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Date revised _____

**Angelina College
Technology and Workforce Division
MCHN 1426 INTRODUCTION TO CAM
Instructional Syllabus**

I. COURSE DESCRIPTION: *(as stated in the bulletin, including necessary pre-requisite courses, credit hours)*

Four hours credit. A study of the computer-assisted manufacturing systems. MasterCAM software will be used to develop applications for manufacture. Two lecture and four lab hours each week. Lab fee.

INTENDED AUDIENCE:

Third semester students.

INSTRUCTOR

Name:

Office Location:

Office Hours:

Phone:

E-mail Address:

II. INTENDED STUDENT OUTCOMES:

A. Core Competencies – (Basic Intellectual Competencies)

- 1. Reading:** Reading at the college level means the ability to analyze and interpret a variety of printed materials – books, articles, and documents. A core curriculum should offer students the opportunity to master both general methods of analyzing printed materials and specific methods for analyzing the subject matter of individual disciplines.
- 2. Writing:** Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience. Although correct grammar, spelling, and punctuation are each a sine qua non in any composition, they do not automatically ensure that the composition itself makes sense or that the writer has much of anything to say. Students need to be familiar with the writing process including how to discover a topic and how to develop and organize it, how to phrase it effectively for their audience. These abilities can be acquired only through practice and reflection.
- 3. Speaking:** Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience. Developing this competency includes acquiring poise and developing control of the language through experience in making presentations to small groups, to large groups, and through the media.
- 4. Listening:** Listening at the college level means the ability to analyze and interpret various forms of spoken communication.
- 5. Critical Thinking:** Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies. Problem solving is one of the applications of critical thinking, used to address an identified task.
- 6. Computer Literacy:** Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information. Core-educated students should have an understanding of the limits, problems, and possibilities associated with the use of technology, and should have the tools necessary to evaluate and learn new technologies as they become available. (*The Texas Higher Education Coordinating Board. ("Report of Subcommittee on Core Curriculum", March 1, 1989).*)

B. Exemplary Objectives – *(Found in the Texas Higher Education Coordinating Board Document. Titled: CORE CURRICULUM: ASSUMPTIONS AND DEFINING CHARACTERISTICS Dated: April 1998)*
Not applicable for courses in the Technology & Workforce Division.

C. Course Objectives – *(common to all sections)*

1. Study Computer-Assisted Manufacturing (CAMS) systems.
2. Demonstrate knowledge of Computer-Aided Manufacturing Systems.

D. Course Objectives - Not applicable for courses in the Technology & Workforce Division.

III. **ASSESSMENT MEASURES OF STUDENT LEARNING OUTCOMES:**

A. Assessments for the Core Intellectual Competencies –

1. Reading – Reading material will be measured by the student's demonstration of understanding and interpreting assigned reading material and written instructions.
2. Writing – Writing will be measured by the student's ability to complete writing assignments.
3. Speaking – Speaking will be measured by the student's completion of writing assignments.
4. Listening – Listening will be measured by the student's ability to respond appropriately.
5. Critical Thinking – Critical thinking will be measured by lab completions and test grades.
6. Computer Literacy – Computer literacy will be measured by the student's successful completion of computer assignments and computer aided instructions.

B. Assessments for the Exemplary Objectives Specific to the Course –

Not applicable for courses in the Technology & Workforce Division.

C. Assessments for Objectives Specific to the Course –

1. Study Computer-Assisted Manufacturing (CAMS) systems.
2. Demonstrate knowledge of Computer-Aided Manufacturing Systems.

D. Assessments for the Objectives of the Course as determined by the Instructor –

Not applicable for courses in the Technology & Workforce Division.

IV. **INSTRUCTIONAL PROCEDURES:**

A. Methodologies common to all sections

96 contact hours

A. Time Allocation:

1. Lecture - 2 hours per week
2. Lab - 4 hours per week

B. Methodologies determined by the instructor

Not applicable for courses in the Technology & Workforce Division.

V. **COURSE REQUIREMENTS AND POLICIES:**

A. Required Textbooks, Materials and Equipment –

Text - MasterCAM Lathe & Mill Training, Version X5

1. Shop tools and machinery

B. Assignments – *(Appropriate due dates, schedules, deadlines)*

Course Content: Students who successfully complete this course will be able to

1. Identify CAM systems.
2. Input part geometry.
3. Develop tool paths.
4. Select materials.
5. Select the correct RPM and feed for materials.
6. Perform tool path procedures and generate code.
7. Setup tool changers
8. Select tooling for holes, counter bore holes, countersink holes and tapped holes.

See attachment.

C. Course Policies – (This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.)

Academic Assistance – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Karen Bowser, Room 208 of the Student Center. At a post-secondary institution, you must self-identify as a person with a disability; Ms. Bowser will assist you with the necessary information to do so.

To report any complaints of discrimination related to disability, you should contact Dr. Patricia McKenzie,

Administration Building, Room 105 or 936-633-5201.

Attendance – See college bulletin.

Additional Specific Requirements for this Course –

- A. Students are encouraged to be in class before the starting time out of courtesy to others, but also to ensure that they will not miss any part of the lecture, announcements or be late for a test or quiz.
- B. Attendance: Students are required to attend all class meetings. Responsibility for work because of absent/tardy or other reasons are placed upon the student. Excessive absences are cause for the student to be dropped from the course. (Excessive absences are defined as three or more consecutive absences or four or more cumulative absences from regularly scheduled class meetings.)
- C. Make-UP Work: Student who miss class meetings are responsible for turning assigned work, missed tests or missed quiz before the beginning of the next class meeting that the student attends. Failure to do so will result in a grade penalty of 20 points.
- D. Late Assignments: All assignments must be turned in on or before the due dates given in the weekly lesson plan of the syllabus. Ten points will be deducted for each day late.
- E. Instructor Conferences: All students are encouraged to take time to meet individually with the instructor with any problem the student may have. (Office hours are posted on the instructor's office door.) When a problem arises concerning the course, meet with the instructor as soon as possible.

VI. COURSE CONTENT:

A. Content/ Topics - *(as required by the individual Instructor)*

A study of Computer-Assisted Manufacturing (CAM) systems. Software is used to develop application for manufacturing. Emphasis is on tool geometry, tool selection, and the tool library.

B. Additional Content

- A. The project operation plan shall be counted as a written test and will be graded.
- B. The oral project operation plan presentation by the student will be considered as classroom participation.

VII. EVALUATION AND GRADING:

A. Grading Criteria

Unit assignments will be evaluated on :

- 1. Accuracy
- 2. Neatness
- 3. Form

B. Determination of Grade

The final grade will be composed of:

Lab Problems - 100%

The final grade will be awarded on the basis of:

- 1. 90 - 100 - A
- 2. 80- 89 - B
- 3. 70- 79 - C
- 4. 60- 69 - D
- 5. Below 60 - F

C. Grade points will be awarded according to the college catalog.

VIII. SYLLABUS MODIFICATION:

The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.

IX. As a student enrolled in a Technology & Workforce program, you will encounter certain risks while you are in a classroom, laboratory experience, or in a clinical or practicum setting. In the event that you sustain an injury and/or require any medical testing or care, all resulting medical expenses (hospital, ambulance, or physician fees), are your financial responsibility and not the responsibility of Angelina College or the clinical/practicum site.