the engaged university in North Carolina Regions

Extension, Engagement and Economic Development at NC State University
2010
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EXTENSION, ENGAGEMENT AND ECONOMIC DEVELOPMENT

Extension, Engagement, and Economic Development (EEED), Office
http://www.ncsu.edu/extension/

Academy of Faculty Engaged in Extension and Engagement (AOFEE)
http://www.ncsu.edu/extension/awards/aofee.php

Extension, Engagement, and Economic Development Administration Team (EEED EAT)

Extension Operations Council (EOC)
http://www.ncsu.edu/extension/about/ext-ops-council/eoc1.php

University Standing Committee on Extension, Engagement, and Economic Development (USCOEEED)
http://www.provost.ncsu.edu/governance/standing-committees/extension-engagement/2010-2011/
a message from  
the vice chancellor

A core element of engagement is the creation of partnerships within the university and external to the university with communities to address issues and solve local and societal problems. The overused but still true statement that communities have problems and universities have disciplinary departments means that no single university department or program usually has all the resources needed.

We frequently utilize a strategy to create centers, institutes or programs that are comprehensive in nature. An alternative strategy is more ad hoc, using task forces, networked teams of faculty, students and professionals to partner with community organizations and leaders. The best strategy is a transdisciplinary approach that addresses contemporary issues unlikely to be solved by one or even a few points of view. This approach brings together academic experts, field practitioners, community members, research scientists, political and government leaders, non-profit organizations and business and industry leaders, among others, to solve some of the high-priority problems facing the community and world, from local to global.

Both strategies are evident in the stories in this report, as students and faculty engage in diverse projects to improve the social, economic, educational and environmental quality of life from the North Carolina coast to the mountains and locales between.

Partnering with school districts, non-profits, businesses and local government agencies brings these local and university resources together to achieve a mutually desirable goal. This is the definition of engagement.

From impacts such as educational improvement of Science, Technology, Engineering and Math (STEM) teachers and students to recognition of sustainable environmental and business practices, people and places benefit. The Science House, North Carolina Cooperative Extension Service, Industrial Extension Service and SBTDC make this happen statewide. Dozens of North Carolina State University college and departmental programs also contributed to these success stories.

Analyzing the mechanisms of action and communicating the results to a wider audience introduce the scholarship of engagement into the process. On October 4-6, 2010 during the National Outreach Scholarship Conference in Raleigh, more than 50 N.C. State faculty and staff told these stories to colleagues from around the country.

This report also tells these stories, stories of the transformation of communities of place and one community of interest as a result of initiatives communities and the University addressed actively and collaboratively. We show how reciprocal and mutually beneficial partnerships are in the process of transforming each community to achieve local goals. The report highlights leadership development, economic development, educational innovation, improving health and well-being and innovation in energy and environmental issues.

I am delighted to share these community-based stories with the citizens of North Carolina.

James J. Zuiches, Vice Chancellor  
*Extension, Engagement, and Economic Development*
Williamston and North-eastern North Carolina value the assistance of N.C. State University

During 2003, a doctoral student in N.C. State University’s College of Education learned that a large number of Martin County high school students planned on leaving the county once they graduated. So, Debbie Reno worked with local Cooperative Extension faculty and together they explored the environment for young people, determining ways to get them more involved in their communities and to persuade them to stay in Martin County beyond high school.

That effort helped the county identify steps to retain young people, and those efforts ultimately led to Williamston’s designation by Audubon International as one of the nation’s first sustainable communities. Dr. Debbie Reno, that former doctoral student, now coordinates programs for the General Hugh Shelton Leadership Center at N.C. State.

“...Williamston has partnered with N.C. State in a variety of ways to capitalize on its natural and cultural resources to make the community a more inviting place to live, and to bring economic development through tourism. At about the same time as Reno’s study, Williamston partnered with faculty and students from N.C. State’s College of Design to develop a plan for trails that would tie together what was then a relatively new Bob Martin Eastern Agriculture Center, downtown Williamston and the Roanoke River. The city also worked with students and faculty from the university’s College of Natural Resources to conduct a study determining the economic impact of the Agriculture Center.

“...If we come up with a problem or a concept we do not know how to deal with, we just make a call to colleagues at NC State,” said Tom Ward, Sustainability Coordinator for Williamston.

Cooperative Extension Tourism faculty in the College of Natural Resources helped develop the N.C. Birding Trail, which includes sites in Martin County. Among those involved in developing the birding trail were Stacy Tomas of N.C. State and Lena Gallitano, pictured below. Businesses and agencies developed strategies to become “bird-friendly businesses,” and seven Martin County businesses are listed on the birding trail’s website. The county also has a number of attractions listed in the Homemade Homegrown guide, from heritage, Williamston has much to celebrate. It is a unique place filled with residents, businesses and community organizations that care deeply about the place they call home.”
berry farms to walking tours to a paddle trail. *Homemade Homegrown: Art Roads and Farm Trails* is a joint effort by N.C. Cooperative Extension and the N.C. Department of Cultural Resources to help communities showcase their cultural and agricultural resources.

“One thing I have learned is that one set of conditions becomes the impetus for the next change. We are working together (with NC State) to make this a good place to live,” Ward said.

**Regional Economic Development**

Like Williamston, much of northeastern North Carolina has struggled to attract and retain business and industry. The College of Engineering’s Industrial Extension Service has worked with several regional industries, and as a result they have prospered. These businesses are excellent examples of the statewide effort to provide $1 billion in economic impact to the state. With IES’s partnership, 10 local health agencies in the Northeastern Partnership (including Beaufort, Warren, Halifax, Northampton, Hertford, Martin-Tyrell-Washington, Edgecombe, Albemarle Region, Hyde and Dare counties) successfully implemented a Lean project by June 2009. Lean is a quality improvement method, designed to identify and eliminate waste.

