


<http://www.dmacc.edu>

Campus Name: Ankeny

Course Title: CNC Lathe Operation Theory

Course Number: MFG-350-E1

Section Number &amp; CRN:T,W MFG 350-E1 CRN 31957

<b>Instructor Information</b>		
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<b>Course Information</b>		
Semester & Year	Summer 2017	
Midterm & Final Dates	<a href="http://go.dmacc.edu/students/Pages/academiccalendar.aspx">http://go.dmacc.edu/students/Pages/academiccalendar.aspx</a>	
Date Syllabus Created and/or Revised		5,15,2017
Days & Time & Location	7:35 PM-9:10 PM T,W Room 3E 104 & 106	
Course Description & Credits	<a href="https://go.dmacc.edu/Schedule/Pages/coursedescriptions.aspx">https://go.dmacc.edu/Schedule/Pages/coursedescriptions.aspx</a> CNC Lathe Operation Theory	
Course Competencies	<a href="https://go.dmacc.edu/competencies">https://go.dmacc.edu/competencies</a>	
Course Overview	Learning Basic G & M codes and CNC programming Utilizing correct speeds and feeds. Proper machine setup and safety.	
Study Tips	To do well in this class, you must do your homework regularly (see schedule and dateline on the last pages). Computer and hand written programs should be prepared outside of class in order to best utilize the equipment. Study the assigned readings, which will help you follow the content of the lecture. Take Notes and Review your lecture notes. Ask questions. Students are expected to devote three hours of study time for each contact hour. This is a fast paced, hands-on course. It is realistic to expect to spend at least 6 hours per week studying for this class. If you miss any lecture, it is your responsibility to obtain the notes from a classmate as soon as possible. Then review the missed notes and ask the instructor any questions on the missed material as soon as possible. The content of this course builds on itself throughout the semester. Consequently, it is important that students master early concepts, as they will become building blocks for concepts introduced later in the course. Students should seek extra help (tutoring, come in to office hours, etc.) as soon as possible if they feel that they are getting behind on the course material.	
<b>Textbooks &amp; Materials</b>		
Required Textbooks	The text book and Handouts are supplied for this course ☺	

Required Materials		TI 30 Calculator, note taking materials, Mechanical pencils							
Optional or Recommended Books/Materials		This Course stress's Manually Written Programs. No software will be used to write programs beyond Note Pad.							
Software Notice		"All the software used in this class is copyrighted; therefore, it is not for distribution, copying, or personal use. This software is the property of Des Moines Area Community College."							
<b>Course Policies</b>									
Attendance		See section 8 of the Tool and Die policy. On Time Attendance is required							
Grading Criteria		See section 9 of the Tool and Die Policy							
Classroom Conduct		<a href="https://go.dmacc.edu/handbook">https://go.dmacc.edu/handbook</a> See Tool and Die Policy							
Missed Exams		See Tool and Die Policy							
Late Assignments		See Tool and Die Policy							
Extra Credit		Normally no extra credit is given. Successful completion of All Projects will bring a rewarding grade.							
Weather Policy		Individual circumstances such as health, childcare, rural roads, distance from the College, etc. can vary greatly among students and staff. It is always DMACC's goal to provide safe learning conditions, as well as provide the opportunity for students to attend classes when the vast majority is able to safely attend. The final decision to come to College can only be made by the individual student based on their specific extenuating circumstances that may make it unsafe for them to travel. During adverse weather, DMACC faculty is considerate of students who are unable to attend classes due to unique extenuating circumstances. Notification of Campus/College closures will be sent out through the DMACC RAVE Alert System, posted to the DMACC webpage at <a href="http://www.dmacc.edu">www.dmacc.edu</a> , and where possible sent to the local media.							
Class Cancellation Procedure		In the rare event of cancelation we will have a phone and email list for all that wish to be on it. We will attempt to notify you of a cancellation if possible.							
<p>All projects to be simulated on the simulator and de-bugged before handing in.                      First 3 Projects need to have Code Printed, handed in and checked before running.                      ALL Projects will be simulated on the simulator and the Lathe BEFORE running.</p> <p>After the Pilot the Written Code is due when parts are ran</p>									
See Above	See Above	See Above	See Above	See Above	See Above	As Needed	Week 3	Week 4	Week 5
Stepped G&M-CODES	Stepped G71 G70 G&M-CODES	Pilot G&M-Code "R"	Bullet G&M-Code "I"&"K"	Thread G76 code	Blow-Funnel G&M-Code	Pop Quizzes	G&M-TEST	G&M-TEST	G&M-FINAL
50	50	75	100	100	150	150	150	150	150

