Civil, Construction, and Environmental Engineering
Collection Development Policy
Iowa State University Library

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I. General Purpose

This policy provides a general and detailed description of the educational and research programs of the department of Civil, Construction, and Environmental Engineering (CCEE) and its affiliated programs. Within this context, the document describes the overall as well as the short and long-term efforts to support the library material and resource needs of the department and its programs.

In general, a systematic effort has been made to acquire major monograph works, core journals, and relevant conference proceedings that support the primary and secondary research needs of the department and its instructional programs. Among the factors that influence the selection of monographic works are their overall relevance to department programs, potential usage, and state, regional, and national availability. Potential usage is informed by a title-by-title systematic review of circulation data for works with previous editions and publications with similar subject coverage. Availability is determined by reviewing the holdings of candidate publications by our state and regional interlibrary loan partners in the OCLC WorldCat database. In addition, ISU interlibrary loan reports are systematically reviewed on a semi-annual basis to identify the current and emerging needs and interests of faculty and staff associated with the department.
A conscious effort has been made to provide access to electronic forms of key indexes and abstracts and core journals relevant to the educational and research foci of the department.

II. Profession

“Civil engineering is a professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally built environment, including works like roads, bridges, canals, dams, and buildings. Civil engineering is the oldest engineering discipline after military engineering, and it was defined to distinguish non-military engineering from military engineering. It is traditionally broken into several sub-disciplines including environmental engineering, geotechnical engineering, geophysics, geodesy, control engineering, structural engineering, transportation engineering, earth science, atmospheric sciences, forensic engineering, municipal or urban engineering, water resources engineering, materials engineering, offshore engineering, quantity surveying, coastal engineering, surveying, and construction engineering. Civil engineering takes place on all levels: in the public sector from municipal through to national governments, and in the private sector from individual homeowners through to international companies.”

Construction engineering involves planning and execution of the designs from transportation, site development, hydraulic, environmental, structural, and geotechnical engineers. As construction firms tend to have higher business risk than other types of civil engineering firms, many construction engineers tend to take on a role that is more business-like in nature: drafting and reviewing contracts, evaluating logistical operations, and closely monitoring prices of necessary supplies.

Environmental engineering deals with the treatment of chemical, biological, and/or thermal waste, the purification of water and air, and the remediation of contaminated sites, due to prior waste disposal or accidental contamination. Among the topics covered by environmental engineering are pollutant transport, water purification, waste water treatment, air pollution, solid waste treatment and hazardous waste management. Environmental engineers can be involved with pollution reduction, green engineering, and industrial ecology. Environmental engineering also deals with the gathering of information on the environmental consequences of proposed actions and the assessment of effects of proposed actions for the purpose of assisting society and policy makers in the decision making process.

Environmental engineering is the contemporary term for sanitary engineering, though sanitary engineering traditionally had not included much of the hazardous waste management and environmental remediation work covered by the term environmental engineering. Some other terms in use are public health engineering and environmental health engineering”


III. Careers

Civil engineering has five specialties:
• Environmental engineers remove contaminants from water, reduce non-hazardous solid waste volumes, eliminate pollutants from the air and develop groundwater supplies.
• Geotechnical engineers develop projects below ground and determine ways to support structures on and in the ground. These engineers perfect mixtures for pavements and other structures by developing methods to stabilize soil conditions.
• Materials engineers develop concrete and pavement systems for construction and soil stabilization methods.
• Structural engineers face the challenge of designing structures that can withstand gusting winds, extreme temperatures, hurricanes, earthquakes, and other natural forces. They design structures for bridges, buildings, airplanes, and more.
• Transportation engineers determine ways to meet the increasing travel needs of people, goods, and materials on land, air, and water.

Environmental Engineers

• Environmental engineers improve water quality, turn wastes to useful products, protect the environment and provide engineering solutions to environmental challenges.
• With the world’s growing population and our limited natural resources, our work is extremely important in ensuring sustainable development of our resources, providing clean water for everyone and protecting our environment from pollution.