“I was sold that Lean was something that could help us be more efficient,” said Roxanne Holloman, Beaufort County health director.

Berry Plastics in Ahoskie also benefitted from IES’s Lean training. The company reported an economic impact of $3.7 million based upon the gains they’ve made through their lean transformation. The company, which manufactures plastics packaging especially for the pharmaceutical industry, scheduled a Lean 100 on-site training program so everyone in the organization could benefit.

Today, Martin County and northeastern North Carolina are looking toward the future, laying the foundation to become even more successful in the emerging bio-based economy. Producers are already growing crops that will be processed into a range of new products – from biofuels to nutraceuticals, foods with human health benefits.

The College of Agriculture and Life Sciences has worked with North Carolina’s Northeast Commission to form a plant biotechnology task force known as North Carolina’s Northeast Alliance for Agricultural Biotechnology. N.C. State is also an active member with East Carolina University and Elizabeth City State University in a working group with local leaders. This group was formed to focus on plant biotechnology research that will benefit Northeastern North Carolina.

This new effort could be centered at the Vernon James Research and Extension Center in Plymouth, and the first step will be to develop a pilot extraction facility at the center. This will be a lab where companies that want to produce and sell a biobased product can come and test the extraction process, and learn how best to process the crop from which they intend to produce their product. Northeast Alliance for Agri-cultural Biotechnology has secured a grant to plan the facility.

At the same time, College of Agriculture and Life Sciences faculty at Vernon James in partnership with community leaders, secured a Golden LEAF grant to develop a B-cert program that certifies farmers to produce biotechnology crops. The North Carolina Biotechnology Center has committed to develop training materials for the program. The availability of this program and farmers who are certified to produce biotech crops will be an incentive for industry to locate to northeastern North Carolina as an ideal location for the production of crops that will feed into the biobased economy.
For many years, Western North Carolina growers lacked access to urban farmers’ markets.

Since 2006, N.C. Cooperative Extension’s Foothills Fresh has helped connect these growers with consumers in the same region.

What started as a four-county program with 30 farms now includes six counties and 55 farms and farmers’ markets. The program provides a brand for farms and their products, farmers’ markets and agritourism sites in Alexander, Burke, Catawba, Cleveland, Gaston and Lincoln counties. The area produces a wide variety of agricultural and value-added products, including wines, ostrich and other meats, as well as fruits and vegetables.

The program’s website — www.foothillsfresh.com – helps consumers in those counties find vendors, commodities or markets within their own county. The website gives Foothills area farmers another presence on the web, and for some, it is their only web presence, said Leigh Guth, Lincoln County Extension agent who has helped oversee the program. In her own county, Guth makes over 700 customer contacts through email, blog, Facebook and Twitter each week during the market season, updating them on what products are available in local markets.

“Vendors at the markets say that people are asking for the products we promote that week,” Guth says. “We are using technology to attract a newer generation of farmers’ market shoppers that we’ve not reached before.”

In addition to serving as a branding initiative, Foothills Fresh has helped educate area growers in a number of areas. A growers’ institute held in Burke County this year was a big success, attracting 60 farmers. In addition, agents in Gaston and Lincoln counties have worked with immigrant Hmong growers, who are now selling Asian vegetables at area farmers’ markets.

Foothills Fresh also produces an annual guide to area farmers’ markets and farms. While visiting a market one morning, Guth saw local grower Bob Avery of Lincoln County offer one of the guides to a customer. “I’ve never given a Foothills Fresh brochure to anybody who wasn’t appreciative,” Avery said. “I’ve certainly gotten customer calls because of it.”

While growers are very happy what Cooperative Extension has done with Foothills Fresh, Guth says it’s important to keep the project moving forward. “Extension needs to be there to show farmers the possibilities and to develop a vision for the next few years,” she says.

Climate Research & Extension

In Asheville, North Carolina State University is playing a lead role in a new climate research partnership with the National Oceanic and Atmospheric Administration (NOAA), the University of Maryland and a number of other institutions. A new climate center there is bringing jobs, research dollars and attention to Western North Carolina.

The new Cooperative Institute for Climate and Satellites (CICS) has sites in Asheville, NC, and College Park, Maryland. The North Carolina site (CICS-
NC) will create more than 20 new jobs in Asheville by the end of 2010. More than $7 million has already been awarded to N.C. State for CICS-related activities, and the potential funding from NOAA could total more than $30 million over the next four years.

CICS-NC focuses its efforts on collaborative research into the use of satellite and in situ observations in climate research and applications. It also serves as a training ground for the next generation of the workforce. The institute is administered by N.C. State and includes as partners all campuses of the University of North Carolina system, as well as the CICS partners with specific expertise in the challenges of utilizing satellite observations in climate research and applications.

“This is an excellent step towards observing and documenting climate impacts on national and regional scales and a wonderful partnership between government and academia that will be a major player in climate research,” says Otis Brown, Director of CICS-NC.

The work of CICS-NC and its partners made headlines last February when the U.S. Department of Commerce officially announced the intent to establish the NOAA Climate Service, which will study the causes and impacts of climate change in much the same way the National Weather Center studies weather. It was also announced at that time that CICS-NC and its neighbor and partner in Asheville, the National Climatic Data Center, will be expanding.

The CICS Consortium will be led by scientists from the University of Maryland and N.C. State and will include researchers from Princeton University, Howard University, the University of California Irvine, Columbia University, the City University of New York, University of Miami, Colorado State University, Duke University, University of North Carolina at Chapel Hill, Oregon State University, Remote Sensing Systems, the Renaissance Computing Institute of the North Carolina University System and the Department of Energy’s Oak Ridge National Laboratory.

Additional capability for public and community outreach and engagement will be provided to the institute by partnerships with Climate Central in Princeton, the North Carolina Arboretum and the Centers for Environmental and Climatic Interaction (CECI), a non-profit corporation representing Asheville community interests and organizations related to climate impacts on the environment.

