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Electrical Engineering Collection Development Policy

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Electrical Engineering Collection Development Policy

University Libraries, University of Nebraska-Lincoln

Virginia Baldwin, December, 2009

Approved: CDC, January 6, 2010

I. GENERAL ACADEMIC PROGRAM INFORMATION

The Department of Electrical Engineering offers degrees of Bachelor of Science in Electrical Engineering, Master of Science in Electrical Engineering, and Doctor of Philosophy in the College of Engineering's unified Ph.D. Program.

Research facilities.

The department has extensive research facilities for all areas of active research. In addition to computing facilities individually operated by each research group, the department administers a network of high-end UNIX workstations and PCs, which are upgraded regularly. These facilities are used for classroom instruction as well as the individual needs of the students. For integrated circuits and systems research, a network of workstations is maintained with VLSI CAD software that includes Mentor Graphics, Hspice, Xilinx placement and routing tools, and Tanner. VLSI test facilities include data acquisition and RF and mixed-signal test and measurement instruments for integrated circuit characterization. Communications and signal-processing laboratories are maintained for data compression, error control coding, array signal processing, mobile communications, and biomedical signal processing research activities. Remote sensing and applied electromagnetics. Research facilities include active and passive remote sensing facility, an optical polarimetric scatterometer, an atomic force/scanning tunneling microscope facility, a microwave anechoic chamber facility. Electrooptics research focuses on femtosecond laser communications and sensor development using nanoparticles, and optical diagnostics and spectroscopy equipment. The solid states laboratories have a full array of material processing and device fabrication facilities along with specialized equipment for measurement, allowing research on thin-film deposition and characterization, ellipsometry for in situ monitoring of growth processes, plasma etching and the study of breakdown phenomena, and diamond film growth at low temperatures.

Other available equipment includes X-ray, TEM and fine-line lithography, electron beam and X-ray direct-write facilities, and cryogenic measurement and magneto-optical measurement equipment, ultrahigh vacuum sputter and e-beam deposition systems, an Auger spectrometer, and scanning electron microscopes. Nanostructures research includes facilities for the study of self-assembly of quantum dots and wires, their properties in cryogenic, noise-isolated environments, and the creation of nanostructures.

Research Groups

- Nebraska Center for Materials and Nanoscience
- ElectroOptics, Remote Sensing, Applied Electromagnetics, Nanotechnology and Analysis
- Mobile Communications and Coding Laboratory

The EE Department has over 25 faculty involved in research related to electronic materials, nano-technology, optical systems, communications, biomedical applications, signal processing, microelectronics design, energy systems, and electromagnetics. Undergraduate students are encouraged to participate in research activities, and have opportunities to travel and present their research results. Graduate students are also strongly supported by the department with regard to travel and participation in technical conferences and workshops.

Signals and Systems I, Electrical Engineering Senior Design II (ELEC 304 and ELEC 495) have been designated as an ACE (Achievement-Centered Education) courses.

The following represents overlapping interests with other departments:

Biological Systems Engineering Electric circuits, electric machines, power distribution

Chemical & Biomolecular Engineering Electro-chemistry

Civil Engineering Power distribution, hydropower

Computer Science Information theory, electronic computers, electronic circuits

Construction Management Wiring, lighting, power distribution, contracts and specifications

Mechanical Engineering Power plants

Mathematics Linear algebra, numerical analysis, switching theory, Fourier and LaPlace transforms

Physics Wave mechanics, continuum mechanics, solid-state theory, radiation, luminescence, electricity, magnetism

Consultant services of direct benefit to Nebraska industry include the following: energy savings in buildings, peak electrical load leveling, off-peak storage of electrical energy, utilization of alternate energy sources, wind and solar applications, solar voltaic system, electromagnetic wave studies, image registration, thin films, and study of EEG signals.

The accreditation body for the Department is the Accrediting Board for Engineering and Technology.

II. GEOGRAPHICAL COVERAGE

No special consideration is necessary.

III. CHRONOLOGICAL COVERAGE

Materials limited to the historical treatment of the subject matter are not acquired unless specifically requested by the Department. This restriction applies to all levels of intensity.

