

**NASHUA COMMUNITY COLLEGE**

**Nashua, New Hampshire 03063**

**MANUFACTURING PROCESSES**

**Course Number: MTTN 101**

**Professor Howe- Machine Tool Technology Department- dmhowe@ccsnh.edu**

**Office Room 147 telephone 882-6923 x1639 Office Hours Posted in Room 147**

**Class Hours:** Online

**COURSE Description:** Credit Hours: 3

MTTN 101 is a survey course of manufacturing, its history and techniques, from a metalworking viewpoint.

**Method of Instruction:** The instruction methods utilized in this online course will include: Reading assignments from the textbook, and various weblinks, charts etc. Discussions, videos and other web based tools may be used.

**Course Objectives:** Upon successful completion of the course , the student will have developed a basic understanding of manufacturing methods and history.

**Course Outline:** The course will consist of a discussion board, mini quizzes, standard quizzes, a midterm exam and a final exam.

**Topics to be covered (tentative):**

Introduction

Overview of Manufacturing -- emphasis on Machine Tools

Raw Material Production

Iron production and History

Steel Production

Characteristics of Steel and Metals

Metallurgy

Heat treatment

Production of Aluminum

Casting

Metal Forming

Forging

Powder metallurgy

Stamping

Forming

Welding

Non Traditional methods history and description such as EDM and laser

Machining

Manufacturing Systems

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**Grading Plan:**

Course grade will consist of results of quizzes and tests, at least two quizzes before the midterm, and at least two before the final.

Discussion	15%
Quizzes	25%
Mid Term Exam	30%
Final exam	30%

**Required Text:** Manufacturing Engineering and Technology/Serope Kalpakjian, Steven R. Schmid,-7<sup>th</sup> edition,  
2014- ISBN:978013312874-1 Person Education, Inc.

**Attendance:** College policies on grading and attendance are considered part of this syllabus.

**Emergency Procedures:** In an emergency 911 can dialed from an office phone, cell phone or by activating a 911 call box found adjacent to the cafeteria next to the elevator.

**Course Accommodations:**

Students who have a documented disability (physical, learning, or mental health) and require reasonable accommodations must meet with the Disabilities Support Coordinator to set up a NCC Reasonable Accommodation Plan. If you had an IEP or 504 in high school you may qualify for a plan. If you would like more information or if you are not sure if you qualify for a plan, please contact Melissa Olson, Disabilities Support Coordinator, located in the Learning Commons (room 100), 603-578-8900 extension 1451. In order to receive classroom accommodations, it is the student's responsibility to meet with his/her instructor privately and provide a hard copy of the signed plan.

**The Tutoring and Writing Center, located at The Learning Commons in room 100, is open to all NCC students looking for additional help with their college assignments.** Faculty and peer tutors are available for drop-in and one-on-one appointments. Students seeking assistance with the writing process in any of their classes may make an individual appointment in the Writing Center. Math help is also available at various times during the week. Tutoring may not be available for all subjects, but an earnest effort is made to match students with a tutor.

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**Content Topics (taken from the course description)**

Introduction to manufacturing

- A. History of manufacturing
- B. Economic value of manufacturing
- C. Common steps in manufacturing

Production of ferrous metals

- A. History of iron
- B. Steelmaking
- C. Alloying elements
- D. Stainless steels
- E. Nomenclature and types of steel

Production of non-ferrous metals

- A. Aluminum history and smelting
- B. Aluminum alloys and designations
- C. Copper and its alloys
- D. Other non-ferrous metals

Heat treatment

- A. Hardening
- B. Tempering
- C. Applications of heat treatment

Manufacturing Processes

- A. Casting
- B. Forging
- C. Powder metallurgy
- D. Welding
- E. Forming, punching, drawing
- F. Nontraditional machining
- G. CNC machine tools

Process control in Manufacturing

- A. Statistical Process control
- B. Manufacturing management systems

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