“This NOAA Cooperative Institute represents many years of community and UNC collaboration toward supporting NCDC and NOAA, and building capacity behind Asheville and North Carolina as a leading national center for climate change information and related business development,” said George Briggs, President of CECI and Executive Director of the North Carolina Arboretum.
New consumer interest in local foods — including local seafood -- has proven to be a good thing for North Carolina’s coastal communities, and North Carolina Sea Grant, based at N.C. State University, is working with communities, businesses and individuals to focus attention on the importance of seasonal fisheries from Currituck to Calabash.

North Carolina fishermen catch and sell crab, shrimp, shellfish and a variety of finfish from our ocean and estuarine waters. But long before oil began gushing into the Gulf of Mexico, and even before the crush of imported seafood hit U.S. markets, N.C. Sea Grant was helping local fishermen to promote and brand their products.

Recent efforts include the Outer Banks Catch marketing and education program launched in Summer 2010, the fourth community-based educational and marketing program focusing on seafood from a particular North Carolina county or region. “The Outer Banks Catch project builds on two of our coast’s strongest economic drivers: the commercial seafood industry and tourism,” says Dan Gerlach, president of Golden LEAF Foundation, which provided the community program with a $150,000 grant through its Local Foods Initiative.

The new Outer Banks effort — serving Dare, Hyde, Currituck and Tyrrell counties — evolved out of a Dare County project that has spread to the northern coastal region. Organizers drew heavily on the success of Carteret Catch, Brunswick Catch and Ocracoke Fresh, all of which bring together varied aspects of the fishing community with seafood processors and dealers, local restaurants and business leaders, and the public.

“Carteret Catch has certainly helped me promote the availability of local seafood. My customers have been more inclined to try other local products when their favorite seafood is out of season. The brand has given my business a unique image -- one that makes an effort to sell local when it is available. My customers really appreciate that,” said Bill Rice of Fishtowne Center in Beaufort.

Sea Grant extension staff continue to provide professional guidance to all four community programs — each of which uses Sea Grant’s statewide outreach products such as Local Catch wallet cards, North Carolina Seafood Availability charts and the Quality Counts poster guide to selecting seafood. The programs also use recipes and information from Sea Grant’s seafood resource book, Mariner’s Menu: 30 Years of Fresh Seafood Ideas, and link to the blog at marinersmenu.org. The blog is a project of the N.C. State University Seafood Laboratory and the Core Sound Waterfowl Museum, with funding from the N.C. Fishery Resource Grant Program (FRG) administered by Sea Grant.

Other Fishery Resource Grant projects developed the business model for Community Supported Fisheries (CSF) programs, now creating new income streams for fishing families in North Carolina, Maine, Massachusetts, Alaska, Virginia and South Carolina. Students at Duke University started Walking Fish, a variation on the CSF model, in 2009. Core Sound Seafood started making deliveries from Down East Carteret County to the Chapel Hill/Carrboro area in 2010. The CSF concept has received national media attention, has been featured in Sea
Grant’s *Coastwatch* magazine, and has inspired postings on the popular *Chowhound* website from folks eager to have a CSF in Raleigh.

Working with the Carteret Catch partners, Sea Grant was a critical factor in bringing a focus on local seafood back to the annual North Carolina Seafood Festival in Morehead City. Now standing-room only crowds fill the “Cooking with the Chefs” tent each year — helping the event to earn international honors. All four of the community-based catch programs will have chefs featured in 2010.

**Riverworks at Sturgeon City**

N.C. State and its partners in Riverworks at Sturgeon City were recognized with a Regional Engagement Award at the 2010 National Outreach Scholarship Conference. Riverworks at Sturgeon City is a unique program delivering community recreational and educational engagement that evolved from a city-community-university partnership. The project started with plans to restore the degraded ecosystem of Wilson Bay, on the New River near Jacksonville. N.C. State has helped turn a potential environmental problem into a thriving community resource.

A novel city-community-university partnership evolved that led to the creation of Sturgeon City, a 26-acre community greenspace, site of a summer leadership program for high school students, the Sturgeon City Institutes and now a nonprofit that is driving efforts to fund and build Riverworks at Sturgeon City, a civic and environmental education center. Programs of Riverworks at Sturgeon City now serve more than 4,000 visitors annually and have created the civic pride envisioned at its inception.

Wilson Bay was historically a recreational water resource for the residents of the area. But the bay and the New River became degraded, so the bay was closed to recreational use. Jacksonville’s Economic Development Coordinator and N.C. State alumnus Dr. Walter Timm described problems with the bay, the treatment plants and the dire economic conditions of the adjacent business district to N.C. State’s Dr. Jay Levine, College of Veterinary Medicine. Working together, N.C. State and the city acquired funding to restore wetlands and river habitat, reduce stormwater input and use the natural filtration capabilities of bivalves to “kick-start” recovery of the bay’s ecosystem.

The concrete wastewater treatment tanks and other structures were targeted for demolition, and the city had discussed using the site to house a vehicle maintenance facility. But Levine urged Timm and city leaders to consider using the site for civic, educational and recreational purposes. The site would serve as a celebration of the river as a natural resource and as a seedbed for urban renewal.

N.C. State’s School of Design organized student and faculty charrettes – planning sessions -- and a semester “studio,” and challenged students to develop alternative visions for the site, which were presented to the city council and public.

City Manager Jerry Bitner, coined the name “Sturgeon City,” after a prehistoric fish native to the New River, and the city set aside $4 million to support development of the site and a planned educational complex named Riverworks.

N.C. State University has a continuing commitment to the community through service on the Sturgeon City board, assisting with fund-raising and partnerships with many others in program delivery.
With Fort Bragg expecting to grow by tens of thousands soon, N.C. State University is helping to prepare the workforce of the future.

