

Best Practices from the CCTA: Centers Collaborative for Technical Assistance

The National Science Foundation's Advanced Technological Education (NSF ATE) program focuses on the education of technicians for the high-tech fields that drive the nation's economy. The faculty members of community colleges, which are the main source of technician education in the United States, have leadership roles in the initiatives that involve partnerships with industry and other educators. Since 1994, NSF ATE initiatives have developed a wide-range of innovations to better serve students and inform educators.

Five NSF ATE centers formed the Centers Collaborative for Technical Assistance (CCTA) in response to a Department of Labor request to NSF for technical assistance services to recipients of Trade Adjustment Assistance Community College and Career Training grants. The identification and sharing of NSF ATE best practices are among the services CCTA offers.

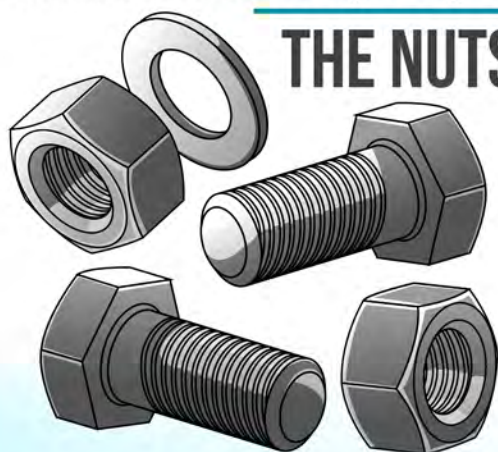
INTERNSHIPS & APPRENTICESHIPS COMPLEMENT ACADEMIC LEARNING

Successful ATE internship and apprenticeship programs utilize strong relationships with employers to provide students with STEM-career-relevant work experiences. These programs share the unifying goal among participating employers of attracting and retaining well-qualified, entry-level STEM technicians.

ATE programs offer models of both types of work-based experiences that expand students' learning and enhance their employability. Both internships and apprenticeships offer employers the opportunity to cultivate their workforces.

Internships are locally defined. They are often managed by college personnel in partnership with employers who provide temporary positions that emphasize on-the-job training that fits students' career goals. The most effective internships pay hourly wages above minimum wage, last several months, and lead to full-time employment upon college graduation. Some provide academic credit for the experiences as well.

Registered Apprenticeships are structured, on-the-job training opportunities managed by employers that follow U.S. Department of Labor requirements. Apprenticeships link academic instruction and vocational training over several years with attainment of specific workplace skills. Apprentices typically work full time and take college courses part time. In addition to paying competitive wages, employers cover apprentices' tuition. Employers also receive financial incentives from the federal government for participating. Individuals who complete apprenticeships attain journeyman status, a portable industry credential that commands higher wages in some employment sectors.



THE NUTS & BOLTS OF DEVELOPING WORK-BASED LEARNING OPPORTUNITIES

- Invest time and effort to nurture relationships with business and industry partners to address the challenge of recruiting and retaining entry-level technicians.
- Encourage employers to take the lead in structuring internship programs and to initiate apprenticeship programs.
- Involve career service counselors and faculty as partners in the planning and execution of programs.
- Establish a fee for industry consortia participation to help with costs and strengthen commitment.
- Hold periodic meetings (i.e. monthly or quarterly) with partners to exchange information, and to keep programs and students on track.
- Establish and execute evaluations for students and employers to complete each semester.
- Improve programs continuously based on changing needs of employers.

“It's all about building long-term relationships with business and industry, who are ultimately going to employ your students.”

RICK ROBERTS
ASSISTANT DIRECTOR, SCATE CENTER

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INDUSTRY CONSORTIUM INTEGRAL TO SCATE INTERNSHIPS

The public-private partnership developed by the South Carolina Advanced Technological Education Center (SCATE) engages multiple employers so that internships are always available to students even though demand may ebb and flow with any particular employer.

The Boeing Company, in partnership with the National Resource Center for Materials Technology Education (MatEdU) at Edmonds Community College, offers an industry-designed educational experiential learning exposure internship for materials science students.

The industry-guided structure for internships led the college to coordinate academic course scheduling so that students are able to take required courses on Mondays, Wednesdays, and Fridays. This enables students to work as paid interns on Tuesdays and Thursdays.

The industry partners agree on the qualifications and screening process for internship applicants, an equal starting pay rate, common work schedules, and the maximum hours an intern can work each week. Faculty design the curricula—for computer technologies, industrial technologies, and engineering technologies—to teach the skills identified by employers. Internship sites are evaluated to ensure the interns work tasks are appropriately challenging and relevant, and that interns are meeting employers' expectations.

Employers have three options for paying interns: direct hire, hiring through a temporary employment agency, or payment of "stipend donations" to the Florence Darlington Technical College Foundation. Foundation personnel screen internship candidates and handle pre-employment processes such as background checks and drug screening in

addition to providing intern compensation. A small differential between fees collected by the foundation and the amount paid to the interns generates revenue to support students and the Industry Consortium.



SMART CENTER ADDS ACADEMIC CREDENTIALS TO APPRENTICESHIPS

The Maritime Technologies Pathway is a highly structured process involving registered apprenticeships for learning in the classroom and on-the-job. It was developed by the Southeast Maritime and Transportation (SMART) Center at Tidewater Community College and its industry and education partners.

In addition to college instruction in math, English, and technical skills, at their workplaces the apprentices learn the practical and theoretical aspects of highly skilled maritime and transportation occupations with direct guidance from journey-level professionals.

The stackable academic certificates that apprentices earn culminate in an associate of applied science degree in maritime technologies and Department of Labor journeyman credentials.

"I was in the Navy for five years as a machinist mate. My next step to be a lead planning position, then maybe production manager, and then so on and so forth; just slowly work my way up in the company. It just goes to show you that in an apprentice program, you can do anything you want to do as long as you have the drive and motivation to do it."

JENNIFER GILBERT
MARITIME APPRENTICE
OCEANEERING INTERNATIONAL, INC.

The Registered Apprenticeship College Consortium is a network of colleges with registered apprenticeship programs. See doleta.gov/oa/racc.cfm

CCTA

CENTERS COLLABORATIVE FOR TECHNICAL ASSISTANCE

The Centers Collaborative for Technical Assistance is led by:

National Center for Convergence Technology (CTC) | South Carolina ATE National Resource Center (SCATE) | Florida Advanced Technological Education Center (FLATE) | Bio-Link National Center (Bio-Link) | Maricopa Advanced Technological Education Center (MATEC)

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