

**Bergen Community College  
Division of Science and Math  
Department of Industrial Design Technology**

**Course Syllabus  
MFG-124 Applied Metrology**

Semester and year:

Course Number:

Meeting Times and Locations:

Instructor:

Office Location:

Phone:

Office Hours:

Email Address:

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**COURSE DESCRIPTION:**

MFG-124 Applied Metrology is the study of the fundamental skills used by machinists for the calibration and quality control of measurements and their application. Students will study and use precision measuring equipment such as calipers, dial indicators, gauges, and hole measuring devices in a practical laboratory. Use of Coordinate Measurement Machine and Optical Comparator will also be introduced.

2 lecture, 2 lab, 3 credits

Prerequisites: None

Co-requisites: None

**STUDENT LEARNING OBJECTIVES:**

As a result of meeting the requirements in this course, students will be able to:

Student performance on these objectives will be measured by:

1. Demonstrate the ability to read and interpret blue prints and an associated knowledge of drafting standards; particularly in the area of tolerancing and dimensioning as relates to manufacturing processes.	Graded Exams, Final Exam and exercises.
2. Demonstrate skill in the selection and use of task appropriate, hand held, precision measuring equipment.	Graded Exams and exercises
3. Demonstrate proficiency through inspection of machine components incorporated in a quality assurance process.	Graded Exams, Final Exam and exercises
4. Demonstrate proficiency in the use of electronically enhanced measuring equipment and related software	Graded Exams and exercises

COURSE CONTENT:  
How to Read Shop Prints &  
Dwgs.

<u>CHAPTER</u>	<u>TOPIC</u>
1.	Intro To Blueprint Reading
3.	Orthographic Projection
9.	Threads and Thread Symbols & Notation
10,11	Drawing Standards Pt. 1 & Pt. 2
16.	Welding Symbols and Blueprints

Handouts

Precision Measurement Tools  
Intro To CMM and Optical Comparator  
Surface Finish Standards

TEXTBOOK:

Blueprint Reading for Machine Trades, 7<sup>th</sup> Edition, Schultz & Smith,  
Prentice Hall. ISBN: 13: 978-0-13-217220-2

EVALUATION:

A. Exercises and Exams . . . . .	70%
B. Final Examination. . . . .	20%
C. Class Participation . . . . .	10%
TOTAL . . . . .	100%

SPECIAL NOTES:

**A final grade cannot be assigned for the course until all projects  
and examinations for the course have been completed.**

Make-up examinations will be administered in accordance with the  
instructor's and division's policy.

FACULTY ABSENCE PROCEDURE: Please note well.

A daily listing will appear in the glass case located in the main hall A bldg. which will indicate all  
classes which are cancelled. Students can consult this case before going to class. If students find a  
class cancelled which has not been listed, they should report this to the divisional dean's office (A325)  
or to the evening/Saturday office (L113).

## CALENDAR:

<u>Class Meeting</u>	<u>Date</u>	<u>Topic</u>	<u>Chapter</u>
1.	_____	Intro to Blueprint Reading	1
2.	_____	Orthographic Projection	3
3.	_____	Drawing Standards	10,11
4.	_____	Measurements and Conversion	
5.	_____	Sine Bar Set and Application	
6.	_____	<b>EXAM 1</b>	
7.	_____	Precision Measurement Tools / Lab Exercise	
8.	_____	Intro to Coordinate Measurement Machine and Optical Comparator	
9.	_____	Geometric Dimensioning & Tolerancing Symbols	1,2
10.	_____	Geometric Dimensioning & Tolerancing - Applications	12
11.	_____	<b>EXAM 2</b>	
12.	_____	Thread & Thread Symbols and Notation	9
13.	_____	Surface Finish Standards / Lab Exercise	
14.	_____	Welding Symbols for Blueprints	16
15	_____	<b>FINAL EXAM</b>	

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