«APPROVED»
Vice-Rector for Academic Affairs
_____ B.A. Xudayarov
"____" _____2025 y.

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SHORT-TERM TRAINING COURSE PLAN FOR RENEWABLE ENERGY SOURCES (TIIAME NRU)

DEBSEUz

№	Types of training	Topic title and its summary	Dedicated hours	Teacher's signature
DAY 1 — INTRODUCTION & ENERGY OVERVIEW (6 hours)				
1	Lecture session	Introduction. History of the development of energy. Energy system of the Republic of Uzbekistan. Concept of the development of energy of Uzbekistan.	2	
2	Lecture session	Renewable energy sources: types, operating principles and global development trends. The role of renewable energy in climate change.	2	
3	Practical session	Assessment of the potential of renewable energy sources using modern programs	2	
DAY 2 — SOLAR POWER (6 hours)				
4	Lecture session	Solar radiation (DNI, GHI&GTI, DHI) & Measurement Methods. Measuring solar radiation and determining the efficiency of a photovoltaic module. Obtaining the Volt-Ampere characteristics of a solar module, connecting solar modules in series and parallel. Solar PV system components and operation. Solar collector.	2	
5	Laboratory session	Solar Radiation Measurement & PV Module Efficiency Testing	2	
6	Practical session	Calculation and selection of PV modules for a solar power plant. Calculation of the number of batteries and selection of their type.	2	
DAY 3 — WIND POWER and HYDRO POWER PLANT (6 hours)				
7	Lecture session	Wind and its formation. Instruments measuring wind speed. Wind power plant, components and operation	2	
8	Lecture session	Types of small-capacity and microHPPs and their advantages. Calculation of the capacity of small hydropower plants.	2	
9	Laboratory session	Wind Turbine Laboratory – Power Curve Determination	2	

DAY 4 — ENERGY STORAGE SYSTEM & GRID INTEGRATION (6 hours)				
10	Lecture session	Energy storage systems and integration of alternative energy sources into main grid.	2	
11	Laboratory session	Measuring the charge-discharge characteristics of a battery.	2	
12	Practical session	Design of hybrid solar–wind-ESS power supply scheme	2	
DAY 5 — PROJECT DEVELOPMENT & FINAL ASSESSMENT (6 hours)				
13	Lecture session	Safety, Maintenance & Best Practices in Renewable Energy Systems. Design and calculation of solar energy systems. Energy production forecast and efficiency analysis. LCOE (Levelized Cost of Energy) and economic efficiency assessment.	2	
14	Practical session	Mini project: Designing a small PV/wind power system	2	
15	Assessment	Final exam & group presentations	2	
Total			**30**	

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