Geotechnical and Materials Engineers

• Geotechnical and materials engineers investigate and plan support systems for buildings, bridges, dams, pavements, etc., and plan concrete and asphaltic mixtures for use in construction. Because the ground supports civil engineering projects, almost all require some geotechnical engineering.
• Geotechnical engineers investigate rock and soil at a project site and determine the most efficient way to support the desired structure. They plan and design foundation systems.
• Materials engineers design Portland cement and asphaltic concrete mixes for construction and soil stabilization methods. They also monitor the quality of material mixes used for construction, study concrete deterioration/repair methods and design and analyze pavement systems.
• Geotechnical and materials engineering requires a good background in mathematics, physics, chemistry, engineering mechanics and a strong fundamental knowledge of the behavior of materials subjected to various kinds of forces.

Structural Engineers

Structural engineers ensure that bridges, buildings, and dams withstand natural and man-made forces, such as earthquakes, hurricanes, and the weight of cars. They develop practical, economical, innovative, and safe solutions to these complex issues, using advanced technology
like mathematical modeling and computer simulation to support their design decisions. They also can design airplane structures and more.

**Transportation Engineers**

Transportation is a broad and growing field, giving transportation engineers many options. In the United States, transportation accounts for roughly 16 percent of the gross domestic product and 65 percent of all investments in public infrastructure. Plus, transportation is necessary for most economic and social activities.

Civil engineering graduates pursuing a career in transportation typically do one of the following:

- Support the delivery of transportation infrastructure, operational improvements, and transportation services, conducting special studies and research as a consultant to governmental agencies and the private sector
- Plan, develop, operate, and maintain transportation systems and services as a staff member for a local, state, or regional government
- Administer and consult on transportation programs and services delivered by state and local governments as an employee of a federal agency
- Conduct special studies and provide education and training to students and existing transportation workers as a teacher or researcher at a university or trade organization


**IV. Iowa State University Program**

**A. History**

In 1869, Iowa Agricultural College (now called Iowa State University) begins offering classes in engineering and liberal arts and sciences. Civil engineering starts in 1871 as one of two engineering curricula – the other being mechanical engineering. The first member of the civil engineering staff is George W. Jones, Jr. Classes were first held in Old Main, the original building on campus (no longer exists) that held all classes. Classes in drawing, railways, sanitary (later environmental), and surveying were first offered in the civil engineering curriculum.

In 1872, Iowa State graduates its first class, including three civil engineering graduates: Luther Foster, Henry Page and John Stevens.

In 1883, civil engineering classes moved to Engineering Hall, the site of today’s Marston Hall.

In 1892, Elmina T. Wilson becomes the first woman to receive a Bachelor of civil engineering degree at Iowa State College. Two years later she earns a Master of Science, becoming the first woman to do so at Iowa State College. Soon after, from 1893 to 1904, she serves as the first woman faculty member in civil engineering. Elmina collaborates with Professor Anson Marston
on a water tower project just west of Engineering Hall in 1895. This becomes Marston Water Tower, completed in 1897, and the first elevated steel water tower west of the Mississippi River. The tower serves as Iowa State College’s (University) water supply until 1978. In 2007 Marston Water Tower is named an “American Water Landmark” by the American Water Works Association.

In 1896 Elmina’s sister, Alda Wilson, receives a civil engineering degree. Elmina and Alda pursue advanced education at Cornell University and Massachusetts Institute of Technology, respectively. Elmina becomes involved in the design of Iowa State’s famous Marston Water Tower and some of America’s famous landmarks, including the Flatiron Building in Manhattan, New York.

The civil engineering program attains department status in 1898. Six years later, the first degree specialization was offered – highways (highways meant some transmissible land route by automobile). Instructor Thomas H. McDonald both taught highways and laid the foundations for the Iowa road program. In 1924, the first Master’s degrees in civil engineering are conferred upon two men. The first doctoral degree is conferred in 1927.

The civil engineering program is accredited in 1936 by the Engineers’ Council for Professional Development (ECPD). ECPD is now known as the Accreditation Board for Engineering and Technology (ABET).

Screenings from the Soil Research Lab (1957-1967), a newsletter by Anson Marston Distinguished Professor Richard Handy

Classes moved out of Engineering Hall and in various moves throughout campus until 1971.

In 1971, Engineering Building No. 2 was built to accommodate civil engineering and aerospace engineering instruction and research. In 1973, this building was named Town Engineering Building after George R. Town, dean of the College of Engineering from 1949 to 1970. Town Engineering Building exclusively housed civil and construction engineering curricula starting in 1999, when aerospace engineering and engineering mechanics moved to Howe Hall.

