**COLLEGE OF DUPAGE**

**Manufacturing 1151-003 Machine Shop I**

**Jim Filipek 630-942-2038 Manufacturing 1151-003**

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**Course Name:** Manufacturing 1151 Machine Shop I

**Credit and Contact Hours:** 3 credit hours (2 lecture hours, 2 lab hours)

**Prerequisites:** None

**Textbook: (Required) *Machine Shop Laboratory Manual*, *Machine Tool***

***Practices****,* 9th edition by Kibbe, Neely, Meyer and White

**Course Description:** Manufacturing 1151: Designed for students with little

background in the use of metal-working machine tools.

Basic principles and operations on the engine lathe, vertical

milling machine, surface grinder and precision measurement.

**Course Requirements:** Class attendance and participation are essential if students are to receive

maximum benefit from this class. See grading scale below.

**Make-up Policy:** If you cannot attend class, is the responsibility of the student to work with

the instructor to insure all work is completed.

**General Note:** In order to achieve the course objectives, it is essential that you enjoy the

class in addition to complying with the above requirements and the rules

and policies of College of DuPage contained in the catalog and other

College materials. If you are having course/College related problems,

please feel free to contact me so that we can resolve them to your

satisfaction and benefit.

**Student Evaluation:** Attendance: 80 points (5 per class period)

Lab Work: 240 points (100 lathe, 140 mill)

Exams: 100 points (50 mid-term, 50 final)

Assignments: 80 points (8 points each assignment)

450-500=A

400-449=B

350-399=C

300-349=D

Below 300=F

Lab Work is defined as completing the assigned projects within the specified tolerances.

**All assignments are due two weeks after they are assigned.**

**Example: Assignment 1 is assigned January 27, due February 10.**

**All late work receives 50% credit.**

**General Course Objectives:**

1. Upon successful completion of the course the student should be able to do the following: 1. Use information to identify the available occupational choices concerning machine tool metalworking industries
2. Demonstrate the skills, attitudes, safety habits, and knowledge necessary to be employable as a trainee, apprentice, or technician in the machine tool metalworking industry
3. Perform basic machining operations on lathes and milling machines
4. Use precision measuring instruments commonly found in the metalworking industry
5. Use basic communication skills (reading, writing, speaking, and listening) to understand technical manuals and written work instructions while interacting well in a team/group environment.
6. Demonstrate knowledge of basic OSHA requirements, general shop safety, and machine tool safety procedures.
7. Interpret basic part prints and/or technical drawing including Geometric Dimensioning & Tolerancing (GD & T) and apply the information as it relates to gauging, dimensioning, and tolerancing..
8. Apply a working knowledge of basic measuring and inspection tools and use appropriate measuring devises to confirm a part’s compliance to required specifications including GD&T symbols.
9. Preform conversion, computations, and calculations that result in parts production to specific industry standards and specifications.
10. Demonstrate entry-level skills to setup and operate machine tools.
11. Use basic communication skills (reading, writing, speaking, and listening) to understand technical manuals and written work instructions while interacting well in a team/group environment.
12. Demonstrate use of basic math skills to facilitate technical metal cutting competences.

**Topical Outline** 1. Introduction

* 1. Careers and industry trends
	2. Blueprint reading skills
	3. Basic math skills
	4. Safety
1. Metal removal theory
	1. Material properties
	2. Cutting tool materials
	3. Speed and feeds
2. Precision measurement
	1. Layout and measurement
	2. Inspection and gaging
3. Machine tool operations
	1. Process planning
	2. Engine lathe
	3. Milling machine
	4. Power sawing
	5. Drilling machines
	6. Grinding

# SAFETY

**Safety glasses must be supplied by the student and worn at all times in the shop.** They must be Z-87 rated. Failure to observe this rule will result in a verbal warning followed by a reduction in the student’s grade! Students will be instructed in other machinery safety rules and these must be followed!

# TOOLS AND CLEANUP

Each student is responsible for cleaning his or her machine at the completion of the period. This applies even if the machine was found in a dirty condition. All tools should be returned to the tool cabinet and the student should secure all projects and materials.

