COURSE: WATER QUALITY MONITORING AND ASSESSMENT

DATE OF COURSE (on-line module – 10h/training): from August the 5th to August the 31st, 2019

DATE OF COURSE (face-to-face module – 42h/training): from September the 9th to September the 13th, 2019

VENUE OF THE COURSE:
CETESB – Companhia Ambiental do Estado de São Paulo
Av. Prof. Frederico Hermann Jr., 345
CEP 05459-900 – Alto de Pinheiros - São Paulo, Brasil

REGISTRATION: from May the 6th to May the 26th, 2019 through the registration form that will be available in the Training Website of the National Water Agency -ANA (for its acronym in Portuguese) (https://capacitacao.ead.unesp.br)

NUMBER OF QUOTAS: 30

PUBLICATION OF THE LIST OF SELECTED CANDIDATES: May the 30th, 2019 (the date was changed to June the 4th, 2019).

ORGANIZING INSTITUTIONS:
ANA – National Water Agency (Brazil)
CETESB – Environmental Company of the State of São Paulo
UNESCO – United Nations Educational, Scientific and Cultural Organization
ABC/MRE – Brazilian Cooperation Agency/Foreign Affairs Ministry

PARTNERS:
ACTO – Amazon Cooperation Treaty Organization

COURSE COORDINATORS:
Technical Coordinators: Carmen Lucia V. Midaglia (cmidaglia@sp.gov.br) and Claudio R. Palombo (cpalombo@sp.gov.br)

SCOPE
To enable participants to properly apply techniques for collecting and preserving water samples, aquatic organisms and sediments for physical-chemical and biological analyzes.
LANGUAGE

The course will be conducted in Portuguese with simultaneous translation into Spanish and English.

TARGET AUDIENCE:

The course is aimed at technicians and professionals from water and environment management agencies, Latin American countries and Portuguese-speaking countries, responsible for data analysis and report preparation on water quality, aquatic communities, and sediments.

PREREQUISITE: Preferably, have basic statistics knowledge.

METHODOLOGY

The course will be developed with a class load of 52h/ class, distributed in 10 hours of distance learning and 42 hours face-to-face (including on September the 13th, a field trip to the Guarapiranga reservoir).

ONLINE COURSE

On-line studies by means of material (study guide) that will be sent by e-mail to the candidates, including five videos prepared for the National Guide of Sampling and Preservation of Samples.

FACE-TO-FACE COURSE

Theoretical classes and case studies on the elaboration process of a water quality report.

ON-LINE MODULE PROGRAM (10h/training):

Introduction of Water Quality
Types of aquatic environments and their main characteristics (on-line content).
Compartiments of the aquatic environment (water, aquatic communities, sediments)
Natural events that alter water quality.
Main water pollution sources and its impacts (eutrophication, oxygen depletion, toxicity, microbial contamination).
Spatial and temporal variations in water quality / Main parameters of water quality; Emerging contaminants.

Variables of Water Quality and Objectives of the Water Quality Assessment
- Physical and chemical variables patterns of water quality.
- Types of assessments: environmental emergencies, control activities, analysis of trends, impact assessment, analysis of conformity to legal standards.
**PROGRAM OF THE FACE-TO-FACE MODULE (42h/training):**