The Department of Civil Engineering was changed to the Department of Civil and Construction Engineering in 1988. On March 12, 2003, the Iowa Board of Regents approved a new department name – Department of Civil, Construction and Environmental Engineering – to reflect environmental emphases in the civil engineering program.

The department offers an international exchange program with University of Edinburgh (Scotland, U.K.) starting in 1998. “It’s getting to be a smaller and smaller world, and international experience will help students be more marketable,” says Anson Marston Distinguished Professor Emeritus F. Wayne Klaiber. In the first year, the civil and construction engineering department invites University of Edinburgh undergraduate students Yosuke Sato and Matt Cunningham.
By 2001, several Town Engineering Building labs are renovated and added thanks to generous alumni and faculty support. Such labs include the Gerald and Audrey Olson Geotechnical Lab, Wallace W. and Julia B. Sanders Structural Engineering Lab, Portland Cement Concrete Pavement Research Lab, Construction Engineering Capstone Classroom (renamed Thomas and Ro Jellinger Lab in 2010) and the Joseph C. and Elizabeth A. Anderlik Environmental Engineering Lab.

Graduate courses begin to be offered online in 2005 through Engineering Distance Education. The ease of online education allows CCEE students to remain at home or near job without necessarily coming to campus.

In 2011, CCEE and other Iowa State engineering departments collaborate on an interdisciplinary, comprehensive curriculum on wind energy, known as the Wind Energy Initiative. Iowa State soon becomes the first U.S. institution to offer a PhD program in wind energy. Iowa State partners with other U.S. universities to offer a wind energy minor. The goal of the Wind Energy Initiative is to set the nation’s achievement of 20 percent energy produced from wind by 2030.

[https://www.ccee.iastate.edu/ccee-department/history/](https://www.ccee.iastate.edu/ccee-department/history/).

An unpublished history of the department by Almon H. Fuller is available: A History of civil engineering at Iowa State College / Almon H. Fuller. Ames, Iowa : s.n. 1959
Available at Parks Library PARKS General Collection (LD2543 F958h )
PARKS Archives (Spec Coll) (LD2543 F958h ).

**B. Department**

In 2011/12, the department awarded the 17th highest number of bachelor’s degrees in the U.S. ([http://www.asee.org/papers-and-publications/publications/11-47.pdf](http://www.asee.org/papers-and-publications/publications/11-47.pdf)). In 2013, it was ranked as 32nd in Civil Engineering (20th among publics) *U.S. News & World Report* ([http://www.news.iastate.edu/news/2013/03/12/gradrankings13](http://www.news.iastate.edu/news/2013/03/12/gradrankings13)).

In Fall 2013, there were 731 undergraduate students enrolled in Civil, Construction, and Environmental Engineering, with an additional 139 full-time graduate students. In 2012/2013 academic year, the department had approximately 28 faculty members, with a total head count of 41

([https://www.ccee.iastate.edu/ccee-department/accreditation/](https://www.ccee.iastate.edu/ccee-department/accreditation/))
([http://www.ir.iastate.edu/DeptData/DDat2012FB.pdf](http://www.ir.iastate.edu/DeptData/DDat2012FB.pdf)).

The civil engineering program and construction engineering program are accredited by the Engineering Accreditation Commission of ABET ([http://www.abet.org](http://www.abet.org))

([https://www.ccee.iastate.edu/ccee-department/accreditation/](https://www.ccee.iastate.edu/ccee-department/accreditation/)).

**C. Facilities**
Teaching and Research Labs

As part of our commitment to hands-on, practical education and research, students and faculty use our many labs to test the strength of bridges and beams, develop new materials, and find out the chemical makeup of by-products.