<p>Academic Dishonesty/ Plagiarism</p>	<p>Academic integrity, based on the values of honesty, trust, fairness, respect, and responsibility, is a fundamental principle of scholarship at DMACC. DMACC’s Academic Misconduct Policy (ES 4670) prohibits: plagiarism (using another person’s writing or copying any work without proper citation), falsification, unauthorized collaboration during a test or on an exam, course or test. If you are to benefit from this class and be properly evaluated for your contributions, it is important for you to be familiar with and follow DMACC’s Academic Misconduct policy. Students are encouraged to review DMACC’s Academic Misconduct Policy.</p> <p>Work that violates these values is incompatible with the goals of this class and will not be tolerated. Students who are found responsible for a violation of the Academic Misconduct Policy will receive an “F” for the assignment or the Course depending on the severity of the abuse.</p> <p>It is important for you to be familiar with and follow DMACC’s Academic Misconduct policy. Students are encouraged to review DMACC’s Academic Misconduct Policy on-line at <a href="https://go.dmacc.edu/handbook/polprocedures/pages/academicmisconduct.aspx">https://go.dmacc.edu/handbook/polprocedures/pages/academicmisconduct.aspx</a> or in the DMACC Student Handbook.</p>
<p>Course Specific (lab) Safety Procedures</p>	<p><b>SAFETY expectations</b> Safety Glasses are required when in Lab.  <b>You Must Have Safety Glasses or you Will not be allowed in the lab and receive an Absence.</b></p> <p>A 1% grade reduction for each safety violation like Key left in chuck, No safety glasses, Improper attire. Safety is important!</p> <p><b>NO Horseplay in the Lab!</b> Lab is to be cleaned and put back into order at the end of each work session. A 1% grade reduction for violating either of these. Horseplay is a serious safety issue. Neatness adds to safety and productivity. Do Not use compressed air to clean off machines.</p> <p><b>Clothing, Dress:</b></p> <p>While in the Lab appropriate Industrial attire will be expected. NO Hoodies, Long sleeves, Long Hair tied back. Anything that could possibly get entangled in a rotating spindle needs removed or tied back!</p> <p>Safety is a habit that needs acquired in Industrial Situations!  <b>Think Safety First!</b></p> <p>Reduce rapid travel on CNC to a low percentage to avoid crashes and have a finger near the feed hold ready to stop movements if needed.</p> <p>Tool and Die Policies 1,2,3</p>
<p><b>DMACC Information</b></p>	
<p>Instructor Home Pages</p>	<p><a href="http://www.dmacc.edu/instructors">http://www.dmacc.edu/instructors</a></p>
<p>Add/Drop Dates</p>	<p><a href="https://go.dmacc.edu/registration/pages/add_drop.aspx">https://go.dmacc.edu/registration/pages/add_drop.aspx</a></p>
<p>Refund Policy</p>	<p><a href="https://go.dmacc.edu/registration/Pages/refund.aspx">https://go.dmacc.edu/registration/Pages/refund.aspx</a></p>
<p><b>Support Services</b></p>	

