Advanced Skill Certificate in Environmental Management for Mining

Bioethics and Environmental Decision Making in Mining

Bioethics: A branch of ethics that deals with the moral issues arising from biology and medicine, including issues related to mining and the environment.

* Environmental ethics: A subfield of bioethics that deals specifically with the moral relationship between humans and the environment.
* Mining ethics: A subfield of bioethics that deals with the moral issues arising from mining activities and their impact on the environment and human health.

Biodiversity: The variety of different species of plants, animals, and microorganisms that live in an ecosystem.

* Genetic diversity: The variety of genes within a species.
* Species diversity: The variety of different species in an ecosystem.
* Ecosystem diversity: The variety of different ecosystems in a given area.

Bioremediation: The use of living organisms, such as bacteria or plants, to break down or remove contaminants from the environment.

* Phytoremediation: The use of plants to remove contaminants from the soil, water, or air.
* Biostimulation: The addition of nutrients to the environment to stimulate the growth and activity of naturally occurring microorganisms that can break down contaminants.
* Bioaugmentation: The addition of specific strains of microorganisms to the environment to enhance the bioremediation process.

Circular economy: An economic system aimed at eliminating waste and the continual use of resources.

* Cradle-to-cradle design: A design approach that considers the entire lifecycle of a product, from raw material extraction to end-of-life disposal.
* Remanufacturing: The process of restoring a product to like-new condition, using a combination of new and recycled parts.
* Closed-loop recycling: A recycling process in which waste materials are converted into new products without the need for additional raw materials.

Climate change: A long-term change in the average weather patterns that have come to define local, regional and global climates.

* Greenhouse effect: The warming of the Earth's surface caused by the trapping of heat by greenhouse gases in the atmosphere.

* Global warming: The long-term increase in Earth's average temperature.
* Carbon footprint: The total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of carbon dioxide (CO2).

Ecosystem services: The benefits provided by nature to humans, including provisioning services such as food and water, regulating services such as flood and disease control, cultural services such as recreation and aesthetic enjoyment, and supporting services such as soil formation and nutrient cycling.

* Ecosystem-based management: An approach to managing natural resources that considers the entire ecosystem and the services it provides.
* Payments for ecosystem services: Financial incentives provided to landowners or stewards of natural resources to maintain or enhance the provision of ecosystem services.

Environmental decision making in mining: The process of making decisions related to mining activities that consider the potential impacts on the environment and human health.

* Risk assessment: The process of identifying, quantifying, and prioritizing risks associated with mining activities.
* Risk management: The process of developing and implementing strategies to minimize or eliminate risks associated with mining activities.
* Environmental impact assessment: A systematic process for evaluating the potential environmental impacts of a proposed mining project.

Environmental impact assessment (EIA): A systematic process for evaluating the potential environmental impacts of a proposed mining project.

* Screening: The initial step in the EIA process, used to determine whether a proposed mining project requires a full EIA.
* Scoping: The process of identifying the potential environmental impacts of a proposed mining project.
* Baseline monitoring: The collection of data on the existing environmental conditions prior to the commencement of mining activities.
* Mitigation: The process of developing and implementing strategies to minimize or eliminate the potential environmental impacts of a proposed mining project.

Environmental justice: The fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, in the development, implementation, and enforcement of environmental laws, regulations, and policies.

* Disproportionate impact: The unequal distribution of environmental risks and benefits among different populations.
* Environmental racism: The targeting of communities of color for the location of environmentally hazardous facilities.
* Community-based participatory research: A research approach that engages community members in the research process as equal partners.

Green mining: An approach to mining that minimizes the environmental impact of mining activities.

* Sustainable mining: An approach to mining that considers the long-term environmental, social, and economic impacts of mining activities.
* Cleaner production: The use of cleaner technologies and practices to reduce the environmental impact of mining activities.
* Life-cycle assessment: A tool used to evaluate the environmental impact of a mining project from cradle-to-grave.

Life-cycle assessment (LCA): A tool used to evaluate the environmental impact of a mining project from cradle-to-grave.

* Functional unit: The specific product, service, or activity being evaluated in the LCA.
* Inventory analysis: The process of identifying and quantifying the inputs and outputs associated with the functional unit.
* Impact assessment: The process of evaluating the potential environmental impacts of the inputs and outputs identified in the inventory analysis.
* Interpretation: The process of drawing conclusions and making recommendations based on the results of the LCA.

Mine closure and reclamation: The process of returning a mine site to a stable and sustainable post-mining land use.

* Progressive reclamation: The implementation of reclamation activities concurrently with mining activities.
* Financial assurance: The provision of financial resources to ensure that mine closure and reclamation activities are completed.
* Post-closure monitoring: The monitoring of a reclaimed mine site to ensure that it remains stable and sustainable.

Mine rehabilitation: The process of restoring a mine site to a stable and sustainable post-mining land use.

* Passive rehabilitation: The use of natural processes, such as erosion and sedimentation, to rehabilitate a mine site.
* Active rehabilitation: The use of engineering techniques, such as the construction of terraces and water diversions, to rehabilitate a mine site.
* Vegetation establishment: The establishment of vegetation on a reclaimed mine site to prevent erosion and enhance biodiversity.

Pollution prevention: The reduction or elimination of the release of pollutants into the environment.

* Source reduction: The reduction or elimination of pollutants at the source.
* Good housekeeping: The implementation of practices that prevent the release of pollutants into the environment.
* Pollution control: The treatment or removal of pollutants from waste streams before release into the

environment.

Sustainable development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

* Environmental sustainability: The ability of the environment to support human life and activities over the long term.
* Social sustainability: The ability of society to provide for the needs and well-being of all its members over the long term.
* Economic sustainability: The ability of the economy to generate wealth and provide for the needs and well-being of all its members over the long term.

Waste management: The process of managing waste from mining activities to minimize its environmental impact.

* Waste minimization: The reduction or elimination of waste at the source.
* Waste treatment: The treatment of waste to reduce its environmental impact.
* Waste disposal: The final placement of waste in a landfill or other disposal facility.

Water management: The process of managing water resources to minimize the environmental impact of mining activities.

* Water conservation: The efficient use of water resources.
* Water treatment: The treatment of water to remove contaminants and restore its quality.
* Water reuse: The use of treated wastewater for non-potable purposes.

Note: The above glossary terms are provided as a starting point for understanding the key concepts and terms related to bioethics and environmental decision making in mining in the context of the Advanced Skill Certificate in Environmental Management for Mining. It is not an exhaustive list and further research and study may be required to fully understand these concepts and terms.