- Design Classroom - 220 Town Engineering
- Highway Design Classroom - 196 Town Engineering

Computer Labs

- CCEE Jellinger Computer Laboratory
- Computer Laboratories - Town 106, Town 110 and Town 134

Environmental Engineering Labs

- Joseph C. and Elizabeth A. Anderlik Teaching Laboratory - 112 Town
- Environmental Engineering Research Laboratory (EERL) - 123 Town

Geotechnical Engineering Labs

- Mobile Concrete Laboratory
- Geotechnical Mobile Laboratory
- Advanced Asphalt Materials Laboratory - 168 Town
- Gerald and Audrey Olson Soil Mechanics Laboratory - 40 Town
- Materials Analysis and Research Lab (MARL) - 23-68 Town
- Portland Cement Concrete (PCC) Pavement and Materials Research Laboratory - 138 Town
- Spangler Geotechnical Laboratory (Applied Sciences Complex)

Structural Engineering Labs

- Livesay Structural Materials Testing Facility (LSMTF) - 164a Town
- Structural Engineering Research Laboratory-164 Town
- Wallace W. and Julia B. Sanders Structures Laboratory - 130 Town

Transportation Engineering Labs

- Iowa Pavement Management Program (IPMP) Laboratory (CTRE)
- Iowa Traffic Safety Data Service (ITSDS) Laboratory (CTRE)
- Highway Design Classroom - 196 Town Engineering

(http://www.ccee.iastate.edu/research/facilities/).

D. Research
Construction Engineering and Management

Construction engineering faculty and students research an array of construction engineering and management-related topics. Current research projects seek solutions to the three functional areas of construction engineering and management: management techniques, construction operations and construction methods.

- Accelerated construction
- Applications of informatics to construction
- Asset management
- Automation in construction project management
- Building energy management
- Building information modeling for visualization/facility management
- Construction administration improvement
- Construction engineering and project management
- Construction method improvement
- Construction quality management
- Construction visualization
- Cost estimation and cost management
- Data and information integration models for decision making
- Data fusion/data integration for construction management
- Design-build/alternative contracting
- Design-build/alternative contracting
- Infrastructure asset management
- Life cycle cost analysis
- Nighttime work zones
- Pavement preservation project management
- Pavement preservation, project management
- Rapid infrastructure renewal
- Rapid infrastructure renewal
- Rapid infrastructure renewal
- Remote sensing applications for construction/infrastructure management
- Risk
- Road maintenance and rehabilitation
- Sustainable construction
- Sustainable infrastructure

(https://www.ccee.iastate.edu/research/construction/).

Environmental/Water Resources Engineering

Research conducted by environmental engineering faculty is geared toward understanding the fundamental physical, chemical and biological principles of engineered and natural systems. The research has a strong emphasis on practical applications as demonstrated by bench-scale
experimentation, pilot- and field-scale demonstration projects, and computer modeling and simulations.

- Air pollution control technology
- Anaerobic biotech waste
- Bacterial methodology to process soy wastes to derive food preservatives and valuable probiotics
- Beneficial reuse of waste foundry sand and aspects of trace metal contaminant release and impacts
- Biomaterials
- Cement manufacture carbon release, capture and conversion
- Cement manufacture mercury release, capture and removal
- Conversion of organic materials in ethanol stillage into valuable fungal biomass with concomitant water reclamation
- Environmental biotechnology processes
- Environmental engineering science
- Environmental fluid mechanics
- Environmental hydrology hydraulics
- Ethanol purification with ozonation and activated carbon
- Fate and biodegradation of toxic compounds and micro-pollutants in engineered and natural systems
- "Fate and transport of contaminants, hydrodynamics and"
- hydraulic engineering
- Membrane
- Nanotechnology
- Ozonation and/or granular activated carbon for industrial disinfection and purification
- Partial nitrification and anammox process development
- Photobioreactor for microalgae production fed by wastewater and flue gas
- Photoreactive concrete pavement for green highway applications
- Ships ballast water ozonation for disinfestation to prevent ecological disasters
- Site remediation technologies
- Surface water quantity/quality modeling
- Sustainable environmental biotechnology development
- Sustainable water and wastewater infrastructure
- Useful application of water treatment residuals and flue gas contaminants with resource recovery
- Wastewater and residuals treatment systems
- Wastewater engineering with a focus on innovative compact treatment technologies for toxic compounds, nitrogen and phosphorus removal
- Wastewater nitrogen removal via nitrification and denitrification systems
- Water pollution control plant design
- Water quality monitoring
- Watershed management
- White and brown-rot fungal production of biofuels from lignocellulosic material/waste
Geotechnical/Materials Engineering

Geotechnical faculty and research staff continue the legacy of cutting-edge research, investigating issues related to soil mechanics, geomaterials behavior and stabilization, in situ testing environmental geotechnology and materials.