The anticipated mission growth at Fort Bragg and in the surrounding region projects an additional 40,000 new residents and as many as 20,000 new job opportunities. Such rapid growth will challenge the communities in this 11-county, 73-municipality region, but it also presents clear opportunities for a transformation of the regional economy.

In a spirit of engagement, N.C. State’s Office of Extension, Engagement, and Economic Development met with the Base Realignment and Closure (BRAC) Task Force and jointly decided to form the NCSU/BRAC Task Force. The goal was to help connect higher education resources to various BRAC constituencies and to promote strategic partnerships. Co-chaired by Alice Warren, Director of the McKimmon Center for Extension & Continuing Education, and Tom White, Director of N.C. State’s Economic Development Partnership, this task force conducts bi-monthly meetings that feature presentations by organizational and institutional partners to identify programs and projects of mutual interest.

The N.C. State Kenan Fellows Program is one example. The program offers competitive two-year fellowships to K-12 public school teachers teaching science, technology, engineering and mathematics (STEM). The Economic Development Partnership connected Dr. Jane Smith of the BRAC Regional Task Force (RTF) with Dr. Valerie Brown-Schild and Dr. Susan Parry of the Kenan Fellows Program, who combined their talents and worked through the NCSU/BRAC Task Force to secure a $1.5 million National Science Foundation Noyce II grant to underwrite the cost of 18 Kenan Fellows in the BRAC Region.

With 12 Fellows already recruited and on board, Jennifer Annetta, Kenan Fellow Regional Coordinator, emphasized that the Kenan Fellows learn STEM concepts and delivery by hands-on experiences in the laboratory. Fellows connect with mentors from academia, business and government, enabling them to create relevant curricula for teachers to take back to their classrooms, while creating a network for teachers to share feedback and best practices with one another.

Kenan’s Brown-Schild sees the program as “a fabulous opportunity to build effective collaborative partnerships between education and business that will serve as a strong foundation for vibrant economic development in the years ahead.” Smith of the BRAC RTF shares Brown-Schild’s enthusiasm with the synergy that has been created. “As teacher leaders, these Fellows will influence the practice of STEM teaching with the infusion of locally grown research and industry connections. Building knowledge and awareness of STEM in the region will create a pathway to future careers and open doors of opportunity,” said Smith.

Brigadier General (Ret.) Paul Dordal, former Executive Director of the BRAC RTF, is highly complementary of the
impact that the higher education/defense military partnership has yielded as a result of the NCSU/BRAC Task Force efforts: “N.C. State is fully engaged and highly energized by the multiplicity of exciting opportunities that BRAC brings to our region.”

General Dordal, who now heads the Public Private Partners for Innovation (P3I) organization in Fayetteville, has on numerous occasions cited the symbiotic relationship that has been forged with N.C. State as a partner on economic transformation projects and programs. The BRAC Task Force has also interacted extensively with the N.C. Defense Business Association (NCDBA) and its Executive Director Joy Thrash. The partnership has enabled identification of key partners at both the state and regional level to promote the region as fertile ground for military, defense and homeland security, as well as new and expanding industry investment and job creation.

“North Carolina is third in the nation in terms of military presence, but we are 26th in the rankings for Department of Defense (DOD) dollars coming to North Carolina,” Thrash said. Her trade organization, consisting of about 250 contractors, businesses, municipalities and chambers of commerce, wants to increase the number of North Carolina businesses getting defense contracts in the BRAC region.

That’s where N.C. State is adding value and creating mutually beneficial partnerships. The Economic Development Partnership program is matching potential contractors with university programs that could help them produce winning bids. “We value collaboration at N.C. State,” White said. “We have the Industrial Extension Service, N.C. Cooperative Extension Service, and the Biomanufacturing Training and Education Center. We want to work in tandem with the BRAC communities to achieve mutually beneficial goals and objectives.” Thrash is impressed with N.C. State’s efforts so far. “Based on what I’ve seen,” she said, “N.C. State is doing a great job in trying to get the word out.”

Fayetteville State University, the N.C. Military Foundation, the N.C. Military Business Center, the Fayetteville Chamber of Commerce, the N.C. Southeast Commission and Fayetteville Technical Community College are a few of the many partners who have collaborated in making presentations and are continuing to find collaborative initiatives that benefit the people who live and work in the BRAC Task Force area.
N.C. State is partnering with businesses and individuals in an economically hard-hit area of the state.

The Hickory region has been hard hit in recent years with major job losses in the furniture and textiles industries and also in the high-tech area of fiber optics. With the beleaguered communities in the four-county region of Catawba, Alexander, Caldwell and Burke counties asking for more engagement from UNC’s campuses to help them with their education needs and jobs training, the Greater Hickory Partnership was formed in 2009. Most recently, it was renamed the Partnership for Innovation and Education.

Appalachian State University leads the partnership, along with three regional community colleges, and N.C. State University is also playing a major collaborative role. Indeed, even before the partnership was founded, N.C. State had a major presence in the region through its county Cooperative Extension offices, the Industrial Extension Service office at Catawba Valley Community College, the Science House outpost in Lenoir and numerous programs by individual N.C. State colleges such as the College of Design and the College of Textiles.

The N.C. Cooperative Extension offices in Burke County help a lot of people in the area, including many who have moved to Western North Carolina recently. Lenoir resident Patrick Stevens is typical. Though he held a management job with a local manufacturing company, Stevens came to the Extension offices because he wanted to develop a sideline job that might become full-time when he retired. Extension agents directed him to N.C. A&T University in Greensboro where he took a workshop in growing Shiitake mushrooms, a flavorful and healthful mushroom that is growing in popularity.

“When he lost his management job, his part-time job became his full-time job, and the techniques he learned enabled him to step right into full-time production.”

