

Washtenaw Community College Comprehensive Report

MEC 101 Blueprint Reading for Manufacturing Effective Term: Fall 2023

Course Cover

College: Advanced Technologies and Public Service Careers

Division: Advanced Technologies and Public Service Careers

Department: Advanced Manufacturing

Discipline: Mechatronics

Course Number: 101

Org Number: 14400

Full Course Title: Blueprint Reading for Manufacturing

Transcript Title: Blueprint Read for Manufactur

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Consultation with all departments affected by this course is required.

Course description

Total Contact Hours

Distribution of contact hours

Outcomes/Assessment

Objectives/Evaluation

Rationale: This course will be utilized by CNC manufacturing and Mechatronics. Previously it was only utilized by CNC manufacturing. We are reducing the contact hours in the course from 60 hours to 45 hours as those objectives will be moved from this course to the GD&T course.

Proposed Start Semester: Fall 2023

Course Description: In this course, students will develop the skills to read and understand blueprints and schematics used in manufacturing. Topics such as terms of the trade, identification of line types, dimensioning systems, tolerancing, first and third angle projections and associated views and symbols used in manufacturing will be covered. Students will also be introduced to basic electrical and fluid power diagrams. The knowledge and skills gained in this course will be used throughout the Mechatronics and Advanced Manufacturing CNC programs.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 15 **Student:** 15

Lab: Instructor: 30 **Student:** 30

Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 45 **Student:** 45

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 2

Requisites

General Education

Degree Attributes

Statewide articulation approved

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify and describe relevant information in a mechanical blueprint.

Assessment 1

Assessment Tool: Outcome-related multiple-choice and short-answer final exam questions

Assessment Date: Fall 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

2. Identify and describe relevant information in a simple electrical schematic.

Assessment 1

Assessment Tool: Outcome-related multiple-choice and short-answer final exam questions

Assessment Date: Fall 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

3. Identify and describe relevant information in a simple fluid power diagram.

Assessment 1

Assessment Tool: Outcome-related multiple-choice and short-answer final exam questions

Assessment Date: Fall 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

4. Recognize and describe relevant information in a flow chart.

Assessment 1

Assessment Tool: Outcome-related multiple-choice and short-answer final exam questions

Assessment Date: Fall 2025

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 70% of students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Identify uses for varying line types in blueprints and schematics.
2. Read and identify parts of a title block.
3. Identify measurements on a machinist's rule.
4. Convert dimensions between inch and metric.
5. Calculate tolerances and limits.
6. Identify drawings having first angle and third angle projections.
7. Identify parts of a thread callout.
8. Identify different types of electrical schematics.
9. Recognize basic electrical symbols on a drawing.
10. Recognize electrical color codes.
11. Identify between pneumatic and hydraulic schematics.
12. Recognize basic fluid power symbols on a drawing.
13. Recognize the difference between flow and pressure.
14. Recognize basic flowchart symbols on a drawing.
15. Interpret a flowchart's path and procedure.

New Resources for Course

Course Textbooks/Resources

Textbooks

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Sean Martin</i>	<i>Faculty Preparer</i>	<i>Jan 06, 2023</i>
Department Chair/Area Director: <i>Allan Coleman</i>	<i>Recommend Approval</i>	<i>Jan 06, 2023</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Jan 09, 2023</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Feb 08, 2023</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Feb 08, 2023</i>
Vice President for Instruction: <i>Victor Vega</i>	<i>Approve</i>	<i>Feb 09, 2023</i>

Washtenaw Community College Comprehensive Report

MEC 101 Blueprint Reading for Manufacturing Effective Term: Winter 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Advanced Manufacturing

Discipline: Mechatronics

Course Number: 101

Org Number: 14400

Full Course Title: Blueprint Reading for Manufacturing

Transcript Title: Blueprint Read for Manufactur

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog

Reason for Submission: Course Change

Change Information:

Course title

Course description

Pre-requisite, co-requisite, or enrollment restrictions

Outcomes/Assessment

Objectives/Evaluation

Other:

Rationale: Master syllabus update based on course assessment.

Proposed Start Semester: Fall 2019

Course Description: In this course, students will develop the skills to read and understand blueprints used in manufacturing. Topics such as terms of the trade, program identification of line types, dimensioning systems, tolerancing, first and third angle projections and associated views and symbols used in manufacturing will be covered. Students will also be introduced to procedures and tooling used to compare machined components to blueprint specifications. The knowledge and skills gained in this course will be used throughout the Mechatronics program. The title of this course was previously 3D Modeling and Blueprint Reading.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 Student: 30

Lab: Instructor: 30 Student: 30

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 60 Student: 60

Repeatable for Credit: NO

Grading Methods: Letter Grades

Audit

Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

General Education

Degree Attributes

Statewide articulation approved

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify lines, abbreviations, welding and electrical symbols and terms used within manufacturing blueprints.

Assessment 1

Assessment Tool: Written exam

Assessment Date: Fall 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer Key

Standard of success to be used for this assessment: 75% of the students will achieve 75% or higher.

Who will score and analyze the data: Departmental Faculty

2. Identify third angle and first angle projections used in machining processes.

Assessment 1

Assessment Tool: Written exam

Assessment Date: Fall 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 75% of the students will attain 75% or higher.

Who will score and analyze the data: Departmental Faculty

3. Identify geometric dimensioning and tolerancing used in machining processes.

Assessment 1

Assessment Tool: Written exam

Assessment Date: Fall 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 75% of the students will attain 75% or higher.

Who will score and analyze the data: Departmental Faculty

4. Measure parts that are machined and compare to blueprint specifications.

Assessment 1

Assessment Tool: Practical exam

Assessment Date: Fall 2022

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 75% of the students will attain 75% or higher.

Who will score and analyze the data: Departmental Faculty

Course Objectives

1. Read and interpret blue prints for the machine trade.
2. Identify drawings having first angle and third angle projections.
3. Identify uses for varying line types.
4. Describe basic GD&T symbols.
5. Match basic dimensioning symbols.
6. Describe basic welding symbols and terms.
7. Recognize basic electrical symbols on a drawing.
8. Identify the difference between a computer-aided drawing from a hand drawn blueprint.
9. Recognize the different types of materials used in machining.
10. Identify heat treating processes in manufacturing.
11. Identify external and internal machined threads.
12. Identify spur gear terminology.
13. Apply different measuring systems and tools to make basic mathematical calculations.
14. Use tools to accurately measure finished parts.
15. Recognize and apply different measurement systems and units of measurement such as fractional, decimal and metric.

New Resources for Course

Course Textbooks/Resources

Textbooks

Schultz,R., - Smith, L.. *Blueprint Reading for the Machine Trades*, 5-7 ed. Pearson?Prentice Hall, 2004

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Scott Malnar</i>	<i>Faculty Preparer</i>	<i>Jun 26, 2019</i>
Department Chair/Area Director: <i>Thomas Penird</i>	<i>Recommend Approval</i>	<i>Jul 02, 2019</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Jul 08, 2019</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Aug 28, 2019</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Sep 10, 2019</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Sep 11, 2019</i>