Major initiatives include Iowa State University’s Center for Earthworks Engineering Research, an internationally recognized resource for earthworks engineering and geo-construction technologies. Faculty from geotechnical/materials engineering also are heavily involved in the nationally acclaimed Wind Energy Initiative at Iowa State.

Geotechnical faculty and research staff continue the legacy of cutting-edge research, investigating issues related to soil mechanics, geomaterials behavior and stabilization, in situ testing environmental geotechnology and materials.

- 3-D visualization
- applications
- Applications of microorganisms to geotechnical engineering
- Asphalt design, performance and construction"
- Asphalt materials characterization
- Asphalt rheology
- Automated machine guidance
- Cementitious materials
- Chemistry and microstructure of concrete
- Concrete distress and repair
- Concrete durability
- Concrete pavements
- Deicer scaling resistance of concrete pavements, bridge decks and"
- Design of Portland cement concrete and asphalt cement concrete
- Design, analysis and testing of wind turbine foundations
- Development of instruments and techniques for in-situ and laboratory soil testing
- Early-age behavior of jointed plain concrete pavements subjected to environmental loads
- Foundation engineering
- Full-scale multi-modal dynamic testing of surface and deep foundations
- Fully-Automated Borehole Shear Soil Testing device
- Geotechnical earthquake engineering
- Ground improvement
- Ground improvement
- Ground improvement
- High-energy impact compaction
- hybrid meta-heuristics and cooperative strategies
- improvements
• Improving Portland cement concrete mix consistency and production by mixing
• In-situ and laboratory testing
• In-situ detection methods for materials-related distress in concrete
• In-situ testing
• Inverse analysis of pavement systems using bio-inspired
• Land reclamation
• Landslides and slope instability
• Materials and mix optimization procedures for Portland cement concrete pavements
• Numerical applications to geotechnical engineering
• Other structures containing slag cement
• Pavement analysis and design
• Pavement design
• Pavements
• Performance properties of ternary mixtures for concrete pavements
• Portland cement and supplementary
• Portland cement concrete (PCC) pavements
• Renewable energy co-products utilization in pavement
• Roller-integrated compaction monitoring
• Scaled-model geotechnical centrifuge experimentation
• Soil compaction
• Soil dynamics and soil-structure interaction
• Soil improvement
• Soil properties
• Soil-structure Interaction
• Special concrete
• Ternary mix concretes

(http://www.ccee.iastate.edu/research/geotechmaterials/).

Our faculty and graduate students work at Town Engineering Building facilities and with the Bridge Engineering Center at Iowa State’s research park. These activities encourage multidisciplinary and high-impact research. Recently, structural engineering faculty have been working on the nationally acclaimed Iowa State University Wind Energy Initiative.

**Structural Engineering**

• Aluminum bridge girders
• Bridge engineering
• Bridges
• Buildings
• Composite metal floor decks
• Earthquake-resistant design of structures
• Finite element analysis - application to complex structures
• Inelastic behavior of steel structures
• Integral abutment and Integral piers for bridges
• Intermediate diaphragms in prestressed concrete bridges
• Model-based simulations
• Nondestructive evaluation
• Performance of bridge decks
• Precast concrete structural systems
• Reliability assessment of nuclear containment strength under severe accident loads
• Research on sensory membranes
• Response of highway pavements to heavy farm implements
• Seismic design
• Shell bridges
• Soil-structure interaction
• Static and dynamic analysis of transmission lines
• Stay-in-place bridge deck forms
• Structural control
• Structural health monitoring
• Structural health monitoring
• Testing and analysis of small-scale structural models
• Timber bridges

(https://www.ccee.iastate.edu/research/structures/).

Transportation Engineering

Our faculty and graduate students work with transportation engineering centers and programs at Iowa State’s research park that encourage multidisciplinary and high-impact research. Transportation engineering is an emphasis of the civil engineering program.