“His mushrooms are in a picturesque location,” said Donna Teasley, consumer horticulture agent for N.C. Cooperative Extension Service in Burke County. “He has a picnic area and he invites the public to come in and picnic and take tours. He has built up a lot of local customers that way.”

Stevens keeps in contact with the Extension office during the year, attending classes in horticulture. That way he receives mushroom spawn for free.

“If it wasn’t for the support I get from the Cooperative Extension office, I couldn’t continue in my business,” says Stevens. “And the extension people helped me to expand into produce. They had some fantastic seminars and a symposium with agriculture agents from four or five counties who gave presentations and provided literature. I based all my planting on their tables. Their help has been almost immeasurable.”

The Science House, College of Physical and Mathematical Sciences, is N.C. State’s statewide outreach program in math and science. Its mission is to partner with K-12 teachers and students to promote hands-on inquiry-based learning methods in science and math. Staff members work out of six offices across the state, reaching about 4,400 teachers and more than 27,000 students last year.
The Science House satellite office in Lenoir works with nine school systems in seven counties to train teachers in the use of hands-on technology that excites students. When teachers are trained, they can borrow equipment such as LabQuest, a hand-held electronic data-collection unit. In the field, students can get immediate feedback from the unit and watch data graphs being created on the screen. Students are learning how to use the equipment to test water quality in area streams.

The Science House in Lenoir has been training teachers in modeling techniques, a teaching approach in which students can create their own models. “The method is really growing,” said Regina Barrier, a regional director of the outreach program in the College of Physical and Mathematical Sciences. “Students are using models of the scientific process which ensures that they understand the scientific concept. The students are actively engaged in creating their own models.”

One of the 44 teachers who learned the model-centered inquiry approach at The Science House is Freda Parker. She teaches physical science at the Caldwell Career Center and Middle College, located on the Campus of Caldwell Community College and Technical Institute.

“The approach I learned at Science House has helped me tremendously,” said Parker. “I can find a new way of putting everything into a model so that students can use it instead of just memorizing things. I had always used hands-on activities in my classroom, but now I use them even more. Everything links together from beginning to end. Plus, you get a coach that helps you throughout the year, which is a tremendous help.”

N.C. State’s Industrial Extension Service (IES), College of Engineering, maintains a regional office at the Catawba Valley Community College that reaches out to manufacturers and other industries with top-rated workshops and classes. One of the improvement programs offered by IES is the training and application to the standards contained within the ISO Quality Management System. These internationally recognized standards provide customers with confidence that the company is following the steps to exacting quality standards. IES also offers Six-Sigma training to help businesses produce near-zero defects in their products and “Lean principles” to produce high-quality goods and services.

Over the past three years, IES agent Barbara Williams helped Polychem Alloy of Lenoir to achieve ISO 9001 certification. IES also trained this plastics manufacturer in a “Growth through Innovations” process that helps employees think out of the box to grow sales by developing new products, new markets and new customers.

“That was a very helpful process for us,” said Heather Justice of PolyChem Alloy. “Instead of just standard brainstorming sessions, it provides us with a map so we can use a different way of thinking about new ideas.

“We had tremendous support from the Industrial Extension Service, particularly from Barbara Williams,” Justice added. “ISO gave us the ability to have all of our employees thinking about quality in the same way so we’re all on the same page and have the same goals. And we’ve seen some positive benefits from customers to our ISO certification.”

Attracting the next generation of engineers requires an exposure to career possibilities by providing hands-on activities. In 2010, the N.C. State College of Engineering, in partnership with Appalachian State and the Catawba Champions of Education, hosted the first future engineers day camp for 40 rising third to fifth graders in Catawba County.
Rocky Mount – striving to enhance educational opportunities for citizens – has found help through N.C. State and other higher education partners.

Rocky Mount – which straddles Edgecombe and Nash counties in northeastern North Carolina – has struggled to keep its youth interested in education, to provide adequate health care for citizens, to retain its public school teachers and to stimulate economic development.

Historically, public schools in Northeastern North Carolina have lacked access to many of the resources that urban school systems take for granted. The absence of strong enrichment opportunities in science and math has far-reaching implications. Not having an educated, healthy workforce has also impacted the economic future of this region.

The Gateway Technology Center (GTC), located in Rocky Mount on the campus of North Carolina Wesleyan College, is a unique venue for educational events, programs and courses.

Currently, two specific units administered by the McKimmon Center for Extension & Continuing Education (MCE&CE) are making an impact in this region. The Collaborative, a working partnership between N.C. State University, Distance Education and Learning Technology Applications (DELTa) at N.C. State and East Carolina University (ECU), offers credit and non-credit educational offerings. The N.C. State/ECU Collaborative at the GTC has served more than 20,500 individuals in a variety of credit and non-credit programs since 2006.

On the credit side, The Collaborative now offers three site-based, face-to-face advanced degree programs, including a master’s degree in school administration, a master’s degree in social work and N.C. TEACH, a program that helps students to become licensed teachers for a North Carolina public or charter school. On the non-credit side, The Collaborative offers many educational workshops and provides facility usage for community non-profits with a role in education or community development.

In addition, Fayetteville State University began offering a master’s degree in business administration at the GTC in 2010.

“I am quite pleased with the opportunities presented to our area young people through the summer camps being presented at the Gateway Technology Center in engineering, math, SPACE, 4-H Biotech, and The Veterinary Camp. I am even more pleased by the response of our area youth in their levels of participation. This collaborative effort by N. C. State, East Carolina University and the Gateway Technology Center is unique and an excellent example of what can be accomplished by working together” said Fred Turnage, chairman of the Upper Coastal Plain Learning Council, another MCE&CE unit in the region.

Ryan Phillips, 13, an eighth grader at Nash Central Middle School, agrees, “Engineering camp was a great way to learn about the world through small scale activities.”

