

Corning Community College

Science, Technology Engineering and Math Division
TECH1030 – Manufacturing Methods
STEM Academy Syllabus – Fall 2017

Course: Tech 1030: Manufacturing Methods CRN 38731

Instructor: Mike Prechtl **Office:** N330 (3rd Floor Nursing Building)

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Office Hours: Room (N330) Mondays 9:40 – 11:40am & 12:50 – 1:45pm, Wednesdays 10:40 – 11:40am and Fridays 12:50 – 1:45pm. *Other times by appointment*
(*Appointments strongly Recommended*)

Class Times: Wed, Thr 1:25 – 2:20 pm (room J105?) Fri 9:30-10:25 (J106?)
Section 001) CRN 39284

Textbook information/Supplemental Course Materials: R. Thomas Wright (2005). *Processes of Manufacturing*. The Goodheart-Wilcox, Inc. ISBN -13: 978-1-509070-362-5. It is recommended to also use a three-ring binder (for loose pages) and subject index separators, as you will receive handouts, work sheets, and procedural information in class. Students will also be required to utilize Blackboard, the colleges online course management software. Blackboard is accessed through your student tab on the Corning Community College website.

COURSE DESCRIPTION: A study of machines and methods by which various materials are formed into useful products. Topics will include the principles of manufacturing, materials used in manufacturing, conventional and non-traditional processes, forming, joining and assembling, finishing operations, CIM and the future technology of manufacturing.

COURSE LEARNING OUTCOMES:

- The student should be able to demonstrate an understanding and appreciation of the breadth and depth of the field of manufacturing (50).
- The student should be able to recognize the strong interrelationships between material properties and manufacturing processes (51).
- The student should be able to demonstrate an understanding of basic metal cutting, forming, welding, casting and polymer processes (52).
- The student should be able to apply the basic terminology associated with these fields (53).
- The student should be able to demonstrate an understanding an increased knowledge and perspective of the manufacturing world in which many of you should contribute your talents and leadership (54).

ATTENDANCE: Attendance and punctuality are required in the working world; this is also the case in my classroom. Lecture and classroom activities and participation are important to

understanding the material, so it is hoped you will not miss more than **Three** sessions during the semester. Students are responsible for all the material they may miss during an absence. Three instances of lateness (over 15 min) constitute an absence.

If a student is absent from more than **four** (4) class sessions, at the discretion of the instructor, the following actions may be taken:

1. The student will be dropped from the course, OR
2. If the date for dropping a course without penalty has passed, the student will receive a failing grade, unless prior arrangements have been made between the instructor and student.
3. A student who seeks an exception to this policy must do so in advance of the absence and/or provide documentation of the emergency that caused it, as determined by the instructor.
4. The student will also lose the right to ask for help in class and receive any assistance from the instructor outside of class.

Electronics Usage: Students are strictly prohibited from using electronic devices in this class (*unless it is an expressly approved classroom activity*); this includes cell phones, I-pads, laptops, etc. Such activities as phoning, web-surfing and texting represent classroom distractions that interrupt the learning process for all students in the class and are not allowed. Calculators will be allowed for some topics covered in this class.

Classroom Conduct:

All students are **required** to adhere to the [Code of Student Conduct](#) and the Rules of Conduct as detailed in the [Policies and Procedures](#) section of the [coming-cc.edu](#) website. Lecture is to be an atmosphere of mutual respect. Disrespectful or disruptive behavior will be dealt with according to the Classroom Conduct guidelines. Any student who is disruptive will be asked to leave class. Coming late to class, chatting during class, sleeping during class, or any other disruptive behavior will not be tolerated. Continued offences may lead to the instructor withdrawing you from the class. Please pick up after yourself (don't leave garbage behind). Leave the class room looking better than it did when you came in.

Student Withdrawal Policy / Last Day to Drop If for any reason a student must withdraw from this course, it is the student's responsibility to do so by submitting an online drop form through MyCCC. ***Before dropping a course, a student should review the Drop/Add policy in the Course Catalog.*** If a student drops on or before September 24h, a record of the course will not appear on the student's transcript. A grade of "W" will be assigned if the withdrawal occurs before 60% of the class is complete (approx. **October 29th**), the official drop date for this course, and a grade of "F" thereafter. If a student simply stops attending rather than officially withdrawing, he or she will receive a grade of "F" for the course. The instructor may drop a student for non-attendance.

