KISHWAUKEE COLLEGE SYLLABUS

Semester, Year FALL XXXX

Title of Course(# of Credits) MANUFACTURING PROCESSES I (2 CREDIT HOURS) Prefix, Course Number, Section MT-215-Section TBA

Class day(s), Class time, Class Location TBA Start and end dates TBA

Instructor name Robert Lawrence Office location (if applicable) A-423 Office hours (if applicable) TBA

Office phone or Division Secretary Extension 815-825-2086 ext. 3240 Instructor Kishwaukee College email [blawrence@kishwaukeecollege.edu](mailto:blawrence@kishwaukeecollege.edu)

COURSE DESCRIPTION: Covers the setup and operation of basic machine tools such as the engine lathe, milling machine, drill press and surface grinder and allows practice of precision measuring techniques. Students will have the opportunity to earn the Manufacturing Process Production Certification through Manufacturing Skill Standards Council. (MSSC).

One hour lecture/discussion and two hours lab a week. Prerequisite None

STUDENT LEARNING OUTCOMES (SLO)

All Student Learner Outcomes are based on the Illinois Occupational Skill Standard. (lOSS)

1. The student will interpret blueprints, including basic Geometric Dimensioning and Tolerancing.
2. The student will write a detailed process plan for completing a project

## (Ref. JOSS No.1).

1. The student will set up and layout bolt circles, layout work for subsequent machining ops **(Ref. lOSS No.2).**
2. The student will learn to off-hand grind lathe tool bits for correct cutting geometry.'
3. The student will use the horizontal and vertical band saw to cut stock for projects.
4. The student will use the vertical milling machine to mill to size and drill holes.
5. The student will set up and operate an engine lathe to turn, face and thread

## (Ref. IOSS No. 5).

1. The student will set up and operate a surface grinder to square parts and grind to dimensional accuracy and required surface finish **(Ref. lOSS No.7).**

I. The student will identify and select correct cutting feeds and speeds for drills, reamers, milling cutters, horizontal and vertical saws and engine lathe operations.

J. The student will use drills, taps, reamers and c-hores as required for projects.

K. The student will inspect projects while in process and after completion using steel rules, micrometers, dial and vernier calipers, height gages, threading inspection wires and optical comparator **(Ref. lOSS No. 25).**

1. Skill standards met are: No.!, No.2, No.4, No.5, No.6, No.7, and No.25.

REQUIRED STUDENT MATERIALS

* 1. MT 215 Workbook (includes Assignment Sheets, Part Prints, charts and formulas)
  2. OSHA approved safety glasses (Bookstore, Kishwaukee College)
  3. Calculator
  4. 6" Steel Rule

TEXT: Machine Tool Practices 9th Ed. Kibbe Richard R., Prentice Hall, 2011

BREAKDOWN OF COURSE REQUIREMENTS: GRADING SYSTEM:

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Quizzes | 45 | (3 @15) |
| 2. | Lab Exercises | 40 | (4@ 10) |
| 3. | Assignment Sheets | !50 | (15@ 10) |
| 4. | Lab Projects | !50 |  |
| 5. | Final Exam | 100 |  |
|  | Total Points | 485 |  |
|  | Extra Credit | 10 |  |
|  | Total Possible Points | 495 |  |

CONVERSION TO A LETTER GRADE:

485 -435..........A

434- 384..........B

383- 333 ..........c

332- 282 ..........D

281- below .......F

*Grade reports will not be mailed out. Please check KishSOS, My Student Info, under Academic Profile, Grades,for grade reports.*

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TENTATIVE COURSE OUTLINE: *Course outline is subject to change.*

WEEKI

Lecture: Introduction to syllabus and class outline.

Text: Introduction, Section A, Units 1-3 pages 1-35 shop safety, mechanical hardware and reading drawings.

# Project plan sheets. Introduction to class projects.

Lab: Shop orientation

Projects 101-A and 101-B, cut material (3/8 x 1 x 2 1/2 crs.)

Homework: 1. Read the above material

* + 1. Complete self-test to Unit 1 page 12
    2. Do assignment sheets No. 1 and 3. WEEK2

Lecture: Drilling, tapping and reaming. Proper hand tool usage.

Text: Hand tools, Section B, Units 1-9, pages 35-83.

Layout, Section E, Units 1-2, pages 234-265. Lab: Work sheet, page 35A, and work sheet, 117.

Homework: 1. Read the above material

2 Complete assigmnent sheets No.2 and 5.

WEEK3

Lecture: Measuring devices and techniques, precision layout procedures. Text: Dimensional measurement, Section C, Units 1-8, pages 83-194.

Preparation for machining operations, Section F, Units 1-3, pages

265-285.

