

# Introduction

Advanced Technological Education (ATE) projects focus on particular technical education challenges. These competitive grants from the National Science Foundation (NSF) provide educators with the resources they need to devise, implement, and test their ideas. ATE projects not only address regional or discipline-specific issues but also improve learning in all types of classrooms and increase efficiency in workplaces.

ATE projects transform students and educators as they help prepare exemplary technicians for successful careers. Technicians are essential workers. Their skills, learning capacities, and adaptability to changing technologies affect the viability of individual companies and entire industries. With advanced technologies fueling the global economy and accelerating interactions in the marketplace, U.S. technicians compete with technicians from all over the world.

In the strategic fields that ATE targets, the education of technicians is of vital importance to the nation. The quality of technicians' skills in traditional technical fields, such as manufacturing, agriculture, and transportation, affects when goods get to market and how much they cost. In emerging fields such as biotechnology, nanotechnology, and environmental technology, the availability of skilled technicians influences decisions about where new companies locate and what products they make. The competency of technicians in infrastructure fields such as information technology, cyber security, telecommunications, and civil and construction technology affects the productivity and security of millions of people. With faculty from public community colleges in leadership roles, all ATE grants directly influence activities at the associate degree-granting institutions where the majority of the nation's technicians go for postsecondary education.

ATE projects are just one aspect of the ATE program, which is the largest community college initiative in the NSF's portfolio of educational investments. Since ATE's first program solicitation in 1993, more than 792 ATE projects and centers have been awarded grants by the NSF. The map contained within the back cover shows the geographic spread of the grants.

In addition to the projects, ATE currently supports 33 centers and targeted technician education research. *ATE Centers Impact*, a companion to this publication, details the work of the centers. The publication may be viewed online at [www.atecenters.org](http://www.atecenters.org). In general, national centers focus on comprehensive reforms in particular technological fields. Regional centers focus on a technological field within a specific geographic area. Resource centers provide best practice materials, programming, professional contacts, and other resources for particular fields and, in some instances, across disciplines.

The 84 projects highlighted in *ATE Projects Impact* are a sampling of the initiatives that received NSF support between 2002 and 2007. The following profiles briefly summarize their improvements to technical education programs, enhancements to professional development for educators, or new curricula and educational materials. Detailed information about the projects and contact information for the projects' principal investigators may be obtained from the projects' Web sites. The appendixes list the featured projects' Web sites, summarize their activities, and sort them by state.

The multifaceted approaches of ATE projects, like those of ATE centers, involve industry partnerships and connect educators from various levels in highly collaborative efforts. The synergy of ATE initiatives frequently spark other innovative activities on college campuses and in communities.