espol Escuela Superior
Politécnica del Litoral

Course Syllabus

DISCRETE MATHEMATICS

Printed by: jfmoncay

Program: Telecommunications Engineering

1. Course number and name

MATG1005 - DISCRETE MATHEMATICS

2. Credits and contact hours

2 credits and 3 contact hours

3. Instructor's course or coordinator's name

MARGARITA HELENA MARTÍNEZ JARA

4. Text book, tittle, author, and year

• Susanna S. Epp. Discrete mathematics with applications (4th Edition)

 a.Other supplemental materials

• Richard Johnsonbaugh. Matemáticas Discretas (Sexta)

• Kolman-Busby-Ross. Discrete Mathematical Structures (Sexta Edición)

5. Specific course information

a.   Brief description of the content of the course (catalog description)

This course provides an introduction to the study of a branch of contemporary mathematics that develops the reasoning and application of mathematics for the solution of problems of a discrete nature. It includes the study of mathematical logic, demonstrations, sets, counting techniques, whole numbers properties and structures such as graphs and trees. Algorithms that allow obtaining results in discrete structures and grammars are also studied, an environment that the engineers that we are trained will surely face.

b.   This course is: Required

6. Specific goals for the course

a.   Specific outcomes of instruction

1.- Use the rules of inferences and demonstration methods for the validation of arguments.

2.- Apply various counting techniques to solve problems of a discrete nature.

3.- Apply fundamental concepts of the theory of sets, graphs and numbers, in the modeling of discrete structures.

4.- Use algorithms, graphs and networks to solve discrete problems.

b.   Explicity indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

• An ability to apply knowledge of mathematics, science, and engineering

• An ability to communicate effectively

7. Brief list of topics to be covered

1.- Mathematical logic, demonstrations and combinatorial circuits

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2.- Sets and Sequences

3.- Introduction to number theory and counting techniques

4.- Recurrence functions, relationships and recurrence

5.- Algorithms and applications of graph and tree theory

6.- Languages, grammars and automatons of finite state