One of the most important areas of outreach for The Collaborative has been in the area of K-12 enrichment programs. The Collaborative has offered a variety of educational enrichment experiences, during the summer and the school year to help bridge the gap between school curricula and advanced learning. These programs now include:

- A Math Enrichment Camp for students, grades 3-5;
- An Engineering Camp for middle grade students;
- A 4-H Biotechnology Camp for elementary and middle grade students;
- A Reading Enrichment Summer Program for K-12 grade students;
- Saturday Program for Academic and Cultural Education (SPACE), a year-long academic support program for middle grade students;
- A Veterinary Camp for middle grade students; and
- The Shelton Challenge, a leadership camp for high school students, scheduled for summer 2011.
studying aerospace engineering in college. “I really like getting to work with other people on problems and collaborating with them to figure them out.”

“This camp experience has made Ryan more eager to go to the N.C. School of Science and Mathematics, and then later to N.C. State,” said Angela Phillips, Ryan’s mother. “He is so excited about becoming an engineer. He learned things at camp he does not learn at his regular school.”

Sufiana Conniver is an eighth grade science teacher at George R. Edwards Middle School in Rocky Mount and 10-year teaching veteran, who became involved in many of the K-12 outreach activities of the GTC. “The impact of the K-12 enrichment programs from the GTC on the area is tremendous! The young people in the area get a chance to experience activities that would not usually be offered here. The SPACE and Engineering Camp experiences are usually available to those who live in more urban areas,” Conniver said.

Upper Coastal Plain Learning Council
The second MCE&CE unit is the Upper Coastal Plain Learning Council, a program that serves five northeastern counties – Edgecombe, Halifax, Nash, Northampton and Wilson counties – working to stimulate greater educational opportunities. The program’s goals include retaining students in K-12 education and encouraging them to pursue education beyond high school, developing and retaining K-12 teachers, stimulating economic growth and seeking support and funding for in-school health care.

The Council includes representatives from N.C. State University, Barton College, East Carolina University, Edgecombe Community College, Elizabeth City State University, Halifax Community College, Nash Community College, North Carolina Central University, North Carolina Wesleyan College, Wilson Community College, the University of North Carolina General Administration, as well as business, industry and governmental leaders who work to address the area’s needs.
NC State University’s departments and faculty reach into almost every community in the state, including the university’s host city, Raleigh, the state’s largest urban area. There have been many opportunities for faculty and students from many schools to help urban Raleigh, both its local government and its citizens.

**Urban Oral Histories**

The Citizens Advisory Council (CAC) of Southeast Raleigh, for instance, had a pressing need for help: the city’s urban growth in the downtown area was pressing into the historically African-American neighborhood, threatening to swamp its identity and history. The CAC wanted help in documenting the unknown stories of their community and the significance of certain places, and to find ways of telling these stories in their physical environment.

Contacting NC State, the CAC was directed to the university’s Downtown Design Studio, in the College of Design. The Design Studio’s mission is to provide students with opportunities to employ urban design solutions to help communities statewide improve their quality of life.

The Design Studio, under the direction of Dr. Celen Pasalar, agreed to help the CAC. They worked with the people to identify residents who could recall historical details. The collaboration between the CAC and the Studio made it easier to hold effective meetings and workshops. The meetings brought up new ideas that were adopted and put into play. Community members recorded oral histories and put up an exhibition of local history. With student and faculty help, they used signage to highlight places of significance within the community. They introduced a heritage walk that enabled residents to learn the background and history of the neighborhood.

“We listen and share,” says Dr. Pasalar about the students’ work with Southeast Raleigh’s CAC. “We don’t just disappear and then reappear with a ‘solution.’ We are partners.”

“We don’t want our neighborhood lost, regardless of the negative factors such as poverty that have affected it over a period of years,” said Lonnette Williams, a resident of South Park. “We want to preserve the good things about it so that people will understand the value of it and try to make sure it doesn’t get wiped out. And that is the key: not only preserve the history but also make people aware of it.”

**Reducing Urban Conflict**

How do you get two sides equally passionate about their points of view to sit down and negotiate? That’s what NC Cooperative Extension, based at NC State University and NC A&T State University, was tasked with recently when Wake County was developing ordinances to protect its water quality from storm-water runoff. After 14 months, the debates over the standards to be used in these ordinances had deadlocked into two opposing camps—development interests and environmental interests. These stakeholders had failed to reach an agreement.

That’s when Brent Henry, Wake County Extension director, was contacted by Britt Stoddard, Wake County’s Water Quality Director. Could Henry recommend someone from the university who was skilled in mediation? Henry recommended Stephen Smutko, an Extension specialist with Agricultural and Resources Economics who was trained in techniques of group problem solv-
Smutko attended several meetings, and then proposed a way to get people to lay their main issues out on the table and discuss them frankly. He got them to work through their issues so that at the end, the group was able to present a stormwater ordinance with the unanimous support of both sides. The planning board and county commissioners adopted the plan.

“Mr. Smutko was very upfront when we started,” says Stoddard. “He said that sometimes you just can’t reach a consensus. But this one turned out great. Without Brent’s and Steve’s help, we wouldn’t have reached agreement on what is an innovative ordinance. It was exactly what we needed at the time we needed it.”

Non-Profit Management

Another collaboration that has borne fruit for Wake County nonprofits was between Wake County Human Services and NC State University. Nonprofit organizations often suffer from ineffective boards that are plagued by poor communication skills. Jessica Katz Jameson of NC State’s Department of Communication had already wanted to work on a project involving board governance when NCSU faculty and Wake County Human Services officials met to discuss how to increase partnerships between them. Jameson’s interests in board governance coincided with the interests of several nonprofits to better their communications. Consequently, four nonprofits—Triangle Radio Reading Service, the Women’s Center, Meals on Wheels and NAMI Wake—joined with NC State to form the Wake County Nonprofit Board Communication and Development Initiative. Its purpose was to develop communication tools for better deliberation, decision-making and relationship-building.

