



MFG 101 Blueprint Reading
2 Credits
College Now/CTE
Student Outcomes Checklist
cocc.edu/departments/college-now/

Student's Name _____

Student's Signature _____ Completion Date _____

High School Teacher's Signature _____ Date _____

Recommended Grade _____ High School _____

COCC Review Instructor's Signature _____

COURSE DESCRIPTION: Provides student with training to read and interpret various types of industrial blueprints. Includes interpretation of line types, geometric tolerancing and dimensioning, surface finish callouts, auxiliary views and orthographic projection.

REQUIRED TEXT: *Basic Blueprint Reading and Sketching, Seventh Ed.*, by Dr. Thomas Olivo and Thomas P. Olivo. ISBN 13: 9780766808416

INSTRUCTIONS TO THE TEACHER: 10 question student quizzes are to be constructed from the various assignments as shown at the end of each section in the text book. Likewise the final exam is constructed by a combination of questions drawn from the various assignments. The answer keys to all of these assignments are in the Instructor's Guide to Accompany Basic Blueprint Reading and Sketching by Dr. Thomas Olivo and Thomas P. Olivo. ISBN 0-7668-1111-5. A copy is available to view at the College Now office.

REQUIRED DOCUMENTATION: When the student has successfully completed all outcomes, quizzes and the final exam, the high school teacher will mail or deliver the following documents to: College Now Office, Central Oregon Community College, 2600 NW College Way, Bend, OR 97703.

1. Completed and signed course outcomes and grade sheet (Pages 1 & 3).
2. Signed final grade roster for the course.

GRADING:

A	4.0	Outstanding Performance
A-	3.7	Superior
B+	3.3	Excellent
B	3.0	Very good
B-	2.7	Good
C+	2.3	Better than satisfactory
C	2.0	Satisfactory
D	1.0	Passing (NOTE- DOES NOT COUNT TOWARD MATC GRADUATION)
F	0.0	Not passing

See Grading Policy at
cocc.edu/departments/college-now/forms/files/grading_policy.pdf

MATC Grading Standards

ASSESSMENT GRADE:

Portfolio	10%
Cognitive Assessment	40%
Authentic Assessment	<u>50%</u>
TOTAL	<u>100%</u>

OUTCOMES:

The student will demonstrate how to...

- Identify the different types of lines, print sizes, print views, assembly prints and call outs used to depict the graphic representation of a part.
- Evaluate and interpret a composite layout print.
- Identify and use the different types welding symbols, arrow directions, bevel call outs, welding processes and fabrication prints.
- Evaluate and interpret blue prints used in the manual, cnc and general machine trades.
- Evaluate and interpret blue print site layout, concrete - forms, wall framing, trusses, windows, doors and roofing in the residential construction trade.

BLUEPRINT READING PERFORMANCE REQUIREMENTS: *Using the *Basic Blueprint Reading and Sketching, Seventh Ed.*, by Dr. Thomas Olivo and Thomas P. Olivo, the student will complete the assignments in the order given below. At the completion of Section assignments the student will take a quiz pertaining to the Units covered in the Section. Students will also complete a comprehensive final test.

STUDENT INSTRUCTIONS: Read the following Units. Complete the companion assignments by typing the correct answer(s) in a Microsoft Word or Excel document. ***Handwritten answer sheets are not acceptable.*** In the case of Units that have multiple drawings, answer only the A assignments. ***You do not need to type the questions, just the number of the question and the answer(s).*** Request the section quiz from your teacher after you have read all of the reading assignments and completed answering the workbook Section questions. **Print your Unit assignment sheets and collect them in a portfolio notebook. Hand the notebook in to your teacher before requesting the final course test. Do not write answers in the Text Book because it will be used by others who take this course.**



Student's Name: _____

Date: _____

Grade Sheet

MFG 101 Blueprint Reading Tasks	Quiz Scores
Precision Machining Technology Section 2 Unit 2- Measurement Systems and Machine Tool Overview	
Fractions and Geometric Shapes	
Angular Layout and Trigonometry	
Precision Machining Technology Section 2 Unit 3- Semi-Precision Measurement	
Precision Machining Technology Section 3 Unit 2- Layout	
Precision Machining Technology Section 3 Unit 1- Understanding Drawings	
Welding Principles and Practices Chapter 30- Welding Symbols	
Welding Principles and Practices Chapter 29- Reading Shop Drawings	
Overall Grades	

Write final grade here, and on page 1. Sign and submit pages 1-3 to College Now.

Course Overview

Precision Machining Technology

➤ Section 2 Unit 2- Measurement Systems and Machine Tool Overview

Lap Objectives

- Understand English and metric (SI) measurement systems and perform conversions between the two.
- Demonstrate understanding of fractional and decimal math and conversions between fractions and decimals.
- Demonstrate ability to solve formulas and equations using basic algebra.
- Identify and use properties of basic geometry.
- Demonstrate understanding of angular relationships.
- Perform conversions between angular measurements in decimal degrees and degrees, minutes, and seconds.
- Perform addition and subtraction of angular measurements.
- Demonstrate ability to locate and identify points in a Cartesian coordinate system.
- Demonstrate ability to use the Pythagorean theorem.
- Demonstrate the ability to solve right triangles using sine, cosine, and tangent trigonometric functions.