• Air quality
• Critical infrastructure management
• Development of analytical tools to evaluate road departure crashes using naturalistic driving study data
• Effectiveness of paved shoulders in Iowa
• Evaluation of electronic speed limit signs for unified consolidated school
• Evaluation of rumble strips on low-volume rural roads in Iowa
• Highway safety
• Hybrid electric school bus deployment and evaluation
• Infrastructure development
• Integration of analysis methods and development of analysis plan
• Intelligent Transportation Systems
• Network modeling and optimization
• Operations
• Planning
• Policy analysis
- Safety management
- Traffic flow theory
- Transportation and information systems management
- Transportation economics
- Transportation energy analysis
- Transportation energy and sustainability
- Transportation planning and systems evaluation
- Travel demand modeling

(https://www.ccee.iastate.edu/research/transportation/).

In addition to their teaching positions, several of the faculty hold positions with the Center for Transportation Research and Education (CTRE) (http://www.ctre.iastate.edu/) and ISU Extension and Outreach (http://www.extension.iastate.edu/).

F. Instruction

Select Courses (ISU Catalog 2013-2014)

Civil Engineering

Courses primarily for undergraduates

- C E 111. Fundamentals of Surveying I
- C E 170. Graphics for Civil Engineering
- C E 206. Engineering Economic Analysis and Professional Issues in Civil Engineering
- C E 326. Principles of Environmental Engineering
- C E 332. Structural Analysis I.
- C E 333. Structural Steel Design I.
- C E 334. Reinforced Concrete Design I.
- C E 360. Soil Engineering
- C E 372. Engineering Hydrology and Hydraulics
- C E 382. Design of Concretes.
- C E 420 Environmental Engineering Chemistry
- C E 428. Water and Wastewater Treatment Plant Design
- C E 446. Bridge Design
- C E 448. Building Design
- C E 460. Foundations
- C E 473. Groundwater Hydrology
- C E 485/486. Civil Engineering Design I/II

Courses primarily for graduate students, open to qualified undergraduates
• C E 502. Construction Project Engineering and Management.
• C E 515. Railroad Engineering
• C E 522. Water Pollution Control Processes
• C E 525. Industrial Wastewater and Resource Recovery
• C E 532. Structural Analysis II.
• C E 535. Prestressed Concrete Structures
• C E 547. Analysis and Design of Plate and Slab Structures
• C E 556. Transportation Data Analysis
• C E 562. Site Evaluations for Civil Engineering Projects.
• C E 567. Geomaterials Stabilization
• C E 571. Surface Water Hydrology
• C E 574. Environmental Impact Assessment
• C E 591. Seminar in Environmental Engineering.
• C E 594. Special Topics in Construction Engineering and Management.
• C E 594L. Special Topics Construction Engineering and Mgt.: Advanced Building Construction Topics.
• C E 596A. Special Topics in Transportation Engineering: Intelligent Transportation Systems.
• C E 596B. Special Topics in Transportation Engineering: Geographic Information Systems in Transportation.
• C E 596D. Special Topics in Transportation Engineering: Transportation and Public Works.
• C E 596F. Special Topics in Transportation Engineering: Freight Transportation

Courses for graduate students

• C E 622A. Advanced Topics in Environmental Engineering: Water Pollution Control.
• C E 622D. Advanced Topics in Environmental Engineering: Water Resources.
• C E 650. Advanced Topics in Transportation Engineering.
• C E 650A. Advanced Topics in Transportation Engineering: Highway Design.

(http://catalog.iastate.edu/collegeofengineering/constructionengineering/#courseinventory).

Construction Engineering

Courses primarily for undergraduates:

• CON E 112. Orientation to Learning and Productive Team Membership.
• CON E 121. Cornerstone Learning Community: Orientation to Academic Life.
• CON E 222. Contractor Organization and Management of Construction.
• CON E 251. Mechanical/Electrical Materials and Methods.
• CON E 322. Construction Equipment and Heavy Construction Methods.
• CON E 380. Engineering Law.
• CON E 381A. Bidding Construction Projects I: Heavy and Highway.
The undergraduate programs of the Civil, Construction, and Environmental Engineering department are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

The programs were re-evaluated and reaccredited in 2006.

V. Subject Boundaries

This collection includes materials classed in the Library of Congress call number ranges listed in Section XII below. Additional materials are chosen for the collection as needed to support teaching and research in the Department of Civil, Construction, and Environmental Engineering. Select publications within the LC call number ranges may be more appropriate for other subject collections, notably Agricultural and Biosystems Engineering, Architecture, Environment, General Engineering, or Reference.