V. IMPRINT DATE

Only materials published in the current year are acquired unless specifically requested by the Department.

VI. FORMAT/TYPE AND LEVEL OF MATERIALS

Most materials are acquired in the form of periodicals, serials, and monographs. A research level collection is maintained. Electronic Databases of primary importance are INSPEC, Compendex, and IEEE Xplore

VII. LANGUAGES

Only English language publications are acquired at all levels of intensity unless otherwise requested by a faculty member.

VII. SPECIAL FACTORS

Timeliness is a critical factor in the acquisition of many conference publications because editions are usually limited to a small number of copies. This is especially true of society and university departmental publishers.

The only society for which nearly complete coverage of current publications is desired is the Institute of Electrical and Electronic Engineers. Otherwise, the publications of all other societies and presses are acquired on a selective basis. These societies include:

Acoustical Society of America

American Automatic Control Council

American Chemical Society

American Crystallographic Association

American Federation of Information and Processing Societies

American Institute of Physics

American National Standards Institute

American Nuclear Society

American Physical Society

American Society for Testing and Materials

American Vacuum Society

Association for Computing Machinery

Cryogenic Society of America

Electrochemical Society

Institution of Electrical Engineers

Instrument Society of America

International Federation of Automatic Control

Numerical Control Society

Operations Research Society of America

Optical Society of America

Simulation Councils

Society of Applied Spectroscopy

Society for Industrial and Applied Mathematics

Society of Photo-optical Instrumentation Engineers

Many computer related publications published after 1982 are located in Love Library.

The Superintendent of documents, Government Printing Office, collection, in hardcopy or microformat, covers in part or wholly the following U.S. Government Departments or Agencies:

U.S. Atomic Energy Commission

U.S. Department of Energy

U.S. Environmental Protection Agency

U.S. Federal Energy Administration

U.S. National Institute for Occupational Safety and Health

U.S. National Aeronautics and Space Administration

U.S. Nuclear Regulatory Commission

Where coverage is not complete, the balance of publications for a federal government agency or department is located in most cases at Love Library.

The Engineering Library is a U.S. Patent and Trademark and Depository Library Program Library and the publications of the U.S. Patent and Trademark Office are included in the Engineering Library collection. All patent search aids that are provided by the U.S. Patent and Trademark Depository Library Program are retained.

Collections of federal standards and specifications are maintained as well as those of voluntary organizations such as the American National Standards Institute. Hardcopy is preferred.

VIII. CLASSIFICATION AND INTENSITY LISTING

(The following are listed by LC Class, Subject, and then by Intensity Level)

Q 300-390 Cybernetics RESEARCH

QC 176.82-176.9 Thin Films RESEARCH

QC 221-246 Acoustics STUDY

QC 350-467 Optics. Light RESEARCH

QC 501-766 Electricity and Magnetism RESEARCH

QC 972.6-973 Radio Meteorology RESEARCH

T174.7 Nanotechnology RESEARCH

TA 418.9 Nanostructured materials RESEARCH

TJ 807-830 Renewable Energy Sources RESEARCH

TK 1-541 Electrical Engineering. General RESEARCH

TK 1001-1841 Production of Electric Energy or Power. Powerplants. Central Stations
RESEARCH

TK 2000-2891 Dynamoelectric Machinery and auxiliaries RESEARCH

Including generators, motors, transformers RESEARCH

TK 2896-2985 Production of electricity by direct energy conversion RESEARCH

TK 3001-3521 Distribution or transmission of Electric Power RESEARCH

TK 4001-4102 Applications of Electric Power RESEARCH

TK 4125-4399 Electric Lighting STUDY

TK 4601-4661 Electric Heating STUDY

TK 5101-5104 Telecommunications RESEARCH

TK 5107-5865 Telegraph RESEARCH

TK 5981-5986 Electroacoustics STUDY

TK 6001-6520 Telephone STUDY

TK 6540-6571 Radio RESEARCH

TK 6573-6600 Radar RESEARCH

TK 6630-6720 Television STUDY

TK 7018-7725 Household Appliances STUDY

TK 7800-8360 Electronics RESEARCH