Національний технічний університет України "КПІ"
"Київський політехнічний інститут"

National Technical University of Ukraine "Kyiv Polytechnic Institute"

Faculty of Electronics

Faculty of Electronics of NTUU "KPI" is one of the largest producer of electronic and electrical engineers in Ukraine. It consists of 7 Departments:

- Department of Microelectronics;
- Department of Industrial Electronics;
- Department of Physical and Biomedical Electronics;
- Department of Electronic Digital Equipment Construction;
- Department of Acoustics and Acoustoelectronics;
- Department of Electron Devices;
- Department of Sound Technique and Information Registration.

Academic programs at the Faculty of Electronics

Bachelor of Science (4 years)

Micro- and Nanoelectronics
Acoustic Techniques
Telecommunications
Electronic Systems and Devices
Radioelectronic Devices

Master of Science (2 years) and Master of Engineering (1.5 years)

Microelectronic and Semiconductor Devices
Microwave Techniques
Electronic Biomedical Devices and Systems
Electronic Devices
Electronic Systems
Medical Acoustic Devices
Acoustic Devices and Systems
Video, Audio and Cinema Technique
Manufacturing of Electronic Devices
Telecommunication Systems and Networks

Philosophy Doctor (3 years)

Applied Acoustics and Sound Technique
Medical Instruments and Systems
Solid State Electronics
Semiconductor Power Converters
Computer Systems and Components
Vacuum, Plasma and Quantum Electronics

In Faculty of Electronics there are a Research Institute of Applied Electronics, Laboratory of Biosensors and Semiconductor Devices and Laboratory of Biomedical Electronics. Today in Faculty of Electronics study near 3500 students, of which more than one hundred are

international students from various countries. The teaching staff includes 2 academicians and 2 corresponding members of National Academy of Sciences of Ukraine, 33 professors and 95 associate professors. Faculty of Electronics has Specialized Scientific Councils for awarding the degree of Doctor and Candidate of Technical Sciences (PhD, Doctor of Science).
The faculty publishes scientific journal "Electronics and Communications" and organizes three International Conferences:
“Electronics”, “Electronics and Nanotechnology”, “Problems of Present-day Electrotechnics”.

Research Areas of Departments

Department of Physical and Biomedical Electronics

- Circuits and systems theory;
- Semiconductor, ferroelectric and piezoelectric devices;
- Physical and topological simulation and modeling of micro- and nanostructures;
- Medical diagnostic systems for electrocardiology, electroencephalography, pulseoximetry, heart rate variability etc;
- Microwave electronics;
- Wireless communication systems, RFID systems development and testing;
- Dielectric materials for microwave devices;
- Thin films and phase shifters;
- Interaction between physical fields and biological objects;
- Biomedical signal and image processing.

Department of Microelectronics

- Electrophysical properties of dielectric and semiconductor materials in wide frequency (0.3… 300 GHz) and temperature ranges;
- New semiconductor materials and processes for solar photo-electric converters and sensor systems;
-Thermal MEMS sensors development, smart sensors based on embedded microsystems;
- Nanostructured piezoelectric materials for active RF MEMS/NEMS development;
- Piezoelectrics and piezoceramics materials and devices, piezoengines;
- Photovoltaics and solar cells;
- Sensors and biomedical electronics.

Department of Industrial Electronics

- Microprocessor devices and systems of regulation and control;
- Development of power control systems;
- Wide-band communication with CDMA;
- Distributed synchronization in wireless networks;
- Multilayer PCB analysis;
- Sensor data acquisition;
- Narrowband powerline communication systems;
- Control systems of electrical energy consumption (smart houses).

Department of Acoustics and Acoustoelectronics

- Acoustic technology and equipment for nondestructive testing and medicine;
- Speech processing;
- Acoustic waves propagation and diffraction.

Department of Electronic Digital Equipment Construction

- Audiological devices for diagnostics of a condition of auditory function of an adult and children’s contingent surveyed (audiometers, middle ear analyzers, systems of registration otoacoustical emission etc.);

- Algorithms of creative methods of solving of complex engineering problems based on neuronet technologies, fuzzy systems, evolutional algorithms, combined approaches;
- Control and monitoring systems for processing of signals from sensors, actuator according to given control program, preprocessing of analog signals, coordination with signal source, filtration, data measurement and transmission via standard interfaces;
- Control systems for low-powered follow-up (by speed and/or position) motors for commutatorless three-phase motors, DC motors, stepping motors;
- Systems for realization of different DSP algorithms based on Texas Instruments digital signal processors, programmable logic devices of Altera or Xilinx, IP-functions for programmable logic devices for development of System-on-a Chip and Network-on-a Chip;
- Distributed signal processing systems from sensors based on wireless ZigBee technology;
- Video signal processing system for image identification and automatic target following;
- Development and support of WEB-modules: creation WEB-projects of various complexities with use of programming languages PHP, JavaScript, DHTML, XML, XSLT;
- Development of MySQL databases;
- Connection of existing sites to developed CMS – a modern site content control system.

Department of Electron Devices

- laser and optoelectronic systems;
- microwave devices.

Department of Sound Technique and Information Registration

- multichannel telecommunications system;
- technical information security in telecommunication systems;
- metrology tools for telecommunication systems and networks;
- ensuring electromagnetic compatibility of electronic systems and power converters.

Faculty of Electronics is interested in wide collaboration in academic and research fields:

- Student and teacher exchange;
- Double MSc Diploma programs;
- Double PhD Diploma programs;
- Joint research projects;
- Collaboration in the framework of FP7, TEMPUS, Erasmus-Mundus;
- Validation and Cooperation Agreements between Universities and Companies.

Contact information

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