# INSTRUCTOR OFFICE HOURS

The instructor is available on campus in the TEC building, room 1063 during the following hours **or by appointment:**

**Office Hours: TEC 1063**

Monday 7AM-7:50AM

Tuesday 7AM-9:50AM

Wednesday 7AM-7:50AM

Thursday 7AM-9:50AM

Friday 7AM-8:50AM

# COURSE OUTLINE/SCHEDULE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **#**  | **DATE**  | **TOPIC**  | **READINGS**  | **ASSIGNMENT**  |
| 1  | Jan 27  | Introduction/Safety/Precision Measurement  | Read Sections A, C  | 1  |
| 2  | Feb 03  | Sawing, Precision Measurement, Lathe Set-Up  | Read Section G  | 2  |
| **3**  | Feb 10  | Facing and Center Drilling | Read Section I  | 3  |
| 4  | Feb 17  | Turning Between Centers  | Read Section F  | 4  |
| 5  | Feb 24  | Layout and Shoulder Turning  | Read Section E  | 5  |
| 6  | Mar 03  | Single Point Threading  | Read Section I, unit 11  | 6  |
| 7  | Mar 10  | Mid-Term Exam  | None  |   |
| 8  | Mar 17  | Inspection  | None  |   |
| 9  | Mar 24  | Setting up a Milling Machine  | Read Section J  | 7  |
| 10  | Apr 07  | Squaring up a Block  | Read Sections B & H  | 8  |
| 11  | Apr 14  | Milling Slots/ Drilling and Tapping | Read Section L  | 9  |
| 12  | Apr 21  | Pocket Milling/Surface Grinding  | Read Section D  | 10  |
| 13  | Apr 28  | **Field Trip (TBA)**  |   |   |
| 14  | May 05  | Practical Exam  |   |   |
| 15  | May 12  | Culminating Activity  |   |   |

**STUDENTS SHOULD BE AWARE OF ALL TABLES AND THE GLOSSARY IN THE TEXT FROM PAGE 751 UP TO AND INCLUDING THE BACK COVER.**

**Code of Conduct/Plagiarism/Academic Dishonesty:**

See COD catalog (2013-2015), p. 108, regarding Student Code of Conduct (Board Policy 20-35) [http://www.cod.edu/catalog/studentservices\_11-13.pdf](http://www.cod.edu/catalog/StudentServices_11-13.pdf) This policy is incorporated by reference into this document. An atmosphere of respect, civility and honor is expected to exist in the classroom, and each student should do his or her best to make sure such an atmosphere flourishes.

Academic dishonesty is prohibited. Disciplinary action will be pursued in all instances in which it is determined that academic dishonesty has occurred. Disciplinary action may include, but is not limited to 1. Assignment of a failing grade for a test, examination or assignment.

1. Assignment of a failing grade for a course.
2. Referral to a dean for disciplinary sanction, or to the Judicial Review Board (Administrative Procedure 2040), college catalogue p. 109.

**Incomplete grades:**

The instructor may give an incomplete of “I” grade when a student has been unable to complete the course within the prescribed time due to unforeseen circumstances. The student is responsible for contacting the instructor or when the instructor is no longer employed at the college, the appropriate dean regarding course completion. Coursework must be completed within the time limits prescribed by the instructor but not to exceed twelve (12) months from the end of the term in which the “I” grade was assigned. The “I” grade may be changed within the time limit prescribed by the instructor of record. If the “I” has not been changed by the instructor of record at the end of them twelve (12) month period, the “I” will automatically change to an “F”. During the time the “I” is on the student’s record, it will not be calculated into the cumulative grade point average. [***Http://www.cod.edu/catalog/academicpolpro\_1113.pdf***](http://www.cod.edu/catalog/AcademicPolPro_11-13.pdf)

**Satisfactory/Fail (S/F) Grade Option:**

A Student who would like to take a class Satisfactory/Fail must obtain approval from the instructor prior to the last day to withdraw from the class. See the withdraw date below.

**Withdrawal policy:**

**The final day for a student to withdraw from any course will be equal to 75% of the time for the respective academic session** [**(see the Registration Calendar)**](http://cod.edu/registration/pdf/reg_calendar.pdf) **through** [**myaccess**](https://myaccess.cod.edu/) **or in person at the Registration office, Student Services Center (SSC), Room 2221.**

After the deadline, students will be required to appeal for late withdrawal and provide appropriate documentation to the Student Registration Services Office for all requests. Students who are granted approval to withdraw by petition will not be eligible for refunds of tuition or fees and will receive a ‘W’ grade on their transcript

**THE LAST DAY TO WITHDRAW FROM THE 16 WEEK CLASSES IS 04/17/14**

From the grant agreement’s Part IV  Special Conditions, Item 15, Intellectual Property Rights, the following needs to be on all products developed in whole or in part with grant funds:

“This workforce solution was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. The solution was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timelines, usefulness, adequacy, continued availability, or ownership. This solution is copyrighted by the institution that created it. Internal use, by an organization and/or personal use by an individual for  non-commercial purposes, is permissible. All other uses require the prior authorization of the copyright holder.”