

Experiential Learning & Professional Development Opportunities

Student professional associations provide professional development and networking opportunities to students, bridging coursework to practice. Many associations provide experiential learning opportunities like design/build or other student competitions; professional conferences and other networking opportunities, as well as student scholarships and other support. In addition, many institutions either require or strongly encourage work-based learning experiences for their students through internships and/or co-ops. Industry and education institutions can work together to ensure that safety-focused experiences and application of safety skills are an important component of these student development experiences. Examples of relevant transportation engineering experiential learning and professional development sources are provided below:

[Highway Safety Data Fellows Program](#)

The Federal Highway Administration and USDOT Secretary's Safety Data Initiative provide a fellowship program to examine safety among the most vulnerable road users including bicyclists and pedestrians.

[National Association of Women Highway Safety Leaders, Inc. \(NAWHSL\)](#)

NAWHSL provides full-time female college students, interns, or employees with scholarships opportunities to attend the Annual Traffic Safety Leadership Conference.

[Traffic Safety Scholars Program](#)

The Traffic Safety Scholars (TSS) Program provides awards of up to \$1,000 to undergraduate and graduate students to help defray the cost of attending the Lifesavers Conference on Highway Safety Priorities. This conference provides opportunities to learn about highway safety issues from leading experts and network with the largest gathering of highway safety professionals anywhere in the country.

[American Society of Safety Professionals \(ASSP\)](#)

ASSP is a global association of occupational safety professionals that advocates for safer work environments. It supports student chapters and provides scholarships, educational resources, and a student-focused Future Safety Leaders Conference among other professional development and networking opportunities.

[National Highway Institute \(NHI\)](#)

NHI provides trainings and education for highway professionals in order to improve the conditions and safety of roads, highways, and bridges.

[American Traffic Safety Services Association \(ATSSA\)](#)

ATSSA members are focused on making roadways safer. ATSSA members are provided with discounted trainings and event registrations.

[International Municipal Signal Association \(IMSA\)](#)

IMSA provides certification programs for the safe installation, operation and maintenance of public safety systems. Members can access training and certification opportunities, the career center, and an annual conference.

[American Society of Civil Engineers \(ASCE\)](#)

ASCE provides value to civil engineering and civil engineering technology students by expanding their network. Through volunteer opportunities, leadership resources,

mentoring, student chapter meetings, scholarships, contests, and competitions, members meet colleagues who share a commitment to the civil engineering profession.

[Institute of Transportation Engineers \(ITE\)](#)

ITE offers a Student Leadership Summit, student competitions in transportation planning and engineering, and professional development opportunities through student chapters.

[Association of Pedestrian and Bicycle Professionals \(APBP\)](#)

APBP provides full time student members with a passion for bicycle and pedestrian transportation with an APBP mentor program and scholarship opportunities for professional meetings.

[Association of Metropolitan Planning Organizations \(AMPO\)](#)

AMPO provides student members discounted rates to join with an opportunity to attend their annual conference and periodic events.

[National Operations Center of Excellence \(NOCOe\)](#)

The National Operations Center of Excellence hosts an annual Transportation Technology Tournament for students and TRB ePortfolio Contest.

[State Departments of Transportation](#)

DOTs offer internships for both community college, university and graduate students. Internships or co-ops are available in a number of occupations relating to civil engineering. Some DOTs also employ college students to assist in work related to crash system input and analysis.

[Dwight David Eisenhower Transportation Fellowship Program \(DDETFP\)](#)

The DDETFP awards fellowships to students pursuing master's or doctoral degrees in transportation-related disciplines. As a part of the fellowship program, each year fellows participant in the Transportation Research Board (TRB) Annual Meeting.

[Intelligent Transportation Society of America \(ITS America\)](#)

ITS America is the leading ITS professional organization and is dedicated to advancing research and deployment of intelligent transportation technologies. ITS America offers memberships to students through student chapters at institutes of higher education and provides focused learning and networking opportunities for students considering ITS careers.

Innovative Strategies for Integrating Safety Competencies into Varied Programs of Study

A safety career pathway involves attaining specialized safety competencies within various traditional transportation programs of study. In addition to acquiring academic and technical preparedness within a broader field (e.g. Civil Engineering or Construction), students and incumbent workers on a safety career pathway will pursue research, experiential learning, on-the-job training and other work-based or real-world learning experiences focused on transportation safety. Examples of effective safety integration models are listed that provide curricular and co-curricular value to student safety career preparedness:

Co-Curricular

Transportation Agency/University Research Partnerships

Research partnerships between university faculty and state DOTs are proven sources for safety workforce development when they: 1) are implemented over the long-term; and 2) actively involve faculty and both undergraduate and graduate multi-disciplinary students in the implementation of safety research and project development.

On-Campus DOT Design Units

Many campuses partner with transportation agencies to provide on-campus internship experiences to undergraduate students in roadway design or traffic operations projects. These programs provide students with hands-on design experience and exposure to state DOT standards and practices while building a pipeline into transportation engineering careers.

Safety-Focused Work-Based Learning

Particularly in construction programs, many institutions either require or strongly encourage work-based learning experiences, which can be utilized to attain safety-focused experiences and to apply safety skills in the workplace.

Curricular

Engaged Scholarship

Most universities provide mechanisms to incorporate community projects into student coursework, either through senior design, capstone, or service learning courses. Engagement of transportation organizations with universities to provide safety-focused course-based projects can serve as a powerful student exposure and recruitment tool to safety career pathways. Some universities provide opportunities to scale up these types of engaged scholarship opportunities so that one agency partner can provide multiple projects over the course of an academic year.

Safety-Focused Course-Based Learning

Integration of safety topics and experiential learning into the classroom can be accomplished in various ways, including incorporation of safety-focused case studies and lab exercises into required coursework; and implementation of assignments that demonstrate understanding of safety principles and processes, through development of safety plans, safety data analysis assignments, or implementation of accident investigations

or safety audits. Job site visits and field trips have also been identified useful tools for promoting student interest in safety. Students can design their own externship experience.

Competency-Based Curriculum

A curriculum that meets academic and quality standards, designed and organized by competencies required for jobs and cross-walked with industry skill standards and certifications, can be designed for safety. Job profiling and the use of "SMEs" should be considered to meet the competency needs of employers. The proliferation of industry-driven professional safety certifications can be used to facilitate this process. Programs of this kind may award credit for prior learning, allowing incumbent workers to achieve credentials by demonstrating knowledge and skills developed on-the-job.

Asynchronous Learning

Provide education and training for students and incumbent workers at times and locations convenient to students and employers, rather than instructors or institutions. This may include evenings or weekends, blended or "hybrid" delivery models, and delivery at off-campus locations.

Problem-Based Learning

Problem-based learning provides students with opportunities to solve real life problems, often in environments that replicate the workplace (e.g. design within constraints, working on multidisciplinary teams, etc.). Industry engagement with educators to provide real world problem examples and guidance on project constraints enhances student experience.

Work-Based and Experiential Learning

Incorporate opportunities for "learning-by-doing", including internships, co-op work experience, simulations, and team class projects that are assignments from local employers.

