FREE UNIVERSITY PEREIRA SECTION

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING

SUBJECT:	**PRINCIPLE OF MODELING AND CONTROL OF THE SURFACE WATER POLLUTION**
CODE:	**----------**
SEMESTER:	**TENTH**
HOURS	**WEEKLY: 4**
	THEORETICAL: 4
	PRACTICES: 0
REQUIREMENTS:	**RIVER HYDRAULICS, TREATMENT PLANTS II**

GOALS.

Provide the student with the conceptual elements that allow him to evaluate the capacity self-purification of surface waters and allow them to make predictions of the behavior of these waters under different pollutant load conditions.

METHODOLOGY.

The course will be developed with master lectures by the professor on the content basics of the subject; for their part, students will strengthen their knowledge of the subject through recommended readings, consultations with the professor, and by carrying out of tasks.

WORK PROGRAM.

- Mathematical modeling of water currents. Application to rivers and canals.
- Calculation of kinetic constants
- Distributed sources of pollution
- Mathematical modeling of lakes, bays and estuaries
- Evaluation and management of toxic substances in surface waters
- Application of computer models: Case studies: Pamplonita Rivers, Bogotá, Teusacá, Cauca

LITERATURE.

THOMANN ROBERT, Systems Analysis & Water Quality Management, McGraw Hill Book Company, New York, 1974

RINALDI S., SONCINI-SESSA R., STEHFEST H., TAMURA H., Modeling and Control of River Quality, McGraw Hill, Great Britain, 1979

SALAZAR ARIAS ALVARO, Water resources pollution, models and control, AINSA, Medellín, August 1987

CEPIS, Manual for the evaluation and management of toxic substances in surface waters, Course reports, WHO, PAHO, Lima, Peru, 1994