
Advanced Skill Certificate in Environmental Management for Mining

Climate Change and Renewable Energy in Mining.

****Abatement:**** The reduction or elimination of greenhouse gas emissions. In the context of mining, abatement measures may include the use of renewable energy sources, energy efficiency measures, and carbon capture and storage technologies.

****Adaptation:**** The process of adjusting to the impacts of climate change. In the context of mining, adaptation measures may include the use of water-efficient technologies, changes to infrastructure to withstand extreme weather events, and the development of contingency plans for climate-related risks.

****Biomass:**** Organic matter, such as plants or animal waste, that can be converted into fuel. In the context of mining, biomass can be used as a source of renewable energy for powering mining operations.

****Carbon Capture and Storage (CCS):**** A technology that captures carbon dioxide emissions from industrial processes and stores them underground, preventing them from being released into the atmosphere.

****Carbon Footprint:**** The total amount of greenhouse gas emissions produced by an individual, organization, or activity. In the context of mining, the carbon footprint may include emissions from energy consumption, transportation, and other activities.

****Decarbonization:**** The process of reducing or eliminating the use of fossil fuels in order to reduce greenhouse gas emissions.

****Energy Efficiency:**** The use of less energy to perform the same task. In the context of mining, energy efficiency measures may include the use of more efficient machinery, the optimization of processes to reduce energy consumption, and the implementation of energy management systems.

****Greenhouse Gas (GHG):**** A gas that traps heat in the atmosphere, contributing to the greenhouse effect and climate change. The most common greenhouse gases include carbon dioxide, methane, and nitrous oxide.

****Life Cycle Assessment (LCA):**** A method for evaluating the environmental impacts of a product or process from cradle to grave. In the context of mining, an LCA may be used to assess the environmental impacts of a mining operation, including emissions, energy consumption, and waste generation.

****Mitigation:**** The reduction of greenhouse gas emissions in order to slow or prevent climate change.

****Renewable Energy:**** Energy obtained from sources that are naturally replenished, such as solar, wind, and hydro power.

****Renewable Energy Certificate (REC):**** A certificate that represents the environmental attributes of one megawatt-hour of renewable energy. In the context of mining, RECs can be used to offset carbon emissions from mining operations.

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- **Sequestration:**** The process of capturing and storing carbon dioxide emissions.
- **Sustainability:**** The ability of a system or process to be maintained over time without depleting resources or causing harm to the environment.
- **Transition:**** The process of moving from a high-carbon economy to a low-carbon economy.
- **Zero Emission:**** The elimination of greenhouse gas emissions from a process or activity.
- **Biomethane:**** A type of biogas that has been processed to remove impurities and increase the concentration of methane. It can be used as a renewable energy source.
- **Carbon Disclosure Project (CDP):**** An international non-profit organization that provides a platform for companies and governments to disclose their greenhouse gas emissions and climate change strategies.
- **Carbon Leakage:**** The increase in greenhouse gas emissions in one country as a result of actions taken in another country to reduce emissions.
- **Carbon Offset:**** A reduction in greenhouse gas emissions that is used to compensate for emissions made elsewhere.
- **Circular Economy:**** An economic system that is designed to be regenerative and reduce waste by reusing, repairing, and recycling materials.
- **Clean Development Mechanism (CDM):**** A mechanism established under the Kyoto Protocol that allows developed countries to invest in emission-reduction projects in developing countries as a way to offset their own emissions.
- **Climate Finance:**** The flow of funds from developed countries to developing countries for the purpose of climate change mitigation and adaptation.
- **Climate Resilience:**** The ability of a system or community to withstand and recover from the impacts of climate change.
- **Decentralized Energy:**** A system of generating and distributing energy at the local level, rather than centrally.
- **Distributed Energy Resources (DER):**** Small-scale energy generation and storage technologies, such as solar panels and batteries, that are connected to the grid at the point of use.
- **Electric Vehicle (EV):**** A vehicle that is powered by electricity, rather than fossil fuels.
- **Emissions Trading System (ETS):**** A market-based system for controlling greenhouse gas emissions, in which governments or regulatory bodies set a cap on emissions and allow companies to trade emission allowances within that cap.
- **Energy Management System (EnMS):**** A system for managing and optimizing energy use within an
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organization.

Energy Service Company (ESCO): A company that provides energy efficiency services, such as the installation of energy-efficient equipment or the implementation of energy management systems.

Energy Storage: The capture and storage of energy for later use.

Energy Transition: The shift from fossil fuels to renewable energy sources.

Fossil Fuel: A fuel, such as coal, oil, or natural gas, that is formed from the remains of ancient plants and animals.

Fuel Cell: An electrochemical device that converts the chemical energy of a fuel, such as hydrogen, into electricity.

Green Bond: A bond that is issued to fund environmentally-friendly projects, such as renewable energy or energy efficiency projects.

Green Premium: The additional cost of a green product or technology compared to a conventional alternative.

Greenhouse Gas Protocol (GHG Protocol): A widely-used standard for measuring and reporting greenhouse gas emissions.

Heat Pump: A device that transfers heat from one place to another, using a refrigerant as a medium.

Hydropower: The use of flowing water to generate electricity.

International Panel on Climate Change (IPCC): A scientific body under the auspices of the United Nations that reviews and assesses the latest research on climate change.

Life Cycle Cost (LCC): The total cost of a product or system over its entire life cycle, including the costs of acquisition, operation, and disposal.

Microgrid: A local energy grid that is able to operate independently of the main grid.

Mining-Induced Displacement: The displacement of people, communities, or ecosystems as a result of mining activities.

Mitigation Hierarchy: A framework for managing the environmental impacts of mining, which prioritizes avoiding, minimizing, and rehabilitating impacts before offsetting any remaining impacts.

Net Zero: A state in which the total amount of greenhouse gas emissions produced by an individual, organization, or activity is equal to the amount of emissions that are removed from the atmosphere.

Peak Demand: The highest level of electricity demand in a given time period.

Peat: Partially decayed plant material that accumulates in wetlands, often used as a fuel.

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- **Power Purchase Agreement (PPA):**** A contract between a power producer and a buyer, in which the buyer agrees to purchase a certain amount of electricity from the producer over a set period of time.
- **Renewable Energy Target (RET):**** A policy goal for the share of renewable energy in a country's total energy mix.
- **Renewable Portfolio Standard (RPS):**** A policy that requires electricity suppliers to generate a certain percentage of their electricity from renewable sources.
- **Smart Grid:**** An electricity grid that uses digital technology to optimize the distribution and use of electricity.
- **Social License to Operate (SLO):**** The acceptance and support of a mining project by the local community.
- **Solar Photovoltaic (PV):**** A technology that converts sunlight directly into electricity using solar cells.
- **Stranded Assets:**** Fossil fuel reserves or infrastructure that become economically unviable as a result of efforts to mitigate climate change.
- **Sustainable Development Goals (SDGs):**** A set of 17 global goals established by the United Nations in 2015, aimed at addressing a range of social, economic, and environmental challenges.
- **Sustainable Energy:**** Energy obtained from sources that are sustainable and do not deplete resources or cause harm to the environment.
- **Tar Sands:**** A type of fossil fuel deposit that is characterized by the presence of bitumen, a heavy, viscous form of oil.
- **Transmission System Operator (TSO):**** An organization responsible for the operation and maintenance of the electricity transmission system.
- **Ultra-Supercritical (USC):**** A type of coal-fired power plant that operates at extremely