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<td><strong>09/09/19</strong></td>
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|          | 8h00 am – 9h am | Registration of the participants / Opening of the Course                | ETGC Team  
Biol. PhD Claudio Roberto Palombo  
Geogr. PhD Carmen Lucia V. Midaglia |
<p>|          | 9h am – 12h15 pm| Introduction to Water Quality                                            | Biol. PhD. Claudio Roberto Palombo                                           |
|          | 12h15 pm – 1h45 pm | Lunch                                                                         |                                                                            |
|          | 1h45 pm – 3h45 pm| Physical and chemical variables patterns of water quality                | Eng. Msc. Gabriela de Sá Leitão de Mello                                   |
|          | 3h45 pm – 5h45 pm| Spatial and temporal variations in water quality                        | Bio. PhD Fabio Netto Moreno                                                 |
|          | 8h00 am – 10h00 am| Data storage and exchange - Structuring and storage of water quality data. Exchange of data | Geogr. PhD Carmen Lucia V. Midaglia                                         |
|          | 10h00 am – 12h00 pm| National Criteria: Resolutions CONAMA, Resolution of the Ministry of Health. Data processing and analysis. | Eng. MSc. Nelson Menegon Jr.                                               |
| <strong>09/10/19</strong> |                |                                                                         |                                                                            |
|          | 12h00 pm – 1h30 pm | Lunch                                                                         |                                                                            |
|          | 1h30 pm - 3h30 pm | National and International water quality standards, water communities and sediments - water quality patterns / Biological Communities. Data processing and analysis | Biol. PhD Marta C. Lamparelli                                             |
|          | 3h30 pm - 6h00 pm | National and International water quality standards, water communities and sediments - water quality patterns / Microbiological standards. Data processing and analysis | Biom. PhD Maria Ines Zanoli                                               |</p>
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<td>09/11/19</td>
<td>8h00 am – 10h00 am</td>
<td>Data processing and analysis - Results of the Water Analysis, Consistency and Basic Statistics. Exercises</td>
<td>Eng. MSc. Nelson Menegon Chem. Beatriz Durazzo Ruiz</td>
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<td>10h00 am – 12h00 pm</td>
<td>Data processing and analysis - Use of water quality index calculation worksheets: Water Quality Index (WQI), Trophic State Index (TSI), Sustainable Development Goal (SDG) indicator 6.3.2.</td>
<td>Chem. Beatriz Durazzo Ruiz Eng. MSc. Gabriela Leitão</td>
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<td>12h00 pm – 1h30 pm</td>
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<td>1h30 pm – 4h00 pm</td>
<td>Mapping and dissemination of spatial information - Mapping and Dissemination of spatial information for Water Quality</td>
<td>Geogr. MSc. Vinicius Travolini</td>
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<td>4h00 pm – 6h00 pm</td>
<td>Development of maps and dissemination of spatial information - Use of Geographic Information System for Analysis and Dissemination of Spatial Information for Water Quality</td>
<td>Geogr. MSc. Rodrigo Ferreira da Silva</td>
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<tr>
<td>09/12/19</td>
<td>8h00 am – 10h00 am</td>
<td>Data processing and analysis of data - Management of Sediment Quality. National and International Sediment Quality Assessment Criteria.</td>
<td>Chem. PhD. Jose Eduardo Bevilacqua</td>
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<td>10h00 am – 11h00 am</td>
<td>Data storage– Water Quality Database Structure. Data sharing</td>
<td>Geogr. PhD Carmen Lucia V. Midaglia Chem. Beatriz Durazzo Ruiz</td>
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<td>11h00 am – 12h30 pm</td>
<td>Elaboration of Report and dissemination of information - Preparation of Water Quality Bulletins</td>
<td>Chem. Vinicius Marques da Silva Chem. Beatriz Durazzo Ruiz</td>
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<td>12h30 pm – 2h00 pm</td>
<td>Lunch</td>
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<td>2h00 pm – 3h30 pm</td>
<td>Analysis of the elaboration process and the content of the Surface Water Quality Report in the State of São Paulo</td>
<td>Biol. Msc. Denise Amazonas Pires Biol. PhD Hélio Rubens V. Imbimbo</td>
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<td>3h30 pm – 6h00 pm</td>
<td>Data processing and analysis of the data - Analysis of aquatic communities: Phytoplankton, benthic macroinvertebrates and ichthyofauna</td>
<td>Biol. Msc. Denise Amazonas Pires Biol. PhD Hélio Rubens V. Imbimbo</td>
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| 09/13/19 | 8:00 am – 5:00 pm | Technical visit to Guarapiranga Reservoir  
Equipment presentation  
Monitoring with water probes/ Automatic Water Network Station  
Geographic Characterization of Sampling Points (Water/Sediments/Bathing monitoring)  
Technical visit in a boaqt to sampling points  
CETESB/ANA  
Sampling demonstration of water and sediments | Env. Tech. Elimar de Jesus Melo  
Env. Tech. Venicio Pedro Ribeiro;  
Chem. Vinicius Marques da Silva  
Biol. MSc. Renato Pizzi Rossetti;  
Geogr. PhD Carmen Lucia V. Midaglia  
Chem. Beatriz Durazzo Ruz  
Env. Tech. Renan Lourenço Oliveira Silva |

REGISTRATION AND LOGISTIC ASPECTS:

- Registration dates from May the 6th to May the 26th, by filling up the registration form available in the Training Website of the ANA Agency (https://capacitacao.ead.unesp.br)

- All participation costs of the selected candidates will be covered by the organizing institutions, including:

  ✓ Course’s Costs;  
  ✓ Transfer from São Paulo Airport (Guarulhos or Congonhas) to lodging place (hotel) and vice-versa;  
  ✓ Lodging;  
  ✓ Meals:  
    o Breakfast at the hotel;  
    o lunch at a restaurant near to the course;  
    o dinner at the hotel (including dinner on Sunday, September the 8th, 2019);  
    o *coffee-breaks* (one in the morning and a second one in the afternoon);  
  ✓ If necessary, transfer between the hotel and CETESB and vice versa.

The costs are NOT covered:

  × Extra expenses such as taxi, phone calls, minibar, etc.;  
  × In the case of Brazilian participants, traveling from city of origin to São Paulo (SP) and back; and  
  × For candidates of all nationalities, including Brazilians, the transfer of their city of origin to the airport / bus station / train station and vice versa.

- The weather conditions in São Paulo can change suddenly. Please bring warm clothes.

- The use of specific clothing for field class (sweaters, shorts, etc.), sunscreen, hat or cap for the practical class, on September the 13th, at Guarapiranga Reservoir is recommended.