Jameson’s group spent intensive time with the nonprofits for a year and partnered with them on a board communication training program, which was piloted with the Wake County organizations.

“They were easy folks to work with,” says Linda Ornt of the Triangle Radio Reading Service about Jameson’s group. “They came to our board meetings but they were not at all intrusive. They knew how to step back and observe and allow the board to do its thing. Having Jessica to point out our foibles was very valuable to us.”
State of the North Carolina Economy

North Carolina is still reeling from the impact of the economic downturn, but NC State is helping to soften the blow.

NC State University has led efforts to reboot the state’s economy through programs that provide education and training to businessmen and entrepreneurs.

The Small Business and Technology Development Center (SBTDC), administered by NC State, has been singularly successful in helping small and mid-size businesses. Since 1984, the SBTDC has offered counseling and education in all phases of business development and management, and clients consistently outperform their peers in growth and revenue.

The SBTDC was called on to lead the Governor’s Jobs Now initiative BIZ BOOST. Focused on job retention in small to mid-sized businesses, BIZ BOOST was piloted in the Charlotte area—which was especially hard hit by white-collar layoffs in the recession—and has since gone statewide.

“The cost of job retention is far less than the cost of adding new people,” said Scott Daugherty, SBTDC Executive Director. “The emphasis in this program is on higher-end job retention. These are the very people who can contribute the most to a company’s survival.”

In the first six months of 2010, the SBTDC served 820 businesses. Assisted firms reported creating nearly 1,300 jobs, retaining 800 jobs and securing nearly $33 million in capital and $74 million in government contracts. The SBTDC expects to serve 2,000 companies through BIZ BOOST by the year’s end.

In the 11-county Charlotte region, the SBTDC also offered “FastTrac,” an entrepreneurial training program offered in collaboration with the Kauffman Foundation, the Community College Small Business Center Network, SCORE and other agencies. The curriculum offers multiple-hour sessions, a resource guide and solid training to enable participants to prepare business plans.

Suzanne McVeigh of Charlotte started her company Avery Energy after participating in FastTrac. “Having that assistance building our business model, getting focused on the business plan, learning all the things that it takes to make money and get a corporation out the door—these were critical things for a start-up company like mine,” she said.

The Industrial Extension Service (IES) has been serving manufacturers statewide for 55 years with workshops that increase productivity and profitability. In recent years, IES has extended these services to the health care industry, state and local governments and schools. In 2009, IES managed a unique feat, meeting an ambitious goal it had set for itself—a year early! In 2006, IES launched its 1B4NC initiative to create $1 billion of measurable value by the end of 2010. By December 2009, IES had not only reached but exceeded the goal. Surveys by the National Institute of Standards and Technology revealed N.C. businesses valued IES services—workshops, courses, and training programs—at $1.06 billion and attributed the creation of more than 4,500 jobs to IES services.

New jobs and increased profits were recorded in 75 of the state’s 100 counties, and 33 companies had estimated that the IES services were worth $1 million or more—in some cases, much more.

Elastic Therapy Inc., a medical hosiery company in Asheboro, was one of these companies. It reported $2 million worth of productivity increases and reductions in inventory and lead time from services they received from IES.

“The biggest chunk of our savings came from the Lean classes we took,” said Gentry Hinson, product improvement engineer. Lean training reduces wasted time, movement and materials. “Before we took the classes, one group of machines were scattered all over the floor with separate people pulling boxes off the shelves and big backlogs of inventory. We created a cellular process in which product flowed to one location.”

“And through Six-Sigma process implementation, we were able to eliminate two steps out of our manufacturing process,” added product improvement engineer Bryan Trogdon. “We’re seeing right now a 30 percent gain in productivity, an 80 percent reduction in inventory and a 75 percent reduction in lead time.”

NC LIVE Statewide

Students fortunate enough to attend one
of the state’s public universities can avail themselves of the latest computer and telecommunications technology while pursuing their course of study. But what if residents in rural communities could share the same research and reference materials and other electronic information available to university students? What if there were an Internet library accessible to anyone?

That was the vision in 1997 that inspired the formation of NC LIVE, a collaboration of community colleges, universities, and libraries to provide online information sources that can stimulate the minds of North Carolinians and increase economic development. NC State’s D.H. Hill Library provides the physical space for NC Live and serves as its fiscal agent.

Through membership in a local library, anyone can gain computer access to 18,000 full-text scholarly journals, many magazines and newspapers, electronic books, videos, investment data and business information. The collection grows each year, and the library is open seven days a week, 24 hours a day. The program is particularly valuable for job seekers.

“NC LIVE is an invaluable resource to our regional library system because it allows our citizens to access databases and information that would not be possible otherwise,” said Joan Sherif of the Northwestern Regional Library in Elkin. “It is bringing the 21st century to all of North Carolina. The potential is enormous. ... It is a resource that offers worlds of access and information no matter what the interest, education, or financial situation is.”

