized Certificate (more than one year)</b> (numerator and denominator) Annual number of, and percentage of certificates awarded	602/1265=48% Per Year Diploma	536/1218=44% Per Year Diploma
<b>Attainment of Degree</b> (numerator and denominator) Number and percentage of students who attain a degree, within the program timeline (two years or less).	200/345=58% Total Associate Degree	71/221=32% Total Associate Degree