NAVOI STATE UNIVERSITY

ATMQYR ENVIRONMENTAL PROTECTION & GREEN DEVELOPMENT — COURSE SYLLABUS

Faculty of Natural Sciences & Medicine | Program: 61010400 Logistics (Distance Education)

COURSE PASSPORT & ACADEMIC METADATA

Course Title: Environmental Protection and Green Development

Course Code: ATMQYR

Course Type: Elective

Field of Study: 1000000 Services

Field: 1010000 Service Industry

Program: 61010400 Logistics

Academic Year: 2026–2027

Semester: IV | Form of Education: Distance (Masofaviy)

Total Workload: 150 Hours (60 Contact, 90 Independent Study)

Credits: 5 ECTS

Aligned UN SDGs: SDG 9 (Industry & Innovation), SDG 11 (Sustainable Cities), SDG 12 (Responsible Consumption)



1. Course Description & Green Logistics Focus

This specialized syllabus integrates environmental protection and green transition frameworks with sustainable supply chain management, reverse logistics, green transport fleets, low-emission warehousing, packaging eco-design, and circular supply chains.

In alignment with SDG 9, 11, and 12, the course prepares logistics professionals to design green supply chain networks, reduce transport carbon footprints, optimize packaging materials, and implement zero-waste supply chain operations.

2. Course Aims & Logistics Competencies

Course Aim: To provide green supply chain management expertise, reverse logistics systems design skills, eco-friendly transport planning, and circular economy integration.

- Green Supply Chain Management: Understand eco-design in logistics, carbon footprint reduction in freight transport, and green warehousing practices.
- Reverse Logistics & Waste Management: Design product recovery, returnable packaging, recycling loops, and closed-loop supply chains.
- Regulatory & Environmental Compliance: Interpret national green transportation policies and international eco-logistics standards.
- SDG & Transport Innovation: Implement low-emission multimodal freight transportation and smart urban logistics (SDG 9, SDG 11).

3. Prerequisites

Prerequisites: Fundamentals of Logistics, Economic Theory, General Ecology.

4. Course Structure & Workload Allocation

Activity Type	Curriculum Focus	Workload Allocation
Lectures	Green Transition & Eco-Logistics Theory	30 Hours
Seminars	Green Supply Chain & Transport Analysis	30 Hours
Independent Study	Reverse Logistics Projects & Audits	90 Hours
Total Workload	Full Logistics Elective Module	150 Hours (5 ECTS)

5. Detailed Course Curriculum Outline

5.1 Lecture Syllabus Outline

• **L1: Introduction to Environmental Protection & Green Growth:** Subject matter, objectives, theoretical frameworks of environmental security, and human impacts on ecosystems.

• **L2: Ecological Systems & Biosphere Mechanics:** Biosphere composition, ecosystem structure and function, ecological balance, and anthropogenic pressure.

• **L3: Rational Use of Natural Resources:** Classification of natural resources, resource depletion challenges, eco-efficiency, and circular principles.

• **L4: Atmospheric Air Protection:** Sources of air pollution, key gaseous/particulate pollutants, public health impacts, and abatement technologies.

• **L5: Water Resource Management & Protection:** Ecological significance of water, scarcity, industrial/municipal wastewater treatment, and conservation technologies.

• **L6: Soil & Land Resource Protection:** Soil degradation, wind/water erosion, salinization, desertification, and reclamation/recultivation methods.

• **L7: Biodiversity Conservation & Ecosystem Services:** Ecological value of biodiversity, protected natural areas (PAs), endangered species, and Red Book management.

• **L8: Solid Waste Management & Circular Economy:** Waste typologies, environmental risks, source separation, recycling, zero-waste technologies, and circular economy.

• **L9: Climate Change & Global Environmental Consequences:** Drivers of global warming, greenhouse gas emissions, mitigation protocols, and socio-economic adaptation strategies.

• **L10: Green Economy: Concepts & Core Principles:** Low-carbon development pathways, eco-innovations, resource efficiency, and green transition frameworks.

• **L11: Green Energy & Renewable Energy Technologies:** Solar, wind, hydro, and biomass energy systems; integration into national energy grids.

• **L12: Green Building & Energy Efficiency:** Energy-efficient architectural design, eco-certified building materials, and green building standards.

• **L13: Sustainable Cities & Green Infrastructure:** Urbanization dynamics, eco-transportation, urban forestry, green infrastructure, and smart cities.

• **L14: Environmental Challenges & Green Transition in Uzbekistan:** Aral Sea disaster, water security, desertification, industrial waste, and Uzbekistan's national green strategies.

• **L15: Sustainable Development Goals (SDGs) & Future Horizons:** Integration of UN SDGs, green technology forecasting, environmental policy, and sustainable future pathways.

5.2 Seminar & Practical Discussion Outline

- Concepts of Environmental Protection and Ecological Security
- Global Environmental Issues and Risk Analysis
- Climate Change Drivers and Socio-Economic Consequences
- Fundamentals and Frameworks of the Green Economy
- Sustainable Development Goals (SDGs) and UN Agenda 2030
- Rational Management and Efficiency of Natural Resources
- Water Security, Scarcity, and Conservation Technologies
- Waste Management, Recycling, and Circular Economy Models
- Atmospheric Air Quality Control and Emission Reduction
- Biodiversity Preservation and Protected Natural Areas
- Renewable Energy Systems and Energy Efficiency Transitions
- Sustainable Urban Planning and Green Infrastructure
- Environmental Policy, Legislation, and Legal Mechanisms

- Uzbekistan's Green Growth Strategy and Ecological Priorities
- Applied Project: Designing a Regional Green Development Strategy

5.3 Independent Study & Analytical Projects

- Climate Change & Ecological Consequences: Compiling analytical analytical reports and risk matrices (10 hrs).
- Core Principles of Green Economy: Preparing strategic policy briefings and case studies (10 hrs).
- Renewable Energy Horizons & Waste Recycling in Uzbekistan: Writing scientific articles and conference abstracts (10 hrs).
- Rational Use of Water & Aquatic Adaptation: Researching aquatic ecosystem dynamics and water conservation (10 hrs).
- Urban Environmental Challenges: Conducting urban eco-audits and formulating 25 diagnostic test items (10 hrs).
- Green Campus Concept: Writing a research proposal for sustainable university infrastructure (10 hrs).
- Biodiversity Preservation: Preparing analytical essays on rare species and habitat protection (15 hrs).
- Environmental Education & SDG Culture: Developing multimedia presentations and educational animations on SDGs (15 hrs).

6. Recommended Literature & Information Sources

- Butaboyev M.T., Maxmudov N., Kasimov A.A. Green Economy. Tashkent: Innovatsion Rivojlanish, 2025.
- Jobborov B.T., Xalillayev Sh.A. Climate Change and Ecological Adaptation. Tashkent: Book Trade Ko, 2022.
- Muftaydinov Q.X., Qodirov H.M., Yulchiyev E.Yu. Ecology. Tashkent, 2020.
- Xashimova S.N. Green Economy. Tashkent: Ma'rifat, 2024.
- Xodjimatov A.N. et al. Ecology and Nature Protection. Tashkent, 2020.
- Law of the Republic of Uzbekistan 'On Nature Protection' (1992).
- Law of the Republic of Uzbekistan 'On Atmospheric Air Protection' (1996).
- Presidential Resolution PQ-4477 'Strategy for Transition to a Green Economy' (2019).
- Presidential Decree PF-158 'Uzbekistan — 2030 Strategy' (2023).