



A) COURSE

Course Id:	Course
1120	DESCRIPTIVE GEOMETRY

Class Hours per Week	Lab hours per week	Complementary practices	Credits	Total hour course
5	5	0	0	80

B) GENERAL COURSE INFORMATION:

	EE (IEA)	ME (IM)	MME (IMA)	EME (IME)	MTE (IMT)
Level:	I	I	I	I	I
Course Type (Required/Elective)	Required	Required	Required	Required	Required
Prerequisite Course:					
CACEI Classification:	BS	BS	BS	BS	BS

C) COURSE OBJECTIVE

At the end of the course, the student will be capable of:

Achieving represent and interpret in a plane characteristics of objects in space, in order to raise and solve geometric problems, in terms of shapes and dimensions, which are presented in engineering.

D) TOPICS (CONTENTS AND METHODOLOGY)

1.- Introduction.		4 hours
Specific Objective:	The student will know, the concept of descriptive geometry and its importance in engineering. How is created, the most common types and the manipulation of it.	
1.1.- Objective matter.		
1.2.- Employment needs of the engineering descriptive geometry.		
1.3.- The engineering technical drawings.		
<ul style="list-style-type: none"> • Plants • Elevations • Developments • Perspectives 		
1.4. - Examples.		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	
2. - General considerations on knowledge and identification of geometric concepts.		4 hours



Specific Objective:	The student will know and identify the basic geometric concepts in descriptive geometry.
2.1.- Point. 2.2.- Line 2.3.- Straight line. 2.4.- Figure 2.5.- Body. 2.6.- Figures component elements, surfaces and bodies.	
Readings and other resources	Books, Articles.
Teaching Methodologies	Presentation in class, guided instruction, student interaction.
Learning Activities	Assignments and discussion of these, collection practices and data analysis.

3.- Projections		5 hours
Specific Objective:	Students will learn reference systems and be able to develop cylindrical and orthogonal projections.	
3.1.- Reference systems. 3.2.- Projection systems. 3.3.- Conic projection. 3.4.- Cylindrical projection. 3.5.- Orthogonal projection. 3.6.- Triple orthogonal projection.		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

4.- Signs and naming conventions in establishing the triple system orthogonal projection.		14 hours
Specific Objective:	The student will understand, know and apply the conventions of signs and markings on the triple orthogonal projection system.	
4.1.- Isometric drawing elemental. 4.2.- Montea. 4.3.- The point on the montea. 4.4.- The point on the third projection		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

5.- Straight line.		11 hours
Specific Objective:	The student will learn concepts related to the straight line and apply them to the development of strokes.	
5.1.- The line in montea and third projection 5.2.- Types of lines as positions on the reference system. 5.3.- Traces of lines. 5.4.- Convention visibility. 5.5.- Parallels between straight. 5.6.- Intersecting lines. 5.7.- True extent of the lines		
Readings and other resources	Books, Articles.	



Teaching Methodologies	Presentation in class, guided instruction, student interaction.
Learning Activities	Assignments and discussion of these, collection practices and data analysis.

6.- Plane.		10 hours
Specific Objective:	The student will understand, know and apply the fundamental concepts in the line of planes.	
6.1. - The plane in montea and third projection. 6.2. - Types of plans as positions on the reference system. 6.3. - Traces of planes. 6.4. - Membership of straight shots. 6.5. - Parallelism between planes. 6.6. - Squareness between planes. 6.7. - Intersection of planes. 6.8. - Intersection of planes and straight. 6.9. - Plane figures. 6.10.- True form and true magnitude of plane figures.		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

7.- Geometrical bodies		15 hours
Specific Objective:	The student will learn the concept of geometric shapes and geometric elements as well as polyhedral stroke.	
7.1.- Polyhedra. 7.2.- Polyhedra in montea. 7.3.- Geometric elements of polyhedra. 7.4.- Intersections of planes and polyhedra. 7.5.- Intersection of polyhedra.		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

8.- Changes reference systems.		8 hours
Specific Objective:	The student will learn the changes in the reference systems and movement of planes in the geometrical space.	
8.1.- Changes the horizontal plane of projection. 8.2.- Changing the frontal plane of reference. 8.3.- Turns of the geometrical concepts of space. 8.4.- Dejection. 8.5.- Development of polyhedra		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

9.- Nonplanar surfaces.		6 hours
Specific Objective:	The student will learn the concepts and development of geometric shapes defined by curves.	



9.1.- Ruled.	
9.2.- Single-curved.	
9.3.- Double curvature.	
9.4.- Warped.	
9.5.- Geometric bodies limited by curved surfaces	
Readings and other resources	Books, Articles.
Teaching Methodologies	Presentation in class, guided instruction, student interaction.
Learning Activities	Assignments and discussion of these, collection practices and data analysis.

10.- Perspective		6 hours
Specific Objective:	Students will learn the terminology related with the perspective for later use in developing strokes for descriptive geometry.	
10.1.- Axonometric.		
10.2.- Dimetria.		
10.3.- Trimetry.		
10.4.- Military perspective.		
10.5.- Cavalier perspective.		
10.6.- Conical perspective.		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

11.- Projected shadow		4 hours
Specific Objective:	Students will learn the terminology and traces of conical and cylindrical shadows.	
11.1.- Conical shadow		
11.2.- Cylindrical shadow		
Readings and other resources	Books, Articles.	
Teaching Methodologies	Presentation in class, guided instruction, student interaction.	
Learning Activities	Assignments and discussion of these, collection practices and data analysis.	

E) TEACHING AND LEARNING METHODOLOGIES

1. Conventional exposure of each subject by the teacher.
2. Problem-based learning.

F) EVALUATION CRITERIA:

Evaluation:	Schedule	Suggested Form of Evaluation and weighing	Topics
1st. Partial Evaluation	16 sessions	Exam 80%, Tasks 20%;	1, 2, 3 y 4
2nd Partial Evaluation	16 sessions	Exam 80%, Tasks 20%;	4,5 y 6
3rd. Partial Evaluation	16 sessions	Exam 80%, Tasks 20%;	6 y 7
4th Partial Evaluation	16 sessions	Exam 80%, Tasks 20%;	7 y 8
5th Partial Evaluation	16 sessions	Exam 80%, Tasks 20%;	9, 10 y 11
Final Ordinary Evaluation			



		100% (Average of the Partial Evaluations)	
Other activities:			
Extraordinary Exam	Week 17 of the semester in course	Exam 100%	Topics 100%
Title Exam	According to the program of the School Secretary.	Exam 100%	Topics 100%
Regularization Exam	According to the schedule of the School Secretary	Exam 100%	Topics 100%

G) BIBLIOGRAPHY AND ELECTRONIC RESOURCES

Descriptive Geometry, Giombini Adrian Ed. Porrúa, Inc.
Descriptive Geometry, Miguel De La Torre Carbo U.N.A.M.
Descriptive Geometry, Schaum's Series,
Models and Photographs, Ed. Gustavo Gili, Sa

Complementary Books

Board, Squares, Chalk (Color)
Overhead Projector.
Opaque Projector.
16 Mm Film Projector.
Flipchart Board.
Vcr
Computer

Internet Links