

**Oklahoma State University Institute of Technology**  
**ETDM 2203 Syllabus**  
Fall 2017

**ETDM 2203 Automated Manufacturing Techniques**

Students are introduced to the Programmable Logic Controller (PLC), their control schemes, and applications in modern automation, process documentation techniques, and robotics. Students are also introduced to modern manufacturing concepts like JIT, and Lean Technologies, including their applications.

**Course Purpose:**

The purpose of the course is to illustrate different processes to speed up production, efficiency, and maintain a clean environment.

**Type of course:** Theory/Lab.

**Credit Hours:** 3; Total clock hours of theory per semester: 25%;

Total clock hours of lab for the semester: 75%;

**Class length** – Full semester

**Class days and times:** MWF 1:00 – 3:25

**Prerequisites:** ETDM 1143

**Corequisites:** ETDM 1333

**Instructor Name:** Timothy Walker

**Instructor Phone:** (918) 293-5154

**Office:** Reynolds Bldg. Room 143

**Instructor email:** [tim.walker@okstate.edu](mailto:tim.walker@okstate.edu)

**Contact:** My preferred method of contact is ***email***. Please allow 24-48 hours to return your correspondence during the normal work week.

**Instructor's Office Hours:** Monday and Wednesday: 10:30 a.m. to 11:30 a.m.

**Division Name:** School of Engineering Technologies

**Division's Main Phone:** (918) 293-5150

**Required Text, References, and Materials:**

**Texts:** N/A

**References:** Machinery's Handbook 30<sup>th</sup> Ed.

*ISBN-10: 0831130911 or ISBN-13: 978-0831130916*

**Materials:** Materials needed are notebook, pen or pencil calculator, folder, safety glasses, thumb drive (1G minimum).

**Uniform/Tools:** Shoes (no open toed), long pants, and no jewelry.

**Estimated Cost for Materials:** (Approx.) \$10.00

**Estimated Cost for Uniform/Tools:** N/A

**Upon completion of the course, students should:**

<b>Course Objectives</b>	<b>Assessment of Objectives</b>
* Create 3D drawings using Solid Works or equivalent program.	Project
Modify and edit electronic drawing files.	Assignment
Create 2D drawings using Autocad or equivalent program.	Project
* Research and interpret the role of "basic good judgment" in the prevention of injuries in the Machine Shop.	Assignment
* Research and appraise the purpose and use of the information provided by machine and equipment operating manuals.	Project
* Apply use of the PLC principles.	Assignment
* Illustrate a shop layout using robots.	Project
* Create a automate system by adding automation to a manual system.	Project

Aspects of the course objective assessments may be used in the university's assessment of student learning. If applicable, an asterisk (\*) above indicates this course is used in the university assessment program.

## **Course Activities**

In this course students will:

- ✓ Participate in class discussions and activities.
- ✓ Complete projects assigned in the lab.
- ✓ View videos, PowerPoints, and documents that depict the various concepts.
- ✓ Participate in group and individual presentations.
- ✓ Take examinations.
- ✓ Complete reading and homework assignments.
- ✓ Required to do quizzes.

## **Evaluation:**

**Grades will be based on the quality and completion of these areas.**

Assignments:	42%
Project:	42%
Final Presentation:	16%
<b>Total:</b>	<b>100%</b>

<b>OSUIT Grading Scale</b>
A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% & below

\*The student's grade for this assignment will be used in the university's assessment of student learning. A 70% competency or higher receives a Pass rating. This Pass/Fail rating is independent of the student's course grade.

Daily and/or weekly quizzes, small weekly assignments and similar type projects:  
Normal return time to student by next class meeting or no later than one (1) week.

Extensive assignments, large lab projects, extensive quizzes, exams and similar type projects: Normal return time to students in one (1) to two (2) weeks.

Students are required during the final semester week to clean and apply proper maintenance to all machines and designated areas. Failure to do so will result in a drop in grade by one letter grade.

## **Recommended Student Competencies/Skills**

N/A

## **Authorized Tools**

Students are required to bring their own personal clear OSHA approved Z87 safety

glasses for every class period. Students may use any/all course materials, including books and notes while participating in classroom activities with instructors' permission.

### **Late Work**

All work will have specific due dates and is expected to be completed and turned in before the designated due date. Students will be given ample time to complete all tasks before they are due. No late assignments or tests will be accepted. Any work turned in after the designated due date WILL NOT be graded and result in a zero. There will be NO MAKEUP WORK offered for this course. *Please contact your instructor as soon as possible in the event of an emergency or unexpected situation to arrange for possible allowances toward late work being accepted. If late work acceptance is arranged and agreed upon, it will only be accepted up to one week after the initially designated due date.*

### **Testing**

All quizzes and tests are to be completed independently; no collaboration with classmates is permitted and any instance of such will be considered academic dishonesty. All exams must be taken on the date of the exam. There are NO MAKEUP EXAMS offered for this course. *Please contact your instructor as soon as possible in the event of an emergency or unexpected situation to arrange to possibly make up the missed quiz, test, or exam. If a makeup quiz, test, or exam is arranged and agreed upon, it will only be available to take up to one week after the initially designated testing date and in the presence of the class instructor.*

### **Attendance Policy**

If you arrive within the first ten minutes of the class period you will be counted tardy, you will not be counted absent. If you arrive after the first ten minutes of the class period has passed, you will be counted absent.

