SEMINARS ORIENTED TO WOMEN IN TECHNICAL UNIVERSITIES

- Particularity of study and work of women at technical university.
- National features (Ukraine, NIS, European countries, USA, Canada)

Basic universities (where seminars will be organized) – statistics of gender equality at whole and for managing staff, gender policy.

Project duration is 24 months. It is divided in 2 years of study. At the end of each year of study the report conference will be held. For organizing and holding the conference 2 months are needed. So at the end we have 4 semesters with duration of 5 months each. Semester control is supposed.

The seminars can be useful for women: **target groups**

Generally – women in technical university

- Women working at technical university - to improve knowledge in some area
- Who came back to work after sitting home with a child or after the long break – professional reabilitation
- Women who move to other career stage at technical university - Professional re-orientation, карьерный рост, подготовка руководящих кадров
- Technically educated women - Additional skills in the field of management, business ethic and quality
- Humanitary educated women - Additional skills in computer and technical field
- Women involved in R&D activity – from student to professor (Master students, PhD students, doctorants, scientists)
- Graduate students – preparation for professional activity after graduation from technical university
- Unemployed women – preparation for studying, re-qualification, additional skills

SEMINARS SPECIALIZATION

The basics of scientific research organization:

1. Features of research work at technical area (mostly men, biasing for women)
2. Writing of scientific papers (paper structure, composing, description of idea, introduction and conclusions, figures, equations)
3. Preparation of scientific report
4. Work on dissertation (PhD, DSc)
5. Interaction with scientific supervisor, opponents
6. Art to answer the professional questions
7. For higher levels: experiment conduction, results processing, calculation of statistical parameters

The basics of pedagogical activity

1. Basics of pedagogy and psychology
2. Interaction with auditorium, selection of active groups, motivation for own work
3. Preparation and organizing of lections
4. Preparation and organizing of practical works
5. Preparation and organizing of laboratory practicum
6. Organization of self work in auditorium
7. Organization of learning seminars and students' presentations
8. Organizing and conducting of control activity
9. Multimedia means in education
10. Preparation of materials for distance learning (Moodle, etc.)

Electronic Systems

- Design in electronics *(Duration: 1 semester; Prof. Julia Yamnenko)* – The aim of this lecture-course is to study the principles of modeling of electronic components, electric circuits which build on this components, and processes in this circuits. Also students acquire the practical skills of circuit simulation program using for analysis of processes in electronic devices. Students study

object and flat modeling in electronic, the based models of passive and active electronic components, modeling foundation of electric circuits in similar and hybrid coordinate basis. Students acquire also with based analysis techniques of processes in electric circuits and most using circuit simulation program.

- Theory of information and digital signal processing *(Duration: 2 semesters; Prof. Julia Yamnenko, Kateryna Osypenko)* – The discipline covers the questions connected with the information and its forms, quantitative measurement, probability and entropy (absolute, relative, combination), estimation of amount of information for ideal channel and under the noises, calculation of informational losses, calculation of the velocity of information transmission, channel bandwidth. Separate chapter contains coding procedures, idea of detection and correction of errors, estimation of redundancy construction of optimal non-regular codes using Shannon-Fano and Huffman methods, systematical (Hamming), cyclic codes, linear group codes. Second part devoted to DSP contains conception of discrete and continuous signals, digitization procedure, correlation and convolution, discrete spectral transforms (Fourrier, Hartley, Walsh, Hadamard), wavelet transforms at oriented basis, data compression, ways of digital signals transmission (amplitude, frequency, phase modulation and manipulation), SNR, increasing of information rate, noise-resistant signal transmission, construction of matched filters, new methods of DSP.
- Theory of automatic regulation and control *(Duration: 2 semesters; Prof. Julia Yamnenko, Assist. Prof. Kateryna Osypenko)* – The discipline is one of the basic in studying for Master degree. It's based on mathematical analysis, theory of electrical circuits, calculation of electromagnetic processes in electronic systems. As a result of discipline study students will be able to create the equations describing processes in electronic systems; to find transfer functions and time characteristics using Laplace transform, mesh-current and node-potential methods; to build and to analyze frequency characteristics; to investigate steadiness using different algebraic, frequency, and logarithmic criteria for open and closed loop systems, steadiness in pulse systems; to

calculate transient and steady processes in continuous, linear and non-linear systems of automatic regulation.

