TECHNOLOGY TRENDS IN LIFE SCIENCES

Course Workload		Assessment form (examination/ graded test/ ungraded test)
ECTS	Hours	
3	108	Exam

The course considers key segments, trends and technologies of the Life Sciences sector development, in particular digital transformation of healthcare systems and biopharmaceuticals. The discipline considers technologies implementation in therapeutic modalities: genetics, epigenetics, transcriptomics, proteomics, microbiome, systems biology, synthetic biology, peptide drugs, pharmaceuticals and biotechnology.

Course structure:

1. THE CONCEPT AND TRENDS OF THE SECTOR LIFE SCIENCES DEVELOPMENT
   - 1.1. The concept of Life Sciences. Key segments of the Life Sciences sector. The history of origin and modernity.
   - 1.2. Overview of global technological trends: digital transformation of healthcare systems and biopharmaceuticals. Bioengineering platforms as the basis of new therapeutic modalities: genetics, epigenetics, transcriptomics, proteomics, microbiome, systems biology, synthetic biology, peptide drugs, pharmaceuticals and biotechnology.

2. TECHNOLOGIES IN LIFE SCIENCES SECTOR
   - 2.1. Genetics, epigenetics and transcriptomics. Genetic therapies (exviva, inviva), CAR-T epigenetic therapies, CRISPR, RNA vaccines and drugs. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.
   - 2.2. Proteomics. Targeted therapy degradation, protein condensate therapy. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.
   - 2.3. Microbiome. Probiotix. Mocrobinom analysis and diagnostics. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.
   - 2.4. Medical technologies trends. Automation, robotics. Biodegradable implants. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.
   - 2.5. AI in Life Science. Drug discovery companies, AI medical decisions support systems. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.
   - 2.6. Digital therapeutics and telemedicine. Abstinence, CNS application. Market size, dynamics and prospects of market growth, approved therapies, mergers and acquisitions transactions, access to stock exchanges.