

Theory and Practice of Waste Management

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

Objectives of the discipline: -Study of the basic concepts and principles of waste management - Formation of the waste management system of the enterprise -An acquaintance with the basic reporting in the field of waste management and the basics of office work in waste management -Acquisition of knowledge in the field of licensing activities in the field of waste management, organization, and implementation of environmental audit in the field of waste management.

Course structure:

1. Basic concepts and principles of waste management. Waste management legislation

1.1. Legal regulations governing waste management in the Russian Federation
 1.2. Legal regulations governing waste management in the European Union
 1.3. Comparative analysis of Russian and European legislation in the field of waste management
 1.4. Waste Management Concepts and Tools: 1.4.1 Waste Management Concepts 1.4.2 Zero Waste Concept 1.4.3 Cleaner Production Concept 1.4.4 Green Engineering Concept 1.4.5 Cradle-to-Cradle Concept 1.4.6 Industrial Symbiosis Concept and Industrial Ecology 1.4.7 Environmental Management Systems 1.4.7.1 EMAS System 1.4.7.2 ISO 14001 Standard 1.4.8 Waste Management Tools 1.4.8.1 Waste Management Concept 1.4.8.2 Eco-mapping Tool

2. Waste types and their classification. Composition and properties of waste

2.1. Waste generation and classification 2.1.1 Existing and previously used waste classifications established by the legislation of the Russian Federation on environmental protection (FCCO). 2.1.2 Waste classifications established by sanitary and epidemiological legislation (including medical waste, biological,

radioactive, etc.). 2.1.3 Medical waste management: prevent the spread of COVID-19 when handling medical waste

2.2. The concept of waste in the EU, their classification. European waste catalog

2.3. Classification of municipal waste by waste origin - comparison between Europe and Russia: 2.3.1 Forecasting the generation of MSW in Europe 2.3.2 Forecasting the formation of MSW in Russia

2.4. Composition and properties of waste: 2.4.1 Sorting waste by fractions, a methodological approach to the analysis of the properties and composition of waste in Russia 2.4.2 Sorting waste by fractions, a methodological approach to analyzing the properties and composition of waste in Europe

3. Waste management system

3.1. Stages of production and consumption waste management (collection, sorting, transportation, processing)

3.2. BAT handbooks in the field of waste management in relation to municipal solid waste in the Russian Federation

3.3. Waste management BAT guides for municipal solid waste in the EU

3.4. Formation of a waste management system at the regional level

3.5. Material flow analysis (MFA) at the company level

4. Waste management system in the company

4.1. Waste information management

4.2. Regulatory waste management: 4.2.1 Calculation of waste generation standards at the enterprise 4.2.2 Certification of waste

4.3. Formation of a waste management system at the enterprise

4.4. Licensing of activities in the field of waste management

4.5. Environmental audit in the field of waste management

4.6. Ecological and economic analysis of waste management (environmental payments, waste disposal and environmental fee, etc.)