<p>Services for Students with Disabilities</p>	<p><a href="https://go.dmacc.edu/student_services/disabilities">https://go.dmacc.edu/student_services/disabilities</a>                  Any student with a documented disability who requires reasonable accommodation should contact the Disability Services Coordinator at <b>515-964-6850</b> or the counseling &amp; advising office on any campus to apply for services.</p>
<p>Early Alert Referrals</p>	<p><a href="https://www.dmacc.edu/counseling/Pages/facultyreferrals.aspx">https://www.dmacc.edu/counseling/Pages/facultyreferrals.aspx</a>                  DMACC faculty are encouraged to help connect students to available resources at the college, including academic advising, counseling, tutoring, and more. Early Alert Referrals result in direct outreach by phone and email to students who have been referred. Students are encouraged to respond to outreach efforts and take full advantage of available resources in support of their success. Questions about this process should be directed to Bobby Nalean at 515-964-6474 or <a href="mailto:earlyalert@dmacc.edu">earlyalert@dmacc.edu</a>.</p>
<p><b>Course Syllabus</b></p>	
	<p><b>DISCLAIMER:</b> “This syllabus is representative of materials that will be covered in this class; it is not a contract between the student and the institution. It is subject to change without notice. Any potential exceptions to stated policies and requirements will be addressed on an individual basis, and only for reasons that meet specific requirements. If you have any problems related to this class, please feel free to discuss them with me.”</p> <p><b>NONDISCRIMINATION POLICY:</b> Des Moines Area Community College shall not engage in nor allow discrimination covered by law. This includes harassment based on race, color, national origin, creed, religion, sex (including pregnancy and marital status), sexual orientation, gender identity, age, disability and genetic information. Veteran status in educational programs, activities, employment practices, or admission procedures is also included to the extent covered by law. Individuals who believe they have been discriminated against may file a complaint through the College Discrimination Complaint Procedure (ES4645). Complaint forms may be obtained from the Campus Provost's office, the Academic Dean’s office, the Judicial Officer, or the EEO/AA Officer, Human Resources. For Title IX questions and concerns contact 515-964-6850.</p> <p>Students who wish additional information or assistance may refer to Student Services procedure ES 4645 located at <a href="https://go.dmacc.edu/student_services/int">https://go.dmacc.edu/student_services/int</a>. Click Policies &amp; Procedures.</p> <p><b>Accommodations:</b> The Program Development/Academic Support Services Director is the official Student Accommodation Officer/Section 504/ADA Coordinator for DMACC. The ADA Coordinator’s office is located in Bldg. 6-10E on the Ankeny Campus and may be contacted by voice (515-964-6857). The ADA Coordinator is responsible for ensuring that the college complies with federal regulations that guarantee qualified students with disabilities equal access to all programs and services. Any student, faculty, or staff member may contact the ADA Coordinator’s office for clarification of federal regulations, appeal of a grievance, or resolution of a disability-related problem.</p>
<p><b>Additional Information</b></p>	

<p>To access additional information related to DMACC policies and procedures that impact the classroom (i.e. use of technology, weather-related cancellations, classroom conduct, etc.) please refer to the DMACC student handbook. If you do not have access to a computer and need a printed version of any of the information described above, contact your instructor.</p>
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Safety and Organizational Rules 6/21/2013

## **TOOL & DIE DEPARTMENT - SAFETY & ORGANIZATIONAL RULES**

Contents:

- 1. Safety glasses**
- 2. Safety wear**
- 3. Safety practices**
- 4. Equipment maintenance and care**
- 5. Computer usage**
- 6. Tool privileges**
- 7. General rules**
- 8. Attendance policy**
- 9. Grade scale**
- 10. Lab housekeeping**
- 11. Penalties**
- 12. Personal health and accident insurance**
- 13. Cell phones**

The following is a list of guidelines that must be followed to promote safety issues & care for shop equipment. Failure to abide by the rules will result in penalties as listed.

### **1. Safety glasses** Iowa code 280.20

All students will wear their safety glasses when in a lab environment. This will apply even if you are not running a machine. The only exception is in a classroom that is fully enclosed that has no hazardous equipment. Students must store their glasses in some place other than the lab. (locker, book bag, etc.) All glasses must be approved safety glasses by OSHA, sunglasses are not acceptable safety wear.

### **2. Safety wear**

All students must remove watches, rings, bracelets, or any other jewelry that could pose a safety hazard while operating machinery. Hair past shoulder length must be tied back to prevent possible machine contact when a machine operator leans forward.

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Everyone must wear full length pants (no shorts or sweat pants allowed.) Footwear must be fully enclosed to the ankles (no sandals, etc.) All long sleeve shirts must be rolled up past the elbow while operating machinery.

### 3. Safety practices

All work pieces must be retained in a manner that is appropriate for the type of machining incurred. No one shall try to overcome machine forces by physically holding the work piece. Some common work holding abuses are, but not limited to:

- A) Not properly blocking a work piece on a magnetic chuck.
- B) Not clamping or retaining drill press vise and/or work pieces.
- C) Cutting round stock on a band saw. (stock could roll and your fingers could be pinched)
- D) Leaving a chuck wrench in a chuck unattended.
- E) Creating long stringy chips.
- F) Using emery cloth on a lathe where the cloth could completely wrap around the diameter.

