

**ECOPLANET s.r.l.**Universidad
Politécnica
de Cartagena

Project: BLUE TEmPLATE BLUE TECh PARtnership Education

Training Program

Profile: MONITORING OF ENVIRONMENTAL RISKS Mo.Ris.A.

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Progetto BLUE TEmPLATE
BLUE TECh PARtnership Education

COURSE: Monitoring of Environmental Risks

ECOLOGY - BIOLOGY – CHEMISTRY MODULE			
Lesson contents	<p>1- AIR AND ENERGY: Stratosphere chemistry: the ozone layer; Pollution at ground level, outside and in confined spaces; The greenhouse effect and global warming; Renewable energy sources, alternative fuels and hydrogen economy.</p> <p>2- TOXIC ORGANIC COMPOUNDS: Pesticides, dioxins, PCBs and PAHs, environmental oestrogens. Visit to Arpal. (Regional Agency for Liguria Environmental Protection)</p> <p>3- WATER: Natural waters chemistry; Water pollution and purification; Heavy toxic metals; Visit to the sea mussels bonification plant</p> <p>4- OTHER ENVIRONMENTAL HAZARD: Urban waste and hazardous waste, soil and sediment contamination; Radioactivity, Radon and nuclear energy; Community and Italian rules on pollution and protection of environmental resources.</p>		
Abilities	<p>Use methods and measurement techniques; Identify the tools suitable for monitoring a given phenomenon; Control the environmental quality in complex structures and systems; Detect problems, in terms of cause-effects and evaluations; Define proposed actions for the territory protection and preservation; Intervening in the construction of first intervention works for risk mitigation.</p>		
Knowledge	<p>Know the main sectors and pollutants of air, water and soil pollution; Know the main methods of monitoring, prevention and intervention to reduce pollution</p>		
Skills	<p>Collaborate in the management of territory and environment, participate in evaluations and control of human activity on the environment, manage complex environmental problems involving in a complementary way several disciplines such as chemistry, biology, ecology, physics and geophysics.</p>		
Lessons time	<p>Chemistry (10h) Biology(12h) Applied ecology (10h)</p>		
Training methods	<table border="0" style="width: 100%;"> <tr> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> ■ class lesson □ debriefing □ practice/exercises ■ training □ problem solving </td> <td style="vertical-align: top; width: 50%;"> <ul style="list-style-type: none"> ■ laboratory □ project work □ simulation – virtual Lab □ brain – storming ■ Others (specify) </td> </tr> </table>	<ul style="list-style-type: none"> ■ class lesson □ debriefing □ practice/exercises ■ training □ problem solving 	<ul style="list-style-type: none"> ■ laboratory □ project work □ simulation – virtual Lab □ brain – storming ■ Others (specify)
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PHYSICS AND GEOPHYSICS MODULE			
Lesson contents	<p style="text-align: center;">1 . PHYSICS Fluids Statics and dynamics Heat propagation The laws of thermodynamics and entropy Universal gravitation, electric and magnetic fields in matter Electromagnetic radiation</p> <p style="text-align: center;">2. GEOPHYSICS General physical structure of the planet earth: shape, density, thermal gradient, internal structure. Earth's gravitational field and earth's magnetic field</p> <p>Seismic risk. General information on earthquakes. Statistics of Earthquakes. Propagation of elastic waves and effect on artefacts. Distribution of earthquakes and elements of seismic-tectonics in Italy.</p> <p>Volcanic Risk. Factors of Danger and Risk Assessment. Statistics of eruptions. Effects of volcanic phenomena on artefacts. Forecasting methods of eruptions. Risk limiting measures. The volcanic risk in Italy.</p> <p>Sea currents. Causes originating currents. Parameters identifying currents. Elements affecting a current. Variability and classification. The tides.</p> <p>The winds. Causes originating them. Wind identification parameters. Elements affecting the wind. Variability and classification. The tides.</p>		
Abilities	We confirm abilities contained in the already drawn up document		
Knowledge	Fundamental laws of statics and fluid dynamics. Fundamental principles of thermodynamics General characteristics of the earth's gravitational and magnetic fields Fundamental physical and structural elements of the Earth Fundamental concepts characterising vulcanism and seismic phenomena Origins, classifications, variability of marine currents and winds		
Skills	We confirm skills contained in the already drawn up document Addi: Depending on the geographical position and the territory typology, ability to identify possible environmental risky situations related to natural events		
Lessons time	Physics (8 h) Geophysics (10 h)		
Training methods	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> ■ class lessons <input type="checkbox"/> debriefing <input type="checkbox"/> practise/exercises ■ training <input type="checkbox"/> problem solving </td> <td style="width: 50%; vertical-align: top;"> <ul style="list-style-type: none"> ■ laboratory <input type="checkbox"/> project work <input type="checkbox"/> simulation – virtual Lab <input type="checkbox"/> brain – storming ■ Others (specify) </td> </tr> </table>	<ul style="list-style-type: none"> ■ class lessons <input type="checkbox"/> debriefing <input type="checkbox"/> practise/exercises ■ training <input type="checkbox"/> problem solving 	<ul style="list-style-type: none"> ■ laboratory <input type="checkbox"/> project work <input type="checkbox"/> simulation – virtual Lab <input type="checkbox"/> brain – storming ■ Others (specify)
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