VI. General Collection Guidelines

A. Linguistic

English is the primary collection language, although relevant publications in other languages are considered and purchased selectively depending on their relevancy to the research strengths of the department.

B. Geographical Areas

No geographical areas are excluded, though primary emphasis is on literature from English-speaking countries. Works which emphasize the law, regulations or standards that apply in the United States are collected more comprehensively than those emphasizing the law, regulations or standards specific to any other country or group of countries not including the United States.

C. Types of Materials Collected.
Monographs, monographic series, journals, proceedings, society publications, and handbooks are purchased to support research, teaching and learning. Society publications are well represented. Periodicals represent a large part of the collection. Indexes, abstracts and other reference materials are collected under a separate policy for Reference.

D. Format of Materials Collected

A significant portion of relevant journals and monographs are increasing collected in electronic format.

VII. Specific Collection Guidelines

Works on building construction are frequently purchased for this collection, however, works which deal primarily with the artistic rather than the structural design of buildings should be referred to the bibliographers for Architecture.

Some works in the areas of structural engineering, soil mechanics, environmental technology, or building construction may more closely fit the current research interests of faculty or students in Agricultural and Biosystems Engineering, and are referred to the consideration of the bibliographer for that area.

Works dealing with policymaking and environmental engineering are considered closely to determine whether or not they fit most appropriately in the collection for Civil and Construction Engineering.

VIII. Other Resources Available

Core databases:

- Architectural Index
- ASCE Online Research Library
- ASM Handbooks Online
- Civil Engineering Abstracts
- Civil Engineering Database
- Compendex (Engineering Village)
- Corrosion Abstracts (ProQuest)
- DAAI: Design and Applied Arts
- Earthquake Engineering Abstracts
- Elsevier BioSource
- Energy Citations Database
- Engineering Research Database (ProQuest)
- Environmental Engineering Abstracts
- GeoRef (ProQuest)
- GeoScienceWorld
- Glossary of Geologic Terms
Core e-journal and ebook collections:

- ASM Handbooks Online
- BCC Research
- ENGnetBASE,
- Knovel e-book collection,
- Synthesis Digital Library of Engineering and Computer Science

Northwestern University Transportation Library

“The Transportation Library was founded in 1958 to support the curricula and research programs of the Transportation Center; the Center for Public Safety of Northwestern University, including the School of Police Staff and Command and the Infrastructure Technology Institute.

Containing over 500,000 items, the Transportation Library of Northwestern University is one of the largest transportation information centers in the world, encompassing information on all transportation modalities, including: air, rail, highway, pipeline, water, urban transport and logistics. It includes a significant collection on law enforcement, police management and traffic enforcement. Its collection of environmental impact statements is one of the most complete in the world.

The Transportation Library's staff produce TRANweb (http://tran.library.northwestern.edu/), a web based periodical index of transportation and law enforcement articles and conference proceedings”

(http://www.library.northwestern.edu/libraries-collections/evanston-campus/transportation-library).

IX. Cross-references to Collection Policies

- Agricultural and Biosystems Engineering / Kris Stacy-Bates
- Art & Design / Jeff Alger
• Architecture / Jeff Alger
• Chemical and Biological Engineering / Gerry McKiernan
• Community & Regional Planning / Jeff Alger
• Environment / Gerry McKiernan
• General Engineering / Kris Stacy-Bates
• Geological & Atmospheric Sciences / Jesse Garrison
• Logistics, Operations & Management Information Systems / Jeff Kushkowski
• Mathematics / Kris Stacy-Bates
• Natural Resource Ecology and Management / Heather Lewin

X. Creation date

2000 (Kristine K. Stacy-Bates)

XI. Revision History

December 31, 2013 (Gerry McKiernan)

January 30, 2008 (Gerry McKiernan)

XI. LC Class(es), if applicable.

• TA495-1280
• TC
• TD
• TE1-450
• TG
• TH1-455
• TH900-1101
• TH1201-1635
• TH1715-7975
• TN1-257
• TN272-380
• TN496-580
• TN799.5-859
• UG330-620
• VM1-965

XIII. Bibliographer name

Gerry McKiernan (current)

Kristine K. Stacy-Bates (former)