Lab: Rectangular block layout, semi-precision and precision Work sheet, page 111

Project p-215- 1, cut stock (114 x 3 x 3 crs.).

Homework: I. Read the above material

2. Complete assigmnent sheets No. 6 and 4.

WEEK4

Lecture: Saw types and usage.

Text: Sawing machines, Section G, Units 1-4, pages 305-348. Lab: Drill, ream and tap rectangular block.

Homework: 1. Read the above material.

2. Complete assignment sheet No. 7.

WEEKS

Lecture: Engine lathes, types and procedures.

Text: Turning machines, Section I, Units 1-9, pages 393-473. Quiz: Workbook pages 51, 53, 59,61 and 63.

Lab: Practice toolbit grinding on low-carbon steel. Page 69 in workbook.

Homework: I. Read the above material.

2. Complete assignment sheet No. II

WEEK6

Lecture: Screw treads, single point threading and tapers.

Text: Turning machines, Section I, Units 10-16, pages 474-519. Lab: Toolbit grinding on I-ISS, page 69 in workbooks. Homework: 1. Read the above material.

2. Complete assignment sheet No. 13.

WEEK7

Lecture: Drilling devices and tools.

Text: Drilling machines, Section H, Units 1-6, pages 349-391. Lab: Turning project, workbook page 113.

Project 215-20, cut stock (1" x 5 3/8 crs.)

Homework: I. Read the above material.

2. Complete assignment sheet No. 9. WEEKS

Lecture: Precision grinding, grinding wheels and finishes.

Text: Grinding and abrasive machining processes, Section L, Units 1-10, pages 597-674.

Lab: Turning project

Homework: I. Read the above material.

2. Complete assignment sheet No. 15.

WEEK9

# Lecture: Vertical and horizontal milling machines, differences and procedures.

Text: Vertical-milling machines, Section J, Units 1-5, pages 521-586. Lab: Turning project

Homework: I. Read the above material.

2. Complete assignment No. 14.

WEEK 10

# Lecture: Vertical and horizontal milling machines, usage differences and procedures.

Text Horizontal milling machines, Section K, Units 6-7, pages 587-595. Lab: Turning project

Homework: I. Read the above material.

2. Complete assignment sheet No. 8

WEEK II

# Lecture: Materials: classification, heat-treating, annealing and testing. Text: Materials, Section D, Units 1-5, pages 195-235.

Quiz: Quiz No.2, workbook pages 67 and 81. Lab: Turning project and single point threading

Homework: I. Read the above material.

2. Complete assignment sheet No. 12.

WEEK 12

Lecture: Text: Lab:

Gage blocks, sine bars and tolerances

Dimensional measurement, Section C, Units 6-8, pages 167-194. Turning project and single point threading

Homework: 1. Read the above material.

2. Complete assignment sheet No.1 0.

WEEK 13

Lecture: Text: Quiz: Lab:

machining characteristics of ferrous alloys and cutting tool materials Preparation for machining operations, Section F, Unit 4, page 288- 303. Quiz No. 3, workbook page 71 and 75.

Turning project and single point threading.

Homework: 1. Read the above material. WEEK 14

Lecture: Text: Lab:

Linear measurement and the metric system

Dimensional measurement, Section C, Unit 1, pages 83-104 Project 6A, page 121.

Homework: 1. Read the above material

WEEK 15

Lecture:

Lab:

WEEK 16

Lecture: Lab:

Project flow from blueprint to finished product. Primary and secondary operations

Project 6A

Review of text and shop procedures Project 6A

WEEK 17

Test: FINAL TEST: TBA

PROJECT COMPLETION AND FINAL EXAM DATE:

1. All required projects must be submitted for grading on the next to last class.

MAKE-UP POLICY (for tests and other course requirements)

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1. If a student is absent on the night of a quiz, he/she will be expected to take it during the next class session or the grade will be a zero.
2. Homework assignments as listed in the Course Outline are due at the beginning of the next scheduled class. Twenty points will be deducted from assignments that are handed in one week late. 30 points will be deducted from assignments that are two weeks late. Assignments over two weeks late will not be accepted.

ATTENDANCE POLICY

Students are expected to be on time for every class. If students miss a class they are required to make up homework assignments and see instructor for any handouts and demonstrations.

CLASS WITHDRAWAL

A "W" cannot be given as a final grade. The student is responsible for officially withdrawing from the class according to procedures described in the college catalog. Any student that does not officially withdraw from the class will receive a letter grade. The last date for withdrawal for this course can be found at "My Class Schedule" on KishSOS. Kishwaukee College reserves the right to administratively withdraw at midterm those students who are not actively pursuing

course objectives or who are in violation of standards of behavior as outlined in the Student Code of Conduct and Discipline. For a copy of the student conduct policy, contact the Vice President of Student Services Office or refer to the Kishwaukee College catalog.

