

COURSE OUTLINE

Architecture 103 Descriptive Geometry

I. Catalog Statement

Architecture 103 is an applied science treating of graphics representation of lines, planes, surfaces, and solids. Architectural applications are used for subject matter. Simple shades and shadows.

Units – 3.0

Lecture Hours – 2.0

Total Laboratory Hours – 4.0

(Faculty Laboratory Hours – 4.0 + Student Laboratory Hours – 0.0 = 4.0 Total Laboratory Hours)

Prerequisite: Arch 101

Recommended Preparation: Engineering 109

Note: Required for architecture majors. This course may not be taken for credit by students who have completed Engineering 103.

II. Course Entry Expectations

Skills Level Ranges: Reading 5; Writing 5; Listening/Speaking 5; Math 3.

Prior to enrolling in the course, the student should have:

1. developed an architectural style of lettering;
2. developed drafting skills by the completion of architectural projects using traditional drafting methods;
3. an understanding of orthographic and isometric projection;
4. the ability to communicate visual ideas through the use of verbal, written and sketching techniques.

III. Course Exit Standards

Upon successful completion of the required coursework, the student will:

1. describe the purpose of descriptive geometry and how it relates to the students field of study;
2. create flat pattern developments in relation to architectural design requirements through a series of problems;
3. utilize descriptive geometry techniques to solve various architectural drawing tasks.

IV. Course Content

A.	Projections	6 hours
	1. Review of isometric projection	
	2. Review of orthographic projection	
	a. Standard views (Frontal, Horizontal, and Profile)	
	b. Auxiliary views	
B.	Drawing Conventions	4 hours
	1. Problem layout setup	
	2. Naming of views	
	3. Nomenclature of other components	
C.	Lines	12 hours
	1. Finding true length of lines	
	2. Angle with planes	
	3. Finding point views of lines	
	4. Calculating distance, bearing, and grade	
D.	Points	8 hours
	1. Definition	
	2. Projection of points	
E.	Surfaces	18 hours
	1. Definition	
	2. Curved surfaces	
	3. Finding edge views of surfaces	
F.	Solids	8 hours
G.	Intersections	20 hours
	1. Finding piercing points of a line with surface	
	2. Finding the intersection of two surfaces	
	3. Finding the intersection of a surface and a solid	
H.	Pattern development	8 hours
	1. Uses of developments	
	2. Assembly methods	
I.	Projection of shadows	4 hours

1. Methods of casting shadows
 2. Imaginary shadows; shadows by line segment method
 3. Determination of shade and shadow areas on various types of objects
 4. Determination of shade areas
- J. Final Presentation and Evaluation 8 hours
1. Creation of a portfolio
 2. Final project

V. **Methods of Presentation**

The following instructional methodologies may be used in the course:

- a. lecture;
- b. multimedia;
- c. guest speakers;
- d. individual and group projects;
- e. field trips.

VI. **Assignments and Methods of Evaluation**

1. Individual projects. (eg. will typically consist of projects assigned from the lab manual or by the instructor.)
2. Performance tests. (eg. will typically be a timed drawing test based off the topics covered in each chapter of the lab manual.)
3. Midterm examination. (eg. will typically be a performance based final drawing project that utilizes the different topics covered up to that point in the course.)
4. Final examination. (eg. will typically be a performance based final drawing project that utilizes the different topics covered during the course.)
5. Portfolio review and critique. (eg. this is typically a critique of all of the work that the student has accomplished during the course. The work is bound in a portfolio and evaluated by the instructor.)

VII. **Textbook**

Martin, D., Descriptive Geometry Lab Manual, Current Version,
Glendale: Glendale Community College Bookstore, 2008.
10th Grade Textbook Reading Level. ISBN: None

VIII. **Student Learning Outcomes**

1. Students will be able to calculate various facts about lines, surfaces, and shapes through only graphical means.

2. Students will develop an ability to evaluate a descriptive geometry problem to determine the method of finding the solution.
3. Students will demonstrate the ability to create flat pattern developments in relation to architectural design.
4. If trained in its use, students will utilize the AutoCAD drafting/design software, in the completion of their projects.