### **Modules**

The course content for this course is organized into individual modules. Modules can be thought as a lesson unit, or a series of related topics, which will be covered in class. Each course module handout provides a list of the learning objectives, instructions, and specifications for assignments and key terms.

### **Presentations**

This course may require that students give one or more formal presentations to the class. On a presentation day, students are expected to be punctual, professional, and have all components of the assigned project with them, ready for presentation.

All students will be required to critique each presentation giving constructive positive and negative feedback. All students are asked to be respectful and tactful while reviewing others' works, and receptive to criticisms of their own work.

### ***Lab Time***

During lab time the students will be allowed to work on course assignments and or projects, during the class period, and the instructor will review their work and provide feedback. These are compulsory classes, as failing to attend (and thereby failing to receive feedback) will result in lower grades on work due to inadequate guidance from the instructor.

### ***Student Email***

All students have access to a school email account and the online learning management site. If a student has a question that pertains to a specific course, students are encouraged to send an email with the course number, section number, course name, and class time in the Subject line of the email. Your instructors will only use your school email address to contact students. Students should check the school email account frequently.

Some email accounts can be forwarded to other accounts if you have difficulty checking multiple accounts.

### ***Online Learning Management Site (Brightspace)***

All course materials will be provided through online access at <https://online.okstate.edu/> Students will have access to course materials, including modules, Power Point lectures, quizzes, assignments, and resources. Students will also be required to submit all work through this online system unless otherwise noted.

### ***Student Progress***

Students can keep track of their grades and due dates using the online learning management site grade book and calendar features. Students who are averaging below a 70% after the 8th week should speak with the instructor.

### ***Use of Copyrighted Materials***

Students are prohibited from using any copyrighted drawings, images, audio, footage, and characters for the creation of their work. (ie. Celebrity photos, movie screen grabs, drawings of copy righted logos, characters, etc. and so forth). Students must use their own content for all assignments.

### ***All Viewing Audiences***

All materials produced for this course must be appropriate for viewing audiences of all ages.

Assignments **MUST NOT** contain any offensive language, graphic content, and suggestive themes (ex. sex, drugs and alcohol). Your instructor must first approve any content you are unsure of; chances are if you are unsure then it is not appropriate

content. Any assignments turned in which breaks this rule WILL NOT be graded.

### **Key Terms**

Key Terms are Notes, Key Words, and Terminology about a specific subject. The Key Terms come from the test and are provided to you as a study guide. Do NOT simply write the definitions of Key Terms. Take the time to take Notes about, Research, Explore, and USE each Key Term. By completing the Key Terms you will have better scores on the tests.

### **Professionalism**

Professional behavior is essential for successful student and effective learning environment. Therefore, professional behavior is expected of all students. Students in this course are required to conduct themselves professionally in class. This includes the following behaviors, but are not limited to:

**Appearance:** A professional appearance includes professional attire, excellent personal hygiene, civility and poise, all qualities, which are quickly noticed by employers. Dressing for success means dressing the part of a successful professional, therefore we encourage students to wear business casual attire at all formal events, presentations, and interviews, such as the Advisory Board Meeting.

Appropriate in-class attire should consist of clothing items that meet the required safety standards for working in a manufacturing workplace environment. This includes comfortable fitting clothing that is not too loose, no hanging parts such as hoodie ties or strings, no low-cut or low-hanging items, comfortable and close-toed shoes, and no jewelry. Hats are allowed in the classroom and machine shop provided you are not working on a conventional machine, such as the open lathes and mills.

**Collaboration:** Collaborates with team members, adapts readily to different positions on the team; shows respect for all team members; remaining flexible and open to change; communicating with others to resolve problems.

**Communications:** Speaking clearly; writing legibly; listening actively; adjusting communication strategies to various situations.

**Ethical Conduct:** Submitting work of the student's own original creation; paraphrasing and citing all references; no lying, cheating, or plagiarism.

**Integrity:** Consistent honesty; prompt admission and correction of mistakes; trustworthy with the property of others and confidential information; value accuracy and thoroughness; avoid derogatory or demanding remarks.

**Participation:** Actively participates in class; volunteers for activities; asks questions and summarizes lesson content.

**Preparedness:** Bringing all required course materials (such as text books, pencil, paper, flash drive, safety glasses) to each class period.

**Respect:** Being polite to others; not using derogatory or demeaning terms; appreciates the value of diversity; demonstrates clear, appropriate and cultural boundaries; behaving in a manner that brings credit to the profession.

