

NHTI Course Syllabus for MFET111: Manufacturing and Materials Processing, revA

Hours: Lecture-3, Lab-3, Credits-4

Prerequisite(s): MFET11C

Term: Spring, 2026, Jan 20th – May 9th

Faculty: Dennis Tappin

Faculty Accessibility:

Virtual Office – via Zoom by Appointment

SMS - It is acceptable to SMS the instructor at the given phone number. If using this method of communication, students should identify themselves accordingly.

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Course Description

Provides a basic understanding of traditional methods of materials processing used in product manufacturing. Through lectures, demonstrations, and first-hand lab exposure, the student is given the theory and applications of each process. The following are covered: casting, extruding, forging, molding, forming, heat treating, joining, and an introduction to machining methods, both conventional and numerically controlled.

Learning Outcomes

Educated Person Statement of Philosophy

Upon completion of this course, students will be able to:

- The student will be able to identify basic mechanical properties of typical engineering materials and methods of modifying them.
- The student will be able use basic precision measuring equipment and/or tools and will learn basic measurement practices.
- Read, interpret, engineering drawings, including GD&T.
- The student will become versed in machine shop safety practices and procedures.
- The student will be able to distinguish between the following processes, appreciate their advantages/disadvantages and design basic processing sequences:
 - Material Removal Processes (machining)
 - Casting Processes
 - Forming Processes
 - Joining Processes
- The student will be able to set-up and operate the following machines and

demonstrate safe operating procedures:

- Cut-off saw
 - Lathe
 - Vertical Milling Machine
 - Conventional Surface Grinder
- The student will be able to produce a sand casting given a simple pattern and will be able to produce related engineering documentation.

Acquired Knowledge

Basic understanding of traditional methods of materials processing used in product manufacturing.

Acquired Skills

Ability to perform basic machine tool operations. Ability to develop and define basic manufacturing processes and related documentation.

Course Materials and Resources

Textbooks, required

Degarmo's Materials & Processes in Manufacturing, 13th edition, Black and Kohser, Wiley 2019
ISBN-13: 978-1-119-72329-5

Materials, required

Standard Educational Materials (Pen, Pencil, Notebook, Calculator, etc.)

Software, required

None.

Resources, suggested

Internet Access and Web-Enabled Device.

Textbooks, materials, and software are available online through [eFollett/NHTI Bookstore](#), unless otherwise specified by the instructor.

Canvas Orientation and Technical Support

Canvas Orientation

If this is your first time using Canvas at CCSNH, please complete the Canvas Student Orientation to become familiar with course navigation and course tools.

Available Technical Support

If you need assistance, access the **Canvas Student Guide**, live chat, or phone support by selecting the **Help** button located in the lower-right corner of any Canvas page.

Instructional Approach

This course will balance lecture on various manufacturing topics, in-class discussion & activities, hands-on lab-based projects and demonstrations, and independent reading/study. As needed, time will also be dedicated to assessment.

Assessment of Learning

Assignment/Assessment Descriptions

This course will use various assignments to reinforce lecture discussion and laboratory work. The following is a general list and description of assignments expected to be given over the term. This list and any requirements are subject to change at the discretion of the instructor.

- *Quizzes & Other Assignments*– to be completed on or submitted to the course Canvas site.
 - *Casting Lab Report* – formal lab report related to the green sand-casting lab session
 - *Process development project* – collaborative engineering project
 - *Laboratory worksheets* – related to many of the laboratory sessions
 - *Machining project quality control reports* – measurements and reporting related to the machining project
 - *Comprehensive Final Exam*
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Grading Criteria and Grade Calculation

Grade Distribution

The final course grade is calculated based on the following categories.

Table 1: Grading Categories

Category	% of Final Course Grade
Attendance, Participation, and Professionalism	5
Formal Casting Lab Report	10
Process Development Project	10
Machine Shop Project & Other Laboratory Work	35
Quizzes & Other Assignments	35
Final Exam	5
Total	100%

Grading Scale

Letter grade and grade range for the course is as follows:

Table 2: Course Grading Scheme

Grading Schema	
A	100%-95%
A-	< 95%-90%
B+	< 90%-87%
B	< 87%-83%
B-	<83%-80%
C+	<80%-77%
C	<77%-73%
C-	<73%-70%
D+	--
D	--
D-	--
F	<70%

Course Schedule

This syllabus is to be used as a guide; it contains information about the course, how it will be taught, what will be required of students, and assessment methods that will be used. All information is subject to change at any time.

Weekly Schedule

A course schedule outlining the topics to be discussed, exams, and the assignments/labs to be completed will be published on the course Canvas site. This schedule is considered part of this syllabus. The schedule is subject to change throughout the semester at the discretion of the instructor, any changes will be communicated either in-class and via the course Canvas site as soon as possible.

Course Notices

Faculty Email Response Time

At a minimum, the instructor will check CCSNH email each day/night and respond accordingly, typically within 24 hours, please be patient with email responses.

Posting of Grades

Grades and feedback for all exams and assignments will be posted on the course Canvas site, hardcopies of submissions will not generally be returned. Any discrepancies should be brought to the instructor's attention.

Attendance, Participation, and Professionalism

Participation is a major component of this course. It is expected in the workplace that you are an active participant, which includes working well with others, taking initiative to complete tasks, staying on task, aiding fellow students. You will be assessed, in general, per the following criteria:

Student is highly active in discussions and with their engagement with all assignments. Contributes multiple ways: timely homework, initiates discussion topics, actively and appropriately responds to comments. Participation adds new information, questions, and considerations. Contributions from the students are based on class readings, personal and work experiences, and are appropriate.

Attendance is expected at all scheduled lectures and lab sessions. Students are expected to be on time for all sessions. It is expected that you contact the instructor prior to class if you will be unable to attend. No shows to class without notification will impact your participation grade for this course. Also, multiple absences, even with notification, can impact your final grade. Tardiness that impacts instruction or disrupts class will also impact your final grade.

Missing 2 consecutive weeks of the course lecture periods, 2 weeks in a row of lab sessions, or 4 absences may lead to dismissal from the course.

Professionalism is paramount for the engineering profession. Timely submission of assignments is a sign of course engagement and proper time-management. Late submission of work will impact your participation grade. See the posted *Course Workmanship & Professionalism Standards* document for additional expectations.

Assignment Policy

Due dates for all assignments or other assessments will be posted on the course Canvas site, published in the course schedule, and/or discussed in class. It is the student's responsibility to pass in work by the due date.

Assignments, generally, will close **one week** from scheduled due date. Late work will only be accepted if prior arrangements have been made with the instructor and or related to a missed lab/class session.

Make-up will be discussed on a case by case basis. Make-up should be discussed prior to any due date, lab session day, or exam date whenever possible. Make-up, re-takes, late submittals are all at the instructor's discretion

Academic Affairs Notices

Students are responsible for reading the [Academic Affairs Notices](#), which apply to all NHTI courses and are updated each semester.