### 4. Equipment maintenance and care

- A) All equipment must have sufficient oil levels before operation. This would include activating manual oilers and checking sight glasses.
- B) Covering all wear surfaces on a machine when abrasive materials are being used.
  - 1) emery cloth on lathes and mills.
  - 2) tool post grinding.
  - 3) cutting fiber board or similar abrasive material.
  - 4) way covers on surface grinders.
- C) NO AIR HOSES may be used to clean off a machine. This results in fine chips and abrasive under way covers.
- D) NO equipment shall be placed on a surface plate that could cause damage to the surface itself. (e.g. hammers, clamps, grinding wheels, etc.)
- E) NO equipment or hand tools shall be placed on a precision surface or a mill table temporarily or otherwise. (e.g. hammers, C-clamps not used in the set-up, cutting tools, etc.)
- F) All work pieces, clamps, and vises that come in contact with a precision surface must be burr free. File, stone, or grind as necessary. (e.g. vise on a mill table)

### 5. Computer Usage

- A) **Lab computers will not be used to check personal E-mail, Facebook, Ebay, play games, etc... Internet use will be directly related to class only, including breaks and open lab time.** If you bring your own laptop, I-PAD, etc, you have to be completely out of any classes and not in the classroom.
- B) **It is student's responsibility to back up their work. DMACC and DMACC instructor's are not responsible for computer errors. Any time extensions or repercussions involved in the loss of data will be reviewed on a case-by-case basis. The student is not guaranteed recovery of data or extension of time.** Students are issued a "P:" drive that is the intended location of student data files. Local computer hard drives are frequently reimaged and any data stored on them will be wiped out.

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C) Displaying lewd and explicit material, pornography, or any other material that is indecent and not related to the subject matter shall be prohibited. Any student displaying said material shall be reported to the Dean of Student Affairs for expulsion from the program. Propaganda, from political to religious subject, shall not be distributed or shown to other students during class time. If the material is found to be disruptive or offensive, the student will have to remove such material from the classroom, will receive an unexcused absence and will lose all of the class points for that day. Further such incidents will cause the student to be referred to the Dean of Industry & Technology for discipline.

D) Only the programs that are displayed in the menus on the computer terminals in the lab may be used by the student. If a student attempts to add software to a terminal or steal a copy of software from a terminal, the student will be referred to the Dean of Industry & Technology office for disciplinary reasons.

### **6. Tool Privileges**

A) All tools & equipment must return in a like condition with only a reasonable amount of wear for the time the tool was checked out.

B) Any tool that is broken must be replaced or repaired to a satisfactory condition depending on the extent of the damage, if the tool has been depreciated beyond the expected life the tool it will be discarded. All these decisions will be determined by the program chairperson.

YOU BREAK A TOOL FROM THE TOOL CRIB SEE YOUR INSTRUCTOR!

A) All precision crib tools must be treated in a manner that will maintain the accuracy of the tool. All precision surfaces must be handled carefully.

### **7. General rules**

A) Materials may be used for lab projects ONLY! This would include steel, heat treat wrap, emery cloth, etc.

B) Students may not work on anything but lab projects unless it is cleared first with their instructor, and is in good standing with their lab projects.

C) **Lectures will be given only once.** It is the responsibility of the student to obtain lecture information from other students if they miss a lecture. All computers must be logged-off during lecture and the monitor shut off, unless the instructor requests that you log in. Any student that interferes with the delivery of a lecture by talking, walking around the room, making gestures, having cell phones on, etc. can be directed to leave. If, after being warned once, the student continues to disrupt the lecture, the student will have to leave and be counted absent and lose all the points possible for that class session. Continual display of actions that disrupt the class will result in the student being referred to the Dean of Industry and Technology for further discipline.

D) **All tests must be original.** Any person(s) found guilty cheating or copying an exam shall be disciplined. Any allegation of cheating shall be

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investigated. Points for any test being investigated shall not be determined until the investigation is concluded. Any person aiding another person to copy shall also be disciplined. If guilty, the student(s) shall lose all the points for the exam. The accused student(s) shall report to the Dean of Industry & Technology during which time a decision will be made as to the extent of additional discipline the student(s) will receive. The student(s) can be put on probation or can be expelled from any of the machining programs. If the student(s) commits a second offense the student(s) will immediately be removed from the class and will have to report to the Dean of Student Affairs to start procedures to expel the student(s) from the program. **All tests must be taken within 2 days of students return or a zero will be given.**

E) Students must not manufacture anything that could be used as, or in conjunction with the following:

- a) firearms (or weapons of any type)
- b) knives
- c) Anything illegal not previously mentioned.