➤ Read Section 2 Unit 2- Measurement Systems and Machine Tool Overview

➤ Review the Section 2 Unit 2 Power Point Presentation

➤ View Section 2 Unit 2 Video Lectures

➤ Take Section 2 Unit 2 Paper Test

Fractions and Geometric Shapes

- Print the Fractions and Geometric Shapes Document from Blackboard and work through the worksheet. Turn in with Portfolio for a grade.

Angular Layout and Trigonometry

- Print the Fractions and Geometric Shapes Document from Blackboard and work through the worksheet. Turn in with Portfolio for a grade.

Precision Machining Technology

➤ Section 2 Unit 3- Semi Precision Measurement

Lap Objectives

- Define comparative measurement.
- Demonstrate understanding of care of common semi-precision measuring instruments.
- Read an English rule to within 1/64 of an inch.
- Read an English (decimal) rule to within 1/100 of an inch.
- Read a metric rule within 0.5 mm.
- Identify and explain the uses of semi-precision calipers.
- Identify and explain the uses of squares.
- Identify and explain the uses of the combination set.
- Identify and explain the uses of protractors.
- Read protractors within 1 degree.
- Identify and explain the uses of common semi-precision fixed gages.

➤ Read Section 2 Unit 3- Semi Precision Measurement

➤ Review the Section 2 Unit 3 Power Point Presentation

➤ View Section 2 Unit 3 Video Lectures

➤ Take Section 2 Unit 3 Paper Test

Precision Machining Technology

➤ Section 3 Unit 2- Layout

Lap Objectives

- Define layout and explain its purpose.
- Identify and use common semi-precision layout tools.
- Identify and use common precision layout tools.
- Perform typical mathematical calculations required to perform layout.
- Perform basic layout procedures.

➤ Read Section 3 Unit 2- Layout

➤ Review the Section 3 Unit 2 Power Point Presentation

➤ View Section 3 Unit 2 Video Lectures

➤ Take Section 3 Unit 2 Paper Test

Precision Machining Technology

➤ Section 3 Unit 1- Understanding Drawings

Lap Objectives

- Identify and interpret title block information.
- Identify line types and their uses.
- Demonstrate understanding of the principle of orthographic projection.
- Identify the three basic views frequently used on engineering drawings.
- Identify isometric views.
- Demonstrate understand of basic symbols and notation used on engineering drawings.
- Define tolerance.
- Demonstrate understanding of unilateral, bilateral, and limit tolerances.
- Demonstrate understanding of allowances and classes of fit for cylindrical components.
- Identify basic geometric dimensioning and tolerancing (GD&T) symbols.
- Demonstrate understanding of basic GD&T feature control frames.

➤ Read Section 3 Unit 1- Understanding Drawings

➤ Review the Section 3 Unit 1 Power Point Presentation

➤ View Section 3 Unit 1 Video Lectures

➤ Take Section 3 Unit 1 Paper Test

Welding Principles and Practices

➤ Chapter 30- Welding Symbols

Lap Objectives

- 30-1 Know the name of the AWS standard for welding symbols.
- 30-2 List the eight elements that may be found on a welding symbol.
- 30-3 List the basic weld symbols.
- 30-4 List the supplementary symbols.
- 30-5 Name the five basic joints.
- 30-6 Identify the applications of the different weld symbols.

➤ Read Chapter 30- Welding Symbols

➤ Review the Chapter 30 Power Point Presentation

➤ View Chapter 30 Video Lectures

➤ Take Chapter 30 Paper Test

Welding Principles and Practices

➤ Chapter 29- Reading Shop Drawings

Lap Objectives

- 29-1 Describe the reasons for drawings.
- 29-2 Identify and describe uses of various drawings.
- 29-3 Describe various dimensioning techniques.
- 29-4 Describe various geometric shapes.
- 29-5 Identify and explain various views found on drawings.
- 29-6 Demonstrate the ability to read various drawings.

➤ Read Chapter 29- Reading Shop Drawings

➤ Review the Chapter 29 Power Point Presentation

➤ View Chapter 29 Video Lectures

➤ Take Chapter 29 Paper Test

After completing chapter exams turn in to an instructor for grading. Make sure they are turned in with your portfolio upon completion of the course.

**MANUFACTURING APPLIED TECHNOLOGY CENTER
COURSE SYLLABUS**

COURSE TITLE: BLUEPRINT READING

COURSE NUMBER: MFG 101

COURSE DATE: Fall, Winter, Spring and Summer Terms **CONTACT HOURS:** 60
Self Paced Program, classroom and lab
schedule per MATC open hours

CREDIT HOURS: 2

COURSE LOCATION: Building #3 Redmond Campus Rm 317

INSTRUCTOR: MATC INSTRUCTOR AS DESIGNATED

COURSE DESCRIPTION: Provides student with basic training to read and interpret various types of industrial blueprints in the welding, machining, construction and composite trades.

