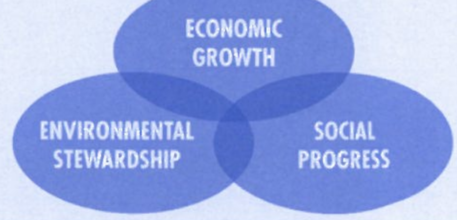
ASCE Sustainability Initiative



Civil engineers are committed to sustainable practice, and ASCE is helping to lead the way.

Professional Certification in Sustainable Engineering

Society needs and demands infrastructure that supports economic, environmental and societal sustainability (the triple bottom line). Moreover, the first Canon of ASCE's Code of Ethics requires that engineers "shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development in the performance of their professional duties."

An authoritative, nationally and internationally recognized professional certification in infrastructure sustainability is needed to assure owners, public officials and the general public of the competence of professionals designing, construction and managing infrastructure projects for sustainability. In addition, such certification protects the registered infrastructure professional from unfair competition from individuals lacking professional registration and competence in sustainability.

Overview and Objectives

The professional engineer (or other licensed infrastructure professional) will be certified as an expert in economic, environmental and societal sustainability.

Competence will be assessed by a written examination comparable to the P.E. examination. Licensed engineers (or other licensed infrastructure professionals) are eligible to sit for the examination. The courses of the ASCE Professional Infrastructure Sustainability Certification Program provide the body of knowledge needed to pass the examination, but are not a prerequisite to sitting for the examination.

Program Courses

These are planned as online courses, up to 18 hours each, with links to self-study resources and with multiple choice examinations. Successful completion of the first course, Fundamentals of Sustainable Engineering, is a prerequisite to enrollment in the subsequent courses.

Fundamentals of Sustainable Engineering: This is a survey of the principles and knowledge base for sustainable infrastructure including earth systems engineering; economic, environmental and societal aspects (triple bottom line) of sustainability; and the role of infrastructure systems. The examination tests understanding of the principles and concepts of sustainability and sustainable infrastructure.

Transformational Project Management: Improving community quality of life; providing training and employment; avoiding resource traps and vulnerabilities; propagating growth and development; minimizing adverse impacts to other communities; leadership and commitment; authorities and responsibilities; implementation mechanisms; NEPA approval; planning; maximizing the opportunities to improve the life-cycle project contribution to sustainability; design strategy; construction management; specifications for operations and maintenance, and configuration of the delivered project; design for disassembly, recycling, re-use and ultimate disposal; stakeholder collaboration and assessment; sustainability predisposition; team chartering; by-product synergies; project team selection and owner-project team collaboration; and health and safety management.

Community Involvement: Protection and enhancement of cultural and heritage features; community consultation; socially-responsible development; equity and fairness; public/stakeholder engagement; minimizing operation and construction-related nuisances - noise and vibration, air and light pollution, and visual impact, including site tidiness; construction transport; improving access for communities; encouraging non-motorized transportation and public transport; improving community live-ability by improving transport infrastructure and minimizing traffic impacts of the project; increased transportation efficiencies; and reducing adverse impacts of workforce travel.

Land Use and Ecological Issues: Limited use of prime farmland; increase of usable agricultural land; preservation and restoration of wetlands; maintenance of and increase in forested lands; protection and enhancement of floodplain functions; protection from desertification; reduction of risk of catastrophic wildfires; selection of brownfields land for development; improving capacity and productivity of the land; soil restoration; preservation of natural landscapes; fit of the development with local character; reduction/elimination of land contamination; impacts on sites of high ecological value; protected species; conservation & enhancement of habitats and species; habitat creation measures; control of invasive species; use of appropriate non-invasive plants; reduced use of pesticides and fertilizers; management of the ecological aspects of the project; planning for long-term monitoring and maintenance.

Water and Air Issues: water availability; water impacts; reduced use of potable water; increasing water efficiency; impacts on water quality and quantity; management of storm water on site including protecting soils; rehabilitation of lost streams, wetlands and shoreline buffers; protection and enhancement of on-site water resources; stack discharges, outdoor and indoor air quality, public and workforce health.

Assessments of Project Life Cycle Impacts: life-cycle economic benefits/costs; social benefits/costs; life-cycle energy and carbon assessments of the project; energy efficiency and conservation; carbon emissions reduction; design for passive heating and cooling; use of renewable energy sources; use of local materials; eco-effective sourcing, not using wood from threatened species; sourcing wood from well-managed sources; minimizing waste to landfill; minimizing off-site disposal by balanced cut and fill; use of existing structures and equipment; by-product synergy; management of construction wastes.

For more information:

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