F) Finals - last day to machine in a semester lab course is determined by the instructor. Any partially completed projects may not be given any credit at the discretion of the instructor. Final lab clean-up days at the end of the semester are part of the semester grade and can be weighted by the instructor as deemed necessary and could result in the loss of the soft skill grade as well.

### **8. Attendance policy**

A) Any student more than 10 minutes late will receive an absence. If a student demonstrates habitual tardiness, they will be referred to a student counselor and possibly be removed from the class. Any student entering the classroom 10 minutes late or later will not be allowed to start any test in progress. **Any student who leaves the lab or classroom early without consulting the instructor will be counted absent. The instructor will determine whether leaving early fits the conditions and does not count as an absence.** During lab course where a break is not generally scheduled students can take a 10 minute break per hour. Time observed missing in excess of this amount time will be counted as an absence. If you need to take care of related DMACC business and believe it will take a longer period consult with your instructor **before** leaving to avoid a deduction.

B) Field trips do require attendance. Only excused absences will be accepted. See the instructor at least one school day prior to the field trip for an exclusion from attending the field trip

C) Unannounced quizzes issued during class **can not** be made-up.

D) If a student that has been absent and does not arrange a new completion date for an assignment(s) on the day that they return to school, they will lose all of the points for any assignment(s) that they have missed while they have been gone.



### **9. Grading Scale**

The following grading scale will be used for all courses with the following acronyms: MFG

A = 96.00% - 100%

A- = 94.00% - 95.99%

B+ = 91.90% - 93.99%

B = 89.80% - 91.89%

B- = 87.80% - 89.79%

C+ = 85.70% - 87.79%

C = 81.80% - 85.69%

C- = 79.80% - 81.79%

D+ = 77.70% - 79.79%

D = 74.81% - 77.69%

D- = 72.80% - 74.80%

### **10. Lab housekeeping**

Lab(s) must be cleaned at the end of the class period. This would include cleaning the machine(s), sweeping and/or mopping the floors, emptying wastebaskets, returning crib tools, etc. Failure to maintain the lab in an orderly state will result in a personal infraction to the soft skill grade and if it is bad enough, mandatory shut down of the lab to all students until housekeeping is regained. Poor housekeeping can create a hazardous work environment. Each student will be responsible for the mess they create; however the clean-up will be a group effort. No one will be dismissed from class until the clean up is complete. Any lab time lost will not be rescheduled.

### **11. PENALTIES**

A) All infractions shall be used to weigh judgment of a soft skills grade. The soft skills grade shall have a point score and weighted at 10% of the final semester grade. If this is an excused absence which may include extended medical, legal and military absences. Students may incur three infractions without it affecting their grade. **Once a student has four infractions, all of the soft skills points are lost.** Continued infractions after the initial loss of points will continue at 2% of the semester grade per incidence.

### **11. Personal health and accident insurance**

Des Moines Area Community College does not provide any health or accident insurance on students attending any program at DMACC. If you are not currently covered by adequate insurance, you may purchase health and accident insurance through the student activities office.

### **12. Personal property**

Des Moines Area Community College does not provide any personal property insurance to cover theft or damage to tools, personal belongings, etc. DMACC does not assume any liability for theft or damage to tools or any other personal property such as book bags left in the classrooms or at the college at anytime. Therefore, it is suggested that each student who plans to leave tools at the college on a regular basis, or just occasionally, should insure them with a rider on your homeowner's policy or by separate insurance. Lockers may be checked out each semester to store personal belongings.

### **13. Cell phones**

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Cell phones are to be shut off during lecture class. Any student using their cell phone, texting or leaving the room to take phone calls will be directed to leave for the remainder of the class period. The student will also be counted absent for the day and lose all points associated with that day's class. If there is a day that you need to be contacted, inform your instructor prior to or at the beginning of class. Be sure your phone is on vibrate and quietly leave the room to answer call. This should not be a daily occurrence. Cell phones can be used in lab classes unless the usage is excessive.

### Syllabus Addendum

<https://www.dmacc.edu/helpdesk/Training%20Documents/Faculty%20and%20Staff/syllabusAddendum.pdf>

This workforce solution is funded by the IHUM Consortium which is 100% financed through a \$15,000,000 grant from the U.S. Department of Labor's Employment & Training Administration. The product 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, timeliness, usefulness, adequacy, continued availability, or ownership. This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