PREREQUISITES: MFG 100 MATC Orientation and Instructor's Approval

REQUIRED TEXT: MFG 101 Course Packet, Amatrol e-learning access (included in class fee)

REQUIRED EQUIPMENT: Calculator, Notebook

OUTCOMES: The student will demonstrate how to...

- Identify the different types of lines, print sizes, print views, assembly prints and call outs used to depict the graphic representation of a part.
- Evaluate and interpret a composite layout print.
- Identify and use the different types welding symbols, arrow directions, bevel call outs, welding processes and fabrication prints.
- Evaluate and interpret blue prints used in the manual, cnc and general machine trades.
- Evaluate and interpret blue print site layout, concrete - forms, wall framing, trusses, windows, doors and roofing in the residential construction trade.

INSTRUCTIONAL METHODS: This course is taught using various methods including web presentations with computerized testing, textbook chapters with paper quizzes and open class discussion.

MATC SUPPLIED TEXTBOOK AND MATERIALS: Blueprint Reading for the Machine Trades, Schultz and Smith Print Reading for Residential Construction 6th ed., Thomas E. Proctor, Leonard Toenjes

TOPICS:

- General blueprint interpretation
- Blueprint interpretation for composite layout
- Welding symbol identification and uses
- Blueprint interpretation for general machining
- Blueprint interpretation for residential construction

ASSESSMENT GRADE:

See Department Grading Standards

POLICIES:

The following course and college policies apply to each student enrolled in this course.

Student rights and responsibilities	Please read the Students Rights and Responsibilities handbook available at: https://www.cocc.edu/policies/general-procedures-manual/student/student-rights-and-responsibilities.aspx
Americans with disabilities	Students with documented disabilities who may need accommodations, who have any emergency medical information the instructor should know of, or who need special arrangements in the event of evacuation, should make an appointment with the instructor as early as possible, no later than the first week of the term. Students may also wish to contact the COCC Disability Services Office in the Boyle Education Center at (541) 383-7583.
Non-discrimination policy	Central Oregon Community College is an affirmative action, equal opportunity institution. It is the policy of the Central Oregon Community College Board of Directors that there will be no discrimination or harassment on the basis of age, disability, gender, marital status, national origin, race, religion, sexual orientation, or veteran status in any educational programs, activities or employment. Persons having questions about equal opportunity and non-discrimination, please contact Human Resources for referral to the appropriate personnel, (541) 383-7236.
Student insurance	Students are not covered by medical insurance while on campus or involved in college classes and activities. Students are responsible for their own medical and dental insurance coverage.
Disruptive behavior	Students and faculty each have responsibility for maintaining an appropriate learning environment. Disruptive behaviors that interfere with the learning or teaching process will not be tolerated. Examples include, but are not limited to: talking in class, cell phone use or text messaging, sleeping, or in any other way not engaging in class activities, arriving late or leaving early without informing the instructor, or any other behavior that in any way negatively impacts the learning environment. Students exhibiting this behavior will be given a warning and then asked to leave the class if the behavior persists. All disruptive behavior will be reported to the Director of Student Life and could result in dismissal from the class.

Cheating and plagiarism	Students are expected to practice the highest standards of academic honesty. Acts of plagiarism or cheating are unacceptable and will result in a failing grade on the assignment and could end in dismissal from the course. Plagiarism is using, borrowing or stealing someone else's words or ideas without giving credit to the source. This includes copying definitions and sentences from textbooks, periodicals, and other student's papers, the Internet or any other resource. Cheating on any assignment or test in any form is also unacceptable. Students are expected to complete all assignments independently, unless it is designated as a group assignment. All acts of cheating or plagiarism will be reported to the Director of Student Life and disciplinary actions may result.
Final exam policy	The MATC is a self paced learning environment. The Final Exam for this course may be taken at any time once the student has completed all necessary assignments as required by the Skill Accomplishment Record and received written approval to take the exam from the Instructor of Record. Final Exams are closed book, closed note. Students must turn in their portfolio to the MATC Curriculum Room prior to taking the exam. Depending on the course, a student may be given their exam in electronic or paper form. In some courses, the Final Exam may consist of a hands-on project that will be completed in a lab. The last day to take the Final Exam for will be clearly posted on the white boards in the MATC classroom several weeks before finals week. Because of the flexible nature of the MATC program, there should be ample time to plan course completion and taking of the Final Exam. Makeup or special exams dates are not granted. However, if a student has been approved for a Final Exam and special circumstances prevent the taking of the exam by the end of the term, students should see their instructor of record in advance to arrange for an "I" grade so they can take the exam as soon as possible in the following term. If a student in this situation does not take the exam during the following term, COCC "I" grade policies will be applied and the course grade will become an "F".

PHYSICAL CONTACT STATEMENT:

Due to the nature of MATC courses, students are advised that physical contact between the instructor and student, or student to student may occur during some lab assignments. If you have concerns about these situations, you are encouraged to discuss these with the instructor prior to the next class session to determine if appropriate alternatives exist. If you do not think you will be able to participate to the extent required by the course, you are encouraged to drop the course within the appropriate deadlines in order to obtain a refund.