

Discover Manufacturing

An Education Initiative of the Silver Crescent Foundation



CAMP SUCCESS

Promoting Career Exploration

2010 Executive Summary

Presented by



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Executive Summary

Engineering and manufacturing jobs are crucial to our society in terms of maintaining and enhancing America's competitiveness in today's global economy, but consider these facts:

- Only four percent of US college students today are choosing engineering as their major course of study.
- Nationally, CEOs and economists cite the lack of a highly trained workforce as being one of the biggest challenges facing the world of manufacturing.
- Teachers and parents have not been encouraging young people to pursue careers in manufacturing based on a general misunderstanding of what today's modern manufacturing jobs really entail or that we still have manufacturing operations in the US.

Yet, advanced manufacturing jobs require people proficient in math and science who have good problem solving skills and the ability to design, use, maintain and repair the sophisticated equipment that drives our productive and competitive manufacturing sector.

The Silver Crescent Foundation, a nonprofit organization committed to promote manufacturing vitality and career opportunities in South Carolina, created **Camp Success** in 2006 to encourage career exploration in Science Technology Engineering and Math (STEM) in hopes of filling the future workforce pipeline with the designers, technicians, engineers and manufacturing leaders of tomorrow.



Camp Success is a week-long academic day camp for middle School students designed to create interest in engineering and manufacturing careers. For 3 years (2008, 2009, 2010), the Foundation formed partnerships with several educational institutions and one community development group to host fourteen sessions of **Camp Success** across the state (Aiken, Anderson, Cheraw, Florence, Greenwood, Greenville, Pendleton, and Seneca.) Each partner institution adapted the Foundation's **Camp Success** model

to provide a unique program focus and tap into local industry resources.

The goal of **Camp Success** is to increase the number of young adults who will seek career opportunities in the fields of engineering and technology. These objectives have been established to reach the goal:

- ✓ To challenge preconceptions that young people have about engineering and technology by encouraging new, nontraditional thinking and methods of problem solving;
- ✓ To demonstrate the relationship between academics, engineering, and technology to the world of work with the intent of increasing the number of students who enroll in technology-based programs;
- ✓ To engage students in everyday hands-on exploration in engineering, math, science, and technology using nontraditional learning activities and work place simulations;
- ✓ To be an academic learning camp that is distinguished by its focus on Discovery Workshops utilizing current laboratory techniques and solving problems in the areas of (a) computer science, (b) electrical and computer engineering, (c) mathematics, (d) mechanical engineering, (e) physics, (f) robotics, and (g) automotive engineering.

Some 275 middle school students attended **Camp Success** in 2008, 2009, and 2010. More than \$50,000 per year in financial support from the Foundation was provided to the host institutions, including grants made possible by the U.S. Department of Education and sponsorships provided by BASF Corporation, Inergy Automotive, Packaging Corporation of America and Piedmont Natural Gas.

Highlights of the 2008 Camp Success season:

At the Ruth Patrick Science Education Center at USC-Aiken, campers explored the engineering behind water systems and actually designed a super-efficient residential water filtration system.

The focus was on automotive engineering at Piedmont Technical College in Greenwood, with site visits to the BMW assembly plant and to Hendrix Motorsports Headquarters in Concord, NC.

Camp Success in Anderson took the form of a community service project as campers designed an outdoor maze for a church that wanted to turn an empty lot into a recreational area for the surrounding neighborhood's families.

Tri-County Technical College in Pendleton hosted **Camp Success G.I.R.L.S.** – or Great Imaginations Really Lead to Success! This all-female camp used project-based learning, team building activities and guest speakers to highlight engineering and technology careers.

Campers at Northeastern Technical College in Cheraw spent their week exploring the ways automation and robotics is influencing manufacturing and health sciences.



Highlights of the 2009 Camp Success season:

At the Ruth Patrick Science Education Center at USC-Aiken and at Aiken

Technical College's campus, campers explored the evolution of manufacturing by focusing on several components: an historical overview linking manufacturing to community growth, expanding the knowledge of automation and electronics, envisioning the future of manufacturing and renewing an interest in manufacturing careers. Campers toured Bridgestone-Firestone Tire production facility and Savannah River Nuclear Solutions facility. To enhance the Discovery Workshops, hands-on exploration, and problem solving, LEGO® MINDSTORMS® NXT kit assembly and programming was incorporated.



The focus was on automotive engineering at Piedmont Technical College in Greenwood, with site visits to the BMW assembly plant and to Hendrix Motorsports Headquarters in Concord, NC.

Two sessions were hosted at Florence-Darlington Technical College where campers spent a week at the college's Southeastern Institute of Manufacturing and Technology exploring the ways automation and robotics are influencing manufacturing.

Campers at Greenville Technical College were introduced to Mechatronics while touring the lab at the college's Brashier campus and shown robotics at work at the BMW Manufacturing facility. Discovery Workshops were conducted by Automation Engineering Corporation and Advanced Technology Services.

Highlights of the 2010 Camp Success season:

For 2010, all sessions included a Discovery Workshop with the LEGO® MINDSTORMS® NXT kit assembly and programming. Additionally, a local manufacturing host was enlisted to promote industry support at the three established camp locations (Aiken, Florence, and Greenville).



At the Ruth Patrick Science Education Center at USC-Aiken and at Aiken Technical College's campus, campers explored the evolution of manufacturing by focusing on several components: an historical overview linking manufacturing to community growth, expanding the knowledge of automation and electronics, envisioning the future of manufacturing and renewing an interest in manufacturing careers. Campers toured Bridgestone-Firestone Tire production facility and Savannah River Nuclear Solutions facility. Due to the Manufacturing host, BAE Systems' involvement, Discovery workshops were conducted by Kimberly Clark Corporation, Linde LLC, Automation Engineering Corporation.

Campers at Florence-Darlington Technical College spent the week at the college's Southeastern Institute of Manufacturing and Technology exploring the ways automation and robotics are influencing manufacturing. In addition to Discovery Workshops conducted by Nan Ya Plastics; the Manufacturing host, S & W Manufacturing; Lift Technologies, and Johnson Controls, the campers toured the Honda Manufacturing facility in Timmonsville.

Campers at Greenville Technical College were introduced to Mechatronics while touring the lab at the college's Brashier campus and shown robotics with the LEGO® MINDSTORMS® NXT kit assembly and programming. The manufacturing host, Advanced Technology Services as well as Automation Engineering Corporation conducted Discovery Workshops and facility tours.

The focus was on at risk students as **Camp Success** was included in the curriculum for the summer bridge program at Seneca Middle School. This unique opportunity showed students the benefits of remaining in school through Discovery Workshops and facility tours at Borg Warner, Automation Engineering Corporation and Advanced Technology Services.



Camp Success provides an important extended learning opportunity for students and ties in with the South Carolina Education Economic Development Act (EEDA) and the Personal Pathways to Success™ program. By increasing interest in engineering and technology among middle school students, **Camp Success** can be a vital tool in instilling leadership, problem solving and workforce skills that will prepare them for professional careers that use 21st-century technology to make the world and South Carolina a better place.



With more than 30 years of experience in supporting education, engineering and technology development in South Carolina, the Silver Crescent Foundation works proudly with businesses, community organizations, our state's technical colleges and universities to help young people "Discover Manufacturing." **Camp Success** provided a valuable and exciting academic experience for middle school students giving them the opportunity to discover how engineering and manufacturing create better solutions and products, better societies and a better world.

The Silver Crescent Foundation is grateful to the donors whose contributions and support made **Camp Success** possible, to our partner institutions and to the staff who played instrumental roles in carrying forward this important program.