INCOMPLETE GRADE

All course requirements must be completed by the end date for the course. In the event that extremely difficult circumstances merit granting a student more time to finish course requirements, an "Incomplete" (I) grade may be given. Taking an Incomplete is possible only at

the instructor's discretion. To receive an Incomplete, a contract between the student and the instructor must be completed and approved regarding the completion of all remaining work within a strictly defined period of time. If the conditions of the contract are not met, an "I" grade may revert to an "F".

CLASS CANCELLATIONS

Class cancellations due to inclement weather will be posted on the College Website: [www.kishwaukeecollege.edu.](http://www.kishwaukeecollege.edu/) or announced by the local radio stations. Students may also call the College at (815) 825-2086. Class cancellations due to instructor absence will be posted on the

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will be announced in advance whenever possible and posted on the classroom door.

ACADEMIC DISHONESTY

In order to evaluate student work, faculty must be able to trust that the work is original with a student and not the work of someone else. Cheating, falsifying information, forgery, plagiarism,

and other dishonest actions will not be tolerated. Sanctions for academic dishonesty are at the discretion of the instructor and subject to appeal as provided in Student Code of Conduct and Discipline. A complete explanation of the policy and procedures surrounding academic dishonesty are outlined in the Kishwaukee College Catalog.

COPYRIGHT

As a Kishwaukee College Student, you may have copyrighted materials or software made available to you by the college for course use. Please understand that copyright law may prohibit copying these materials. Violation of copyright laws can lead to prosecution for a criminal offense. You are required to abide by the specific copyright and licensing agreements that apply to each particular piece of software.

GRADUATION REQUIREMENTS FOR TRANSFER DEGREE STUDENTS

All students intending to graduate with an A.A.,A.S., A.E.S., or A.F.A. are required to submit a complete Degree Portfolio. The Degree Portfolio is a means for the institution to measure its effectiveness in preparing students for successful completion of a degree at a transferring institution. Save your college-level work throughout your academic career in order to facilitate the portfolio compilation. Also, submit a completed application for graduation from the college the semester that you plan on graduating prior to submitting the complete Degree Portfolio. Guidelines and the specific requirements (along with the rubrics used for assessment) for the Degree Portfolio can be found at [www.kishwaukeecollege.edu/portfolio.](http://www.kishwaukeecollege.edu/portfolio)

ASSISTIVE RESOURCES CENTER/DISABILITY SERVICES

Any student with a documented disability or special learning need and wanting to request accommodations, should contact the Coordinator in Al317 or at (815) 825-2086 ext 3960, (815) 825-9106 (TTY), or send an email to [awilson@kishwaukeecollege.edu.](mailto:awilson@kishwaukeecollege.edu) The student's disability must impact their ability to participate in the educational environment and be documented by an appropriate professional prior to accommodations being approved.

LEARNING SKILLS CENTER

Students must present their Kishwaukee College student ID when using any Learning Skills Center services. For more information on the Learning Skills Center go to [http://www.kishwaukeecollege.edu/go/lsc.](http://www.kishwaukeecollege.edu/go/lsc) Tutoring is available to all Kishwaukee students free of charge. The Writing Center (Learning Skills Center, Al306) answers your writing-related questions regardless of the class or assignment. Students are expected to bring all material related to the assignment, including textbooks, paper prompts, etc.

Make-up tests, online tests, and placement tests are available through Testing Services, also

located in the Learning Skills Center

EMERGENCY PROCEDURES/SAFETY

Yellow and red Emergency Information flipcharts are located in each classroom. These are quick reference sheets with telephone numbers to reach emergency assistance and a brief description of the correct actions to take in the event of a tornado, fire or other emergency on campus.

RELIGIOUS OBSERVANCES

Students faced with schedule conflicts related to a religious observance should make prior arrangements with the instructor a minimum of seven (7) school days in advance of the examination or other activity involved.

STUDENT E-MAIL

* Your Kishwaukee College e-mail account will be the only way to receive official notices from the College. If you choose to forward your e-mail to another account, please be advised that all commooication from and within the college will use your Kishwaukee student e-mail. When commooicating with instmctors or employees of the college, you are required to use your Kishwaukee e-mail address.

COMMUNITY RESOURCES

There are numerous commooity resources that are available to assist students in addressing a variety of personal needs. A listing and description of community resources can be foood at <http://www.kishwaukeecollege.edu/go/commooityresourccs>

Language on the syllabi course materials developed by INAM funds:

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.”