### 2009
**$42 million**

<table>
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<tr>
<th>College/Division</th>
<th>2009</th>
<th>2009 % of Total</th>
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<tbody>
<tr>
<td>College of Design</td>
<td>29 awards, $969,338.00</td>
<td>23%</td>
</tr>
<tr>
<td>College of Education</td>
<td>3 awards, $570,435.00</td>
<td>15%</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>31 awards, $4,304,547.00</td>
<td>14%</td>
</tr>
<tr>
<td>College of Humanities and Social Sciences</td>
<td>4 awards, $60,000.00</td>
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<tr>
<td>College of Natural Resources</td>
<td>32 awards, $630,783.00</td>
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<tr>
<td>College of Physical and Mathematical Sciences</td>
<td>10 awards, $434,355.00</td>
<td>3%</td>
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<tr>
<td>College of Veterinary Medicine</td>
<td>7 awards, $113,500.00</td>
<td>1%</td>
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<tr>
<td>College of Textiles</td>
<td>10 awards, $50,000.00</td>
<td>1%</td>
</tr>
<tr>
<td>Extension and Engagement Center for Urban Affairs/McKennis</td>
<td>10 awards, $996,496.00</td>
<td>10%</td>
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<tr>
<td>College of Agriculture and Life Sciences</td>
<td>23 awards, $1,828,738.00</td>
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</tr>
<tr>
<td>Research and Graduate Studies</td>
<td>14 awards, $1,246,820.00</td>
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<tr>
<td>Student Affairs</td>
<td>9 awards, $1,499,934.00</td>
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<tr>
<td>International Affairs</td>
<td>1 award, $29,103.00</td>
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<tr>
<td>Finance and Business</td>
<td>12 awards, $37,847.00</td>
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<tr>
<td>Extension and Engagement</td>
<td>16 awards, $3,746,566.00</td>
<td>90%</td>
</tr>
<tr>
<td>Chancellor (Kenan Institute for Engr., Science, Tech.); 2 awards, $1,499,934.00</td>
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### 2010
**$48 million**

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<th>College/Division</th>
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<tr>
<td>College of Design</td>
<td>33 awards, $1,279,241.00</td>
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<tr>
<td>College of Education</td>
<td>6 awards, $4,12,124.00</td>
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<td>College of Engineering</td>
<td>56 awards, $7,552,325.00</td>
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<td>College of Veterinary Medicine</td>
<td>9 awards, $443,476.00</td>
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<td>College of Textiles</td>
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<tr>
<td>Extension and Engagement</td>
<td>17 awards, $6,941,839.00</td>
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<tr>
<td>College of Agricultural and Life Sciences</td>
<td>16 awards, $1,930,226.00</td>
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<tr>
<td>College of Humanities and Social Sciences</td>
<td>18 awards, $3,136,519.00</td>
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<tr>
<td>College of Physical and Mathematical Sciences</td>
<td>16 awards, $1,119,032.00</td>
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<tr>
<td>Research and Graduate Studies</td>
<td>43 awards, $4,061,863.00</td>
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<tr>
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<td>International Affairs</td>
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<td>Finance and Business</td>
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<td>12 awards, $8,013,107.00</td>
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<td>College of Agriculture and Life Sciences</td>
<td>7 awards, $6,267,864.00</td>
<td>15%</td>
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<td>Chancellor (Kenan Institute for Engr., Science, Tech.); 4 awards, $187,500.00</td>
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## Touching North Carolina

Working with regional partners, North Carolina State University engagement programs touch every part of the state. The numbers below indicate the impact of the university's programs throughout the state in the 2009 fiscal year.

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<tbody>
<tr>
<td>Teachers</td>
<td>808</td>
<td>275</td>
<td>344</td>
<td>937</td>
<td>990</td>
<td>343</td>
<td>733</td>
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<tr>
<td>Students</td>
<td>6,239</td>
<td>1,189</td>
<td>4,080</td>
<td>3,946</td>
<td>7,368</td>
<td>1,125</td>
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<tr>
<td>Manufacturing Extension Partnership</td>
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<tr>
<td>Companies Advised</td>
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<td>Impact on Revenues</td>
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<table>
<thead>
<tr>
<th>Small Business and Technology Development Center (SBTDC)</th>
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<tbody>
<tr>
<td>Companies Advised</td>
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<tr>
<th>North Carolina Cooperative Extension</th>
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<tbody>
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<td>Programs</td>
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<tr>
<td>Participants</td>
</tr>
<tr>
<td>Volunteers</td>
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<tr>
<td>Volunteer Hours</td>
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<td>Value*</td>
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<table>
<thead>
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<th>NCSU Participants</th>
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<td>Degree Students</td>
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<tr>
<td>Employees</td>
</tr>
</tbody>
</table>

*Volunteer hours value is based on $20.25 per hour.

The Science House ([http://www.science-house.org](http://www.science-house.org)) promotes the use of hands-on inquiry-based learning in science and math statewide and annually reaches thousands of teachers and students from six offices across North Carolina.

N.C. Cooperative Extension ([http://www.ces.ncsu.edu](http://www.ces.ncsu.edu)) provides research-based educational information and access to the resources and expertise of N.C. State University and N.C. A&T State University and programs that enhance agricultural, forest and food systems, develop responsible youth, build quality communities and conserve and improve the environment and natural resources.

McKimmon Center for Extension and Continuing Education (MCE&CE) ([http://www.mckimmon.ncsu.edu](http://www.mckimmon.ncsu.edu)) serves as a gateway to the intellectual and technical resources at N.C. State University, offering lifelong non-credit education and meeting facilities.

Centennial Campus In the span of 25 years, N.C. State’s Centennial Campus has developed a reputation as a unique national model, bringing learning, discovery, and engagement together in public/private partnerships to stimulate economic development. With its 18 start-ups in the Technology Incubator, as well as new corporate partners, the campus is home for 1,350 faculty, 3,400 students, and programs from every college. More than 60 corporate and government partners employ over 2,300 workers, and the campus is organized into educational neighborhoods that stimulate creativity and innovation.

The Small Business and Technology Development Center (SBTDC) ([http://www.sbtdc.org](http://www.sbtdc.org)) is a UNC system program managed by N.C. State University with offices on each campus. The SBTDC provides core services to companies, including in-depth management counseling, financing, marketing, human resources, operations, business and strategic planning and feasibility assessment. The SBTDC also helps economic and community development organizations and not-for-profit organizations develop strategies and action plans.

The Industrial Extension Service (IES) ([http://www.ies.ncsu.edu](http://www.ies.ncsu.edu)) and its Manufacturing Extension Partnership (MEP) provide extensive technical assistance, training and services to companies to increase productivity, efficiency, quality and profit.