- Electronic systems of regulation and control *(Duration: 2 semesters; Prof. Julia Yamnenko)* – The discipline is one of the component of Master degree preparation. It's included in the list of mandatory courses for specialty "Electronic system". Discipline is based on previously studied courses like higher mathematics, theory of electrical circuits, theory of information and signal processing, power engineering, converters, modeling in electronics, electromagnetic technique, theory of automatic regulation. The aim of the discipline is obtaining of knowledge and skills in the field of design, construction, analysis of control systems for power converting devices, calculation of electromagnetic processes and estimation of steadiness of closed loop systems with different types of regulators. The discipline covers such questions as classification of closed loop electronic control systems, functional schemes and application; transfer functions of different links; types of sensors and regulators, kinds of modulation and their realization; methods of the calculation of the processes in electronic systems; modern mathematical base for analysis of the processes using discrete spectral transforms (Fourrier, Walsh, Hartley), transforms of discrete functions with m-ary argument in Galois field and their application for DSP; principles of multi-scale wavelet analysis, methods of energy-efficient control of electrical energy consumption.
- Courses on microprocessors and microcontrollers
- Courses on electrical circuits and automated regulation
- STMicroElectronics Laboratory

Computer Science

- Courses on programming IT
- Introduction in Microsoft Word, Exel, Power Point

Management

- Courses on management

Sustainable Development

Quality Management

- Total Quality Control – proposed by Armand Feigenbaum in early 50-ths and implemented in the practice of Japanese enterprises by W. Edwards Deming – one of the creators of «Japanese economical miracle»
- Criteria of quality management and weight estimation
- Quality management means
- European model of quality management
- European Foundation for Quality Management
- Japanese models of quality management - Quality Circle, Five Zeros program, JIT (Just-In-Time) system, CANBAN system
- Seven instruments of Japanese model
- Total quality management (TQM)
- Principle of systematic control
- Quality management in the system of common management
- Experience in quality management in partner countries

Dissemination

Basis of Scientific Research

- Preparation of documents
- Dress-code
- Rhetoric
- How to make a presentation
- How to make a report
- Business etiquette

Each course should be divided into 3 levels: basic, medium, advanced.

At ***'micro'*** level: Support for the development and implementation of gender-sensitive initiatives — addressing inequality, discrimination and vulnerability hampering women's full participation in the economy — in an integrated, multi-sector approach.

Activities may include gender-friendly initiatives that facilitate, but are not limited to:

- innovative social and employment services; actions may include support to information and access to child and dependent care services and resources (actions aimed at ensuring protection of women victims of violence, abuse and trafficking may include support for information and access to housing and psychological counselling);
- activities to ensure that employment and workplace policies and practices are free from gender-based discrimination, and implement gender-sensitive recruitment and retention practices while promoting career opportunities for women;
- workplace policies that sustain the advancement of women at all levels and across all business areas, including non-traditional job fields;
- access to information and participation in education, training programmes, including literacy classes, vocational training conducive to employment, career advancement and re-orientation for women; this includes facilitating information and access to networking and mentoring for women;
- facilitation of access to appropriate and sustainable business development services (business planning/counselling, legal information and advice, technical and managerial training, product design and development, procurement, marketing) and to suitable and affordable financial services (e.g. credit, leasing, savings, insurance);
- actions helping women to gain access to justice in relation to their socio-economic rights.

Expected Results:

Some of the expected results are:

• Women have increased economic security.

• Women have more equal access to and control over economic resources through their participation in sustainable local and national level initiatives.

• Women have improved access to existing or new services that ensure their social and economic protection and wellbeing.

• Relevant good practices are disseminated.