HOMEWORK: Students are expected to complete all reading assignments as indicated in the syllabus, as well as any other assigned homework. When collected, grading of homework is based on your effort, not correctness. I review the homework to gain an understanding of how you are doing with the course. **Late homework is not accepted for credit in this class.** Completing the assigned work is a crucial part of doing well in this class, as similar questions may be on hourly and/or final exams.

NOTE: Homework can be turned in handwritten or on a word processor. **Research papers must be completed on a word processor per assignment instructions.**

Tests: There will be three hourly tests and one final exam scheduled throughout the semester. Quizzes and Blackboard assessments will be assigned and graded throughout the semester.

Makeups: No makeup tests will be given unless **PRIOR ARRANGEMENTS** are made with the instructor.

GRADING: Determination of your grade is based upon the following activities in a **Total Point** system. The Instructor reserves the right to alter this plan.

3 Hourly Exams	300
Quizzes/Blackboard Assessments	50
Homework	50
Manufacturing Letter	25
Sustainability Report	75
Product Analysis report	150
Final Exam	<u>200</u>
Total Points	850

Letter grades for the class will be assigned as follows:

A	93-100	B	83-86	C	70-76
A-	90-92	B-	80-82	D	60-69
B+	87-89	C+	77-79	F	0-59

OFFICE HOURS: My office is on the third floor of the Nursing Building, room N330. Office hours are listed above and the hours will be posted outside my office. Sometimes situations come up where office hours will have to be changed, I will post changes outside my office. **An appointment is strongly recommended!** If you cannot meet during office hours, I will attempt to meet with you at other times, we can also meet at the CCC Elmira Campus if necessary.

ACADEMIC HONESTY All students are **required** to adhere to the [Code of Student Conduct](#) and the Rules of Conduct as detailed in the [Policies and Procedures](#) section of the [corning-cc.edu](#) website for all activities and assignments related to this course. **ALL** graded activities are to be the result of your own effort. If it is determined that a student has cheated on a quiz, exam, homework, or copied a paper, the minimum penalty will be a zero for that activity and a letter will be sent to the Dean of the college concerning that student's wrongful activity. The maximum penalty can be an "F" for the course and/or expulsion from the course.

Students with Disability Information: Students with learning, physical, or psychological disabilities who wish to receive accommodations for this course must contact the Office of Accessibility Services or at sds@corning-cc.edu. Students are required to self-identify by making a formal request for services, and to provide current documentation that reflects the nature of the disability. Reasonable accommodations in the classroom will be provided for students with appropriately documented disabilities. Please see me privately, confidentiality will be maintained at all times.

Class Cancellation / Inclement Weather: If I cannot make it to class, I will attempt to notify you via an announcement sent to your student email account. The STEM secretary will also notify STEM Academy personnel. CCC cancellations due to inclement weather will be texted (TXT "CCC" to 31996) and posted on the CCC website and the main page of MyCCC. It is the student's responsibility to check these sources. Every attempt will be made to make the decision to close the College, or maintain normal hours of operation, by 6:00 a.m. for day classes. The College may close when it is deemed unsafe for students, faculty, and staff to travel because of winter weather conditions. Classes will be cancelled if STEM Academy cancels classes.

Tentative Class Schedule

TECH 1030 – Manufacturing Methods

This course syllabus and any schedule of lecture topics provide only a general plan for the course; deviations may be necessary. The instructor reserves the right to make any changes he deems necessary.