**Self – Confidence:** Demonstrating the ability to trust personal judgment; demonstrating an awareness of strengths and limitations; exercises good personal judgment.

**Self – Motivation:** Taking initiative to complete assignments; taking initiative to improve and/or correct behavior; taking on and following through on tasks without constant supervision; showing enthusiasm for learning and improvement; consistently striving for excellence in all aspects of design and professional activities; accepting constructive feedback in a positive manner; taking advantage of learning opportunities.

**Time Management:** Consistent in completing tasks and assignments on time; utilizing class time, machine shop time, and instructor’s appointment time to the fullest.

### **Classroom Policies:**

All classroom policies are in place to ensure a safe and productive learning environment. Violating any classroom policies may result in disciplinary actions such as a verbal reprimand in class, written reprimand with a copy placed in your records, expulsion from the classroom for the class period and/or possible expulsion from the course or school. These policies include, but are not limited to the following:

1. A positive learning environment will be maintained at all times.
2. Students are to behave professionally in the classroom, no feet on desk or chairs, no foul language, etc. Any unprofessional behavior will not be tolerated.
3. Students are to maintain time-on-task. The way you spend your time is vital to your success in the program.
4. No food or drinks around the computers. These items can easily damage expensive computers and electronic equipment. Only lidded or closeable drinks are allowed in the classroom. No meal-type food allowed (cafeteria, sandwiches/wraps, pizza, soup, etc.). Snack foods, such as chips or candy from the snack machines, are allowed. All food and drinks need to be on the round tables.
5. Use of personal electronic devices is not allowed in the classroom. Personal electronic devices include, but are not limited to; radios, TVs, tape players, CD players, MP3 players, handheld games, pagers, cellular phones, laptops etc. All cell phones are to be turned off or set to vibrate before entering the classroom.

6. Students may NOT surf the net, check e-mail or engage in similar activities during class time. Not only does it affect the person doing it, but it is also a potential distraction to others in the class.
7. The School of Engineering computers and equipment are for educational use only and not personal use. Computers and equipment may only be used for school work for other classes or programs with the permission of all related instructors.
8. No outside software installations will be allowed in the classroom. No games will be played on any classroom computer at any time.
9. No printing during class lectures. No working on or printing of non-class related materials in the classroom.
10. Avoid touching or pressing on the LCD monitors and forcefully striking the keys on the keyboards or buttons on the mice. Be sure to shut down computers at the end of each class period.
11. Downloading, uploading, streaming, sharing (peer to peer) of files not related to the class is strictly prohibited.
12. Accessing or possession of illicit, offensive, obscene, or illegal materials/files is strictly prohibited and will result in disciplinary action up to and including suspension, expulsion, and/or legal action.

***OSUIT Policy and Procedures:***

[http://go.osuit.edu/student/residential\\_life/student\\_quick\\_reference](http://go.osuit.edu/student/residential_life/student_quick_reference)

[http://go.osuit.edu/student/residential\\_life/sites/go.osuit.edu.student.residential\\_life/files/u73/rights\\_responsibilities.pdf](http://go.osuit.edu/student/residential_life/sites/go.osuit.edu.student.residential_life/files/u73/rights_responsibilities.pdf)

[http://go.osuit.edu/administration/policies\\_procedures/information\\_technologies](http://go.osuit.edu/administration/policies_procedures/information_technologies)

***Syllabus Disclaimer:***

As with most technology courses, this course is in a state of constant update in order to keep up with the ever changing technology and advancements in the field. This syllabus is a plan for action. The instructor reserves the right to alter its stipulations, upon prior notification to students, if and when educational and technological circumstances warrant changes.

***Syllabus Attachment:*** View the Syllabus Attachment, which contains other important information, by visiting [http://osuit.edu/center/student\\_syllabus\\_information](http://osuit.edu/center/student_syllabus_information)  
The Syllabus Attachment can also be found in (D2L/Brightspace) under the content tab in the Start Here section.



<b>Course Schedule – All work is due by 11:59 P.M.</b>			
<b>Course Outline Schedule</b>	<b>Topic</b>	<b>Assignment</b>	<b>Due Date</b>
Week 1	Manufacturing Processes	Syllabus Quiz	
Week 2	Manufacturing Processes		
Week 3	Motion Time Management	Motion Time Management Project	
Week 4	Cellular manufacturing	“ “	
Week 5	Inventory Management		
Week 6	Robotics	Floor Layout	
Week 7		“ “	
Week 8		Floor Layout Presentation	
Week 9	Lean Manufacturing		
Week 10	5S Presentation	5S Project	
Week 11		“ “	
Week 12		5S Presentation	
Week 13	Stereo Lithography	3D Project	
Week 14		“ “	
Week 15		Clean	

**\*NOTE: This is a tentative schedule and may be subject to change.**