FREE UNIVERSITY PEREIRA SECTION

UNDERGRADUATE PROGRAM IN ENVIRONMENTAL ENGINEERING

SUBJECT:	**MICROBIOLOGY AND LABORATORY**
CODE:	**----------**
SEMESTER:	**ROOM**
HOURS	**WEEKLY: 4**
	THEORETICAL: 2
	PRACTICES: 2
REQUIREMENTS:	**STATISTICS II,**
	CHEMISTRY III AND LABORATORY,
	ECOLOGY

GOALS.

That the student is able to:

• Establish and recognize the morphological, physiological and genetic characteristics that allow to differentiate microorganisms

• Identify the main metabolic activities carried out by microorganisms as well such as the optimal physical-chemical conditions for its development or control

• Quantify, evaluate and control the variables involved in microbiological systems for use in environmental engineering

• Interpret the results obtained in microbiological analyses

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 teacher and problem solving of application.

WORK PROGRAM.

ÿ Characterization, classification and identification of microorganisms: Examination microscopic of microorganisms

ÿ Microbial physiology and genetics

ÿ Microorganisms: Bacteria, fungi, algae, protozoa, viruses.

ÿ Control of microorganisms

ÿ Environmental microbiology

ÿ Microorganisms and water-related diseases

ÿ Microorganisms and water-related diseases

LITERATURE.

PELCZAR MJ, Jr., REID RD, CHAN ECS, Microbiology, McGraw-Hill

PEBERDY JF, Development Microbiology. Blackie. glasgow

SOUNIS E., Practical Course in Microbiology. McGraw-Hill Book Company, São Paulo

BAILEY J., OLLIS DF, Biochemicals Engineering Fundamentals, McGraw-Hill Book Company, New York

GAUDY, AF, GAUDY ET, Microbiology for Environmental Scientists and Engineers, McGraw-Hill Book Company, New York

GUNEA J., SANCHO J., PARES R., Microbiological analysis of water: Applied aspects, Omega Editions, Barcelona