I. The Courses at MULS is going to be updated by bellowed program

1. **Solar Energy Applications (NEW)**
2. **Renewable Energy Resources Utilization (NEW)**
3. **Renewable Energy Planning in Construction Industry of Mongolia (UPDATE)**

A. Existing program of Civil Engineering (BA degree) at MULS:

AGE335 - "HEATING AND VENTILATION OF AGRICULTURAL BUILDINGS AND STRUCTURES"

Weeks	Lection/ Seminar	Course topic
I	L	Thermal protection of buildings. Basics of heat transfer
	S	Determine the density of the heat flux and the surface temperature of the walls of the building
	S	Heating capacity of the heating system
	L	Thermal technical calculation of railings
II	L	General concept of heating system
	L	Heating device and its types
	2S	Calculation of heating appliances
III	L	General concept and classification of ventilation system
	S	Determine the heat output of the room
	L	Ventilation system pipes and their equipment
	S	Calculation of room heat loss and heat balance
IV	L	General concept of air conditioning system
	S	Ventilation and air conditioning ducts
	S	Ventilation system calculations
	L	Aerodynamic calculation of air ducts
V	2L	Heating and ventilation of agricultural production facilities
	2S	Clarifier device selection calculation
VI	L	Fundamentals of thermo-dynamics of the process of drying agricultural products
	S	Determination of the blowing mode of the grain drying fan, Heating of protected soil structures
	L	Determination of specific heat consumption of grain drying
	S	Heating and ventilation of livestock buildings Equipment selection calculation
VII	2L	Fundamentals of thermodynamics for storage and cooling of agricultural products
	2S	Determine the cold capacity of the refrigeration unit
VIII	4L	Agricultural heat supplying system

B. Updating program of Civil Engineering (BA degree) at MULS:

MDE 335- "HEATING and VENTILATION"

Weeks	Lection/ Seminar	Course topic
I	L	Climatic conditions of buildings. Basics of heat transfer
	S	Climatic conditions of buildings. Basics of heat transfer
	L	Heat transfer through the enclosure
	S	Heat transfer through the enclosure
II	L	Thermal protection properties of railings
	S	The concept of heating systems. Classification of heating systems
	L	Room heat balance. Heat loss of building fencing
	S	Measurement rules. Additional heat loss
III	L	Water heating system and its design features. Draw an axonometric diagram
	S	Heating appliances and its types and options. Calculation of heating appliances
	L	Calculation of water heating system pipelines
	S	Water heating system equipment
IV	L	Type of central heating supply. Heat source
	S	Heat supply network diagrams and heating network equipment
	S	Purpose of ventilation system. ACC classification
	L	Determine the amount of air to be exchanged. Aerodynamic calculation of ACC (Air Cooled Condenser) / HVAC (Heating, ventilation and air conditioning)
V	2L	ACC equipment, filters, heaters, fans, vent cameras
	2S	Types of air conditioning systems and their equipment
VI	L	Climatic conditions of buildings. Basics of heat transfer
	S	Heat transfer through the enclosure
	L	Thermal protection properties of railings
	S	The concept of heating systems. Classification of heating systems
VII	2L	Room heat balance. Heat loss of building fencing
	2S	Measurement rules. Additional heat loss
VIII	4L	Water heating system and its design features. Draw an axonometric diagram

II. The Courses at MULS is going to be newly developed by bellowed program:

1. **Energy and the Environment (NEW)**
2. **Energy Analysis and Modeling (NEW)**
3. **Green Building Design (UPDATE)**

C. Updating program of Civil Engineering (BA degree) at MULS:

MDE 340- "ENERGY ENGINEERING"

Weeks	Lection/ Seminar	Course topic
I	L	Energy Technology
	S	Energy Technology
	L	Energy Geology Elective and Minerals Law
	S	Minerals study related to Power System in Mongolia
II	L	Energy Economics
	S	Economics principles of Energy Markets
	L	Energy and Climate Policy Innovation and Environmental Impact
	S	Estimation and Calculation of Environmental Impact
III	L	Research Methods for Energy
	S	Research Methods for Energy
	L	Energy in Industrial Processes
	S	Research Methods for Energy II
IV	L	Construction Facilities of Power System Operation
	S	Engineering Structural Analysis in Power System Constructions
	S	Engineering Structural Analysis in Power System Constructions
	L	Energy and Climate Policy Innovation
V	2L	Hydro Power Construction Management
	2S	Mongolian National Standards (MNS) related to Hydraulic Construction
VI	L	Solar and Wind Power Construction
	S	MNS related to Solar/Wind Power Construction
	L	Facilities related to Geothermal Reservoir Engineering
	S	Facilities related to Geothermal Reservoir Engineering
VII	2L	Power Projects Construction Management and Strategic Planning
	2S	Power Projects Construction Management and Strategic Planning
VIII	4L	Construction Facility Management in Power System