Date:	**REGISTRATION OF COURSES**	RESPONSIBLE OF REGISTRATION:

AREA OF KNOWLEDGE	**SUB-AREA**	**UNDERGRADUATE**	**POSTGRADUATE**
BASIC SCIENCES			
ECONOMICS AND SOCIAL SCIENCES			
HEALTH SCIENCES			
ENGINEERING, ARCHITECTURE AND TECHNOLOGY		**X**	
EDUCATION SCIENCES			
HUMANITIES AND ARTS			
AGRICULTURAL AND SEA SCIENCES			
MILITARY ARTS AND SCIENCES			
SAFETY AND CIVIL PROTECTION			
INTERDISCIPLINARY			
OTHERS			

ADSCRIPTION OR BRANCH (ES):

FACULTY	ARCHITECTURE AND URBANISM
SCHOOL	ARCHITECTURE
INSTITUTE	
DEPARTMENT	METHODS SECTOR
OTHERS	

COURSE:

NAME	DECRIPTIVE GEOMETRY I
CODE	1021
EXECUTIVE UNIT	
CLASSIFICATION	COMPULSORY / THEORETICAL - PRACTICAL
APPROVAL DATE	
UPDATE DATE	
APPROVAL AUTHORITY	
CREDIT UNITS	4 (FOUR)
HOURS/WEEK	6 (SIX)
REGIMEN	SEMI-ANNUAL
ACADEMIC PERIODS	REGULAR
REQUIREMENTS	WORKSHOP OF ARCHITECTONIC EXPRESSION II
PROFESSOR	

PURPOSES

LEARNING OBJECTIVES

That the student would be able to:

1. To analyse and interpret situations that happen in the space, and give them a two-dimensional answer through the Descriptive Geometry methods.

2. Determine distances, angles and/or areas in or between geometrical elements placed in the space.

3. Construction of the projections of a planar figure or a regular or radial polyhedron with regular base.

CONTENTS

1) TOPIC 1: INTRODUCTION TO DESCRIPTIVE GEOMETRY (2h).
Purpose of Descriptive Geometry. Theory and elements of the projections. Central or conic and parallel or cylindrical projections: general characteristics. Types of cylindrical projections. Properties of cylindrical and conical projections.

2) TOPIC 2: PROJECTIONS OF THE POINT (4h).
Dihedral system. Auxiliary views. Dihedral projection of the point. Relative positions of the point in relation to projection planes: notational convention of the point. Trihedral system. Trihedral projection of the point: European and North-American systems.

3) TOPIC 3: PROJECTIONS OF THE STRAIGHT LINE (12 h).
Relative positions between the line and projection planes: notational convention of the lines. Dihedral and trihedral projections of a line. True length of a line and its angles to projection planes: Auxiliary-view method and applications. Traces of the line. Relative positions between two lines.

4) TOPIC 4: PROJECTIONS OF THE PLANE (2h).
Ways of defining or express a plane. Relative positions of a plain in relation to projection planes: notational conventions of the plane.

5) TOPIC 5: RELATIONSHIPS BETWEEN POINT, LINE AND PLANES (16h).
The line in the plane. Characteristic lines of the plane. Angles of a plane in relation to projection planes. Obtainment of traces of a plane. The point in the plane. Relative positions between point and plane. Relative positions between line and plane. Relative positions between two planes. Intersection between planes expressed by their traces. Intersections of the line with the plane. Intersection between planes expressed in whatever forms.

6) TOPIC 6: PARALLELISM (3h).
Parallel planes. Parallel line in relation to a plane and vice versa. Particular cases of parallelism.

7) TOPIC 7: PERPENDICULARITY (12h).
Perpendicular line to a plane and vice versa. Perpendicular lines. Perpendicular planes. Perpendicularity and metric problems (introduction to perpendicularity applications). Polyhedron construction: terms and definitions, methods of analysis, construction of radial polyhedrons through direct path.

8) TOPIC 9: AUXILIAR OR INDIRECT METHODS (9h).
Auxiliary View Method: Fundaments, auxiliary planes and the elements contained in it, projection of points, applications. Homology: Definitions. Desargues' Theorem. Collineation and its properties. Affinity. Affinity and collineation types. Homology application. Change of plane's projection method: fundaments, change of a projection plane, successive change of several planes, basic operations on change of planes.

9) TOPIC 9: CONSTRUCTION OF POLYHEDRONS (15h).
Regular polyhedrons: Types, geometrical characteristics of regular tetrahedron, hexahedron and octahedrons, diagonal and main section of this geometric shapes. Homothety as a method to obtain main section. Construction.

INSTRUCTIONAL STRATEGIES

- The course has a theoretical-practical character, with a rough relation between both components of 1:3.
- The length indicated for each topic is only a reference and it can be modified in the opinion of the professor.
- The approach to exercises of topic 9 has to be such that the solution process involves any sort of metric problem (distance point-line; distance point-plane; distance between parallel lines or lines).

INSTRUCTIONAL MEDIA

EVALUATION

TEXTBOOKS (If possible, according to contents)