Date	Lecture	Homework (Due for this class)
W 9/6	Introductions, review syllabus	
TH 9/7	Introduction to Manufacturing	Read Ch1 Nature of Mfg pages 7-13 Answer Questions 1,3,4,6, 7,8,9 on page 13
F 9/8	Organizational structures (Assign Manufacturing Letter)	Ch2 Org Structure of Mfg 14-20 Answer Questions 1,3,4,6, on page 20
W 9/13	Industrial Materials	Read pages Ch3 Industrial Materials 21-40 & Answer Questions 1,2,3,4,7,13 on page 40
TH 9/14	Industrial Materials <i>Assign Sustainability Report</i>	In class handouts (<i>Manufacturing Letter Due</i>)
F 9/15	Metal Casting	Ch4 Intro Casting & Molding 42-54 Answer Questions 1,2,3,4,7,14 on page 54
W 9/20	Metal Casting Expendable mold	Read pages Ch5 Casting Metals Expendable Mold 55-71 Answer Questions 1,2,4,5,6,7,9
TH 9/21	Metal Casting Expendable mold & Permanent Mold	Read Ch6 Casting Metals Permanent Mold pages 72-80 Answer Questions 1,4,5,6 on page 80,
F 9/22	Metal Casting Permanent Mold	
W 9/27	Plastics and Plastic processes	Read Ch7 Casting & Molding Plastic pages 81-91 Answer Questions 3,4,14 pg 91-92
TH 9/28	Plastics and Plastic processes	Read Ch8 Casting Ceramic Materials pages 93-97
F 9/29	Review for test	Study for review
W 10/4	TEST #1 Manufacturing, Materials, Casting Metals, Molding plastics	Study for test
TH 10/5	Introduction to forming	Read Ch9 Intro to Forming pages 98-106,111-115 Answer Questions 1,2,3,4,7,8,9,10, &11
F 10/6	Manufacturing day	Attend events – take notes prepare to report on your visit on 10/18
W 10/11	Hot Forming Metals	ON:LINE Read Ch10 Hot Forming Metals pages 116-129 Answer Questions 1,3,5,6, Complete Ch10 Assessment see blackboard videos
TH 10/12	Cold Forming Metals	ON:LINE Read Ch11 Cold Forming Metals pages 130-149 Answer Questions 1,2,5,6,12 Complete Ch11 Assessment see blackboard videos
F 10/13	Forming plastics	ON:LINE Read Ch12 Forming Plastics pages 150-158 Answer Questions 1,2,3,4,6,7,10 Pg 160

W 10/18	Forming Plastics & Forming Ceramics	Read Ch13 Forming Ceramic Materials pages 162-173 Answer Questions 1,2,7,10(Sustainability Report Due)
TH 10/19	Powder Metallurgy	ON:LINE Read Ch14 Forming Powdered Metals pages 174-181 Answer Questions 1,3,5,6,7
F 10/20	No Classes	Conference Day
W 10/25	Powder Metallurgy	Handouts
TH 10/26	Project Management	Read Handouts and Answer Questions (See Blackboard)
F 10/27	Project Management	
W 11/1	Review for test	Study for review
TH 11/2	Test #2 Forming Metals, Plastics, Powder Metallurgy, and Project Management	Study for test
F 11/3	Intro to Separating (Traditional Machining)	Read Ch15 Intro to Separating pages183-201 Answer Questions 1,2,3,5,8,9,15 Complete Ch15 Assessment
W 11/8	Turning	Read Ch16 Turning and related Ops pages 203-223 Answer Questions 1,2,3,4,5 Complete Ch16 Assessment
TH 11/9	Milling	Read Ch17 Milling and Related Ops pages 224-232 Answer Questions 1,2,5,6,9 pg 238 Complete Ch17 Assessment
F 11/10	No School Veterans Day	
W 11/15	Sawing, Broaching, Filing Shaping, Planing, Drilling	Read Ch18 Sawing, Broaching, Filing pages 239-244, 247-251 Answer Questions 1,2,4,8,11 Complete Ch18 Assessment Read Ch19 Shaping and Planing pages 252-257 Answer Questions1,2,3
TH 11/16	Complete Traditional Machining	Read Ch20 Drilling, Boring, Reaming, and Tapping pages 258,265-269 Answer Questions 6 pg 271 Ch19-20 Assessment
F 11/17	Abrasive machines	Read Ch21 Abrasive Machining pages 272-295 Answer Questions 1,2,12,14,15
W 11/22 – F 11/24	No Classes Introduction to Conditioning Conditioning	Thanksgiving Break Read Ch24 pages 316-319 View Videos and answer Blackboard Questions Read Ch25 pages 320-333 View Videos and answer Blackboard Questions
W 11/29	Conditioning	Review Conditioning and shearing Read Ch23 pages306-313
TH 11/30	Review for test	Study for review
F 12/1	Test #3 Traditional Machining	Study for test
W 12/6	Thermal & Chemical Machining (Non-Traditional)	Read Ch22 Thermal and Chemical Milling pages296-304 Answer Questions1a,1d,2,4b,4c,5,7
TH 12/7	Non Traditional Machining	
F 12/1	Lean Manufacturing	Read Ch26 pages 335-339 Answer Questions at end of chapter Read Handouts
W 12/4	Lean Manufacturing & 5S program, Kaizen Product analysis report due	Study for review
TH 12/6	Review for Final	Study for final

F 12/8	Review for Final	Study for final
W 12/13	Final part 1	
TH 12/14	Final part 2	
F 12/15	Final part 3	