Iowa State University Library
Collection Development Policy

Agricultural and Biosystems Engineering

I. General Purpose

The Agricultural and Biosystems Engineering collection supports the faculty and students of the Department of Agricultural and Biosystems Engineering in their research and curriculum needs. In addition, there are other programs at Iowa State University, primarily in the Colleges of Engineering and Agriculture and Life Sciences, whose students and faculty use this collection. This collection also serves to support research needs of Iowa State's Extension Field Engineers.

II. History

Courses in Agricultural Engineering were taught as Farm Mechanics in 1903. From 1906until 1910, these courses were taught out of the Department of Agronomy, with a two year program initiated in 1906 to lead to a Bachelor of Agricultural Engineering. In 1908, Iowa State College established the nation’s first four-year professional agricultural engineering program, and in 1910, this program became the Department of Agricultural Engineering. The Agricultural Engineering Laboratory Building was built in 1921. This facility was rebuilt in 1942 after a 1941 fire. The building was renamed Davidson Hall in 1975 in honor of J. Brownlee Davidson, department chair during the years 1910-1915 and 1919-1946. The Department was renamed Agricultural and Biosystems Engineering in 1990.

A program in Industrial Education was first offered in 1913 in the Division (later College) of Engineering under the name of Trades and Industries. Anson Marston, for whom Marston Hall is named, was Chair of the department from 1919-1920. In 1928, the name was changed to Industrial Arts and in 1939, the department was moved to the Division of Agriculture where it was incorporated into the Department of Vocational Education. In 1940, the name of the program was changed to Industrial Education, but it remained in the College of Agriculture until the College of Education was established in 1968. The department name of Industrial Education and Technology was adopted in 1982. In 2004 the department merged with the Department of Agricultural and Biosystems Engineering

III. Iowa State University Program

Undergraduate study programs:

The Department of Agricultural and Biosystems Engineering offers three undergraduate degree majors.

Agricultural Engineering: The curriculum trains men and women to integrate basic biological and physical sciences through application of engineering fundamentals and design to

biological systems involved in production, processing, storage, handling, distribution, and use of food and other biomaterials, and in managing related natural resources worldwide.

Agricultural Systems Technology: The curriculum prepares men and women for careers requiring integration and application of agricultural and mechanical technology, physical and biological sciences, and business to manage human and natural resources, environmental systems, and systems for producing, processing, and marketing food and other biomaterials worldwide.

Industrial Technology: The curriculum prepares women and men for careers that integrate and apply industrial technology to lead and manage human, manufacturing, and safety systems.

The Department offers two minors: Agricultural Systems Technology and Industrial Technology

Graduate study programs:

The Department of Agricultural and Biosystems Engineering offers two graduate degree programs: Agricultural Engineering and Industrial and Agricultural Technology.

The Department of Agricultural and Biosystems Engineering offers master of science, master of engineering, and doctor of philosophy degrees with a major in agricultural engineering and minor work to students taking major work in other departments. Within the major the student may specialize in soil and water resources, agricultural power and machinery, food and process engineering, biosystems engineering, or agricultural structures and environmental systems engineering.

The Department also offers master of science and doctor of philosophy degrees with a major in industrial and agricultural technology, and minor work to students taking major work in other departments. Within the major, the student may specialize in technology applications or education and learning.

The Department of Agricultural and Biosystems Engineering offers courses for non-major graduate credit in technology systems management (TSM) courses for students taking major work in other departments, and cooperates in the interdepartmental program in professional agriculture.

The department also participates in interdepartmental graduate majors in water resources, sustainable agriculture, and biorenewable resources and technology.

Current areas of faculty research emphasis include advanced machine engineering, animal production engineering, environmental stewardship engineering, process engineering and technology, and occupational safety.

IV. Subject Boundaries

This collection includes materials classed in the S671-760.5, T 55.4 – T 60.8, TJ1480-1496,

and TS 155 - TS 194 Library of Congress call number ranges, as well as additional materials purchased in support of teaching and research in the Department of Agricultural and Biosystems Engineering.

V. General Collection Guidelines

A. Linguistic.
English is the primary language of the collection, though works in other languages may be selected if they are of sufficiently high quality or interest.

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. Societies publications are well represented. Periodicals represent a large part of the collection.

D. Format of Materials Collected
Materials selected include serials (including full-text ejournals), monographs, conference proceedings, government publications in all forms (including technical reports, CD's, etc.), the standard traditional reference sources (handbooks, encyclopedias, indexes), electronic databases, and Web resources significant to the program. Some textbooks are procured selectively

VI. Specific Collection Guidelines

Much of the work done by the Department of Agricultural and Biosystems Engineering is interdisciplinary in nature. Very few new monographs and few serials, except those published by the American Society of Agricultural Engineers, will receive LC call numbers in the ranges S671-760.5, T 55.4 – 60.8, TS 155-194, and TJ1480-1496. Thus, an awareness of research and teaching interests of the Department is particularly important for this collection. Seeking input from faculty, students and stuff in Agricultural and Biosystems Engineering is also crucial.

VII. Detailed Subject Areas

Faculty research areas have recently included the following:

Ag systems instructional technology
Agricultural safety
Air quality in livestock housing
Biochemical and food engineering
Biofuels
Biomass harvest, transport, storage, and processing
Biorenewables
Chemometrics
Composting
Computer vision systems
Control and sensing for agricultural systems
Crop growth modeling
Decision support systems
Drainage and irrigation
Energy efficiency
Environmental bioprocessing
Environmental control & instrumentation
Environmental physiology
Environmental quality
Fluid power systems
Food process engineering
Grain and oilseed preservation & processing
Grain quality, marketing and distribution
Health and human factors
Home indoor air quality
Industrial hygiene
Lean manufacturing
Manure management
Natural resource management
Nondestructive evaluation of soil
Occupational Safety
Process Safety
Poultry and swine housing systems
Power & Machinery - Plant, machine interactions
Precision agriculture
Quality Management Systems
Rheology
Seed conditioning
Sensors
Soil quality
Sustainable agricultural systems
Ventilation design
Water quality chemistry, management & modeling

VIII. Other Resources Available

American Society of Agricultural and Biological Engineers (ASABE)
www.asabe.org

ASABE, founded in 1907, is a not-for-profit professional and technical organization of members worldwide interested in engineering knowledge and technology for food and agriculture, associated industries, and related resources. ASABE, the society for agricultural, food and biological systems, coordinates educational opportunities such as technical sessions, workshops, conferences and tours at ASABE and other Society meetings with the purpose of communicating new research results, discussing applications and stimulating debate on important topics related to the collection of renewable resources and the processing of these resources for conversion to energy and industrial products.

National Association of Industrial Technologists (NAIT)
www.nait.org

The National Association of Industrial Technology is recognized as the premier professional association responsible for: (1) the promotion of industrial technology in

business, industry, education, and government; (2) the accreditation of industrial technology programs in colleges, universities, and technical institutes; and (3) the certification of industrial technologists and the recognition of their continued professional development.

IX. Cross-references to Collection Policies
Agronomy
Animal Science
Civil and Construction Engineering
Environment
General Engineering
Industrial Engineering
Mechanical Engineering
Reference

X. Creation date
2007 (Pali U. Kuruppu)
Revised April 2008

XI. LC Ranges
S671-760.5, T 55.4 – 60.8, TS 155-194, TJ1480-1496

XII. Bibliographer name
Pali U. Kuruppu