New Course or Course Change Proposal Form

Date of Proposal: April, 2014

Author: Jon Morgan, Chris DeVries, Bill Block, Cody McCall

Proposal Type: (*)New Course Modify Course ☑ Delete Course

Contact for the Course: Jon Morgan

Course Designator, Number and Title (i.e.: ACCT 1800, Business Law): CIM 1150 – Machining Computations

Number of Credits: 2

Prerequisites: Declare CIM as a major.

Course Description: This course is designed to provide foundations of the mathematical processes used in the technical field of machine tool practices. Topics will include arithmetic, algebra, geometry, trigonometry, and applications. (Prerequisite: Declare CIM as a major.)

Grading Method: Grade ☑ Pass/Fail

Scheduling: Fall ☑ Spring Summer Alternate Years Variable On Demand

Instructional Type: Lecture ☑ Lab Lecture/Lab Internship Seminar

(*)Class Maximum: (For New Courses Only) / All Unlimited faculty members of a program or discipline must sign.

<table>
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<tr>
<th>Faculty Name</th>
<th>Faculty Signature</th>
<th>Class Max</th>
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Dean's Name

Dean's Signature

Date

If there is not enough space provided, please use the back of this form for additional signatures or click on a row with the right button of the mouse, select insert and then select insert rows below to add rows to the table.

Is this Course Proposed as a Liberal Arts Course: Yes ☑ No ☒

If Yes, Which MnTC Area/Areas Will it Fulfill (http://www.mntransfer.org)?

Is This Course a Requirement/Elective for a Specific Program or Programs? Yes ☑ No ☒

If Yes, Which Program(s)? CIM Programs

Describe What is Changing/Being Added, and the Rationale: Previously was 3 credits - was reconfigured as a part of new organization of the Computer Integrated Machining program in efforts to more clearly show alignment of the curriculum with the credentials/standards of the National Institute of Metalworking Skills (NIMS).

What Impact Will This New Course or Change Have on Other Programs or Areas? Will only affect CIM offerings.
South Central College

CIM 1150 Machining Computations

Common Course Outline

Course Information

**Description**
This course is designed to provide foundations of the mathematical processes used in the technical field of machine tool practices. Topics will include arithmetic, algebra, geometry, trigonometry, and applications. (Prerequisite: Declare CIM as a major.)

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<th>Total Credits</th>
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<tr>
<td>Total Hours</td>
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Types of Instruction

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<td>Lecture</td>
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Pre/Corequisites

Prerequisite: Declare CIM as a major.

Institutional Core Competencies

Analysis and inquiry: Students will demonstrate an ability to analyze information from multiple sources and to raise pertinent questions regarding that information.

Foundations and skills for lifelong learning: Students will display an understanding of learning as a lifelong process through demonstration of a desire to learn, the willingness to apply learning to other areas of their lives, the ability to think and act independently, be willing to take the initiative to get projects done, and demonstrate the ability to reflect upon what has occurred and how it impacts the student and others.

Course Competencies

1. **Apply fractions to measurement in metalworking.**
   - **Learning Objectives**
     - Divide and multiply fractions.
     - Add and subtract fractions.

2. **Use decimals in measurement computations in metalworking.**
   - **Learning Objectives**
     - Solve diagrams with decimals.
     - Identify place values of decimals.

3. **Solve tolerance, clearance and interference problems.**
   - **Learning Objectives**
Calculate mean and range.
Calculate upper and lower limits.

4 Apply signed numbers in metalworking.
   Learning Objectives
   Add and subtract signed numbers.
   Multiply and divide signed numbers.
   Determine locations on a coordinate system.

5 Determine the area and volume of geometric shapes.
   Learning Objectives
   Identify various geometric shapes.
   Evaluate formulas to determine area and volume.

6 Solve ratios and proportions
   Learning Objectives
   Reduce ratios to lowest terms.
   Set up like quantities in ratio form.
   Use proportions to solve problems.

7 Solve polygons and quadrilaterals.
   Learning Objectives
   Describe the properties of quadrilaterals.
   Identify quadrilateral shapes.
   Determine the interior and exterior angle of a regular polygon.

8 Identify circles and tangents.
   Learning Objectives
   Identify parts of a circle.
   Calculate the measurement of central angles and lengths of arcs.
   Determine missing dimensions involving circles and tangents.

9 Solve diagrams using the Sine, Cosine, and Tangent functions.
   Learning Objectives
   Define three trig functions.
   Solve right triangle with trig functions.

10 Solve for complement or supplement of an angle.
    Learning Objectives
    Determine angles.
    Add and subtract angular dimensions.

11 Identify right, isosceles, scalene, and equilateral triangles.
    Learning Objectives
    Locate triangles.
    Apply the pythagorean theorem.

12 Calculate center-to-center distance around the circumference of a circle.
    Learning Objectives
    Calculate the center-to-center distance between any two adjacent holes.
    Calculate the center-to-center distance between any two holes on a circumference.
    Calculate the diameter of the circle given the center-to-center distance.

SCC Accessibility Statement
If you have a disability and need accommodations to participate in the course activities, please contact your instructor as soon as possible. This information will be made available in an alternative format, such as Braille,
large print, or cassette tape, upon request. If you wish to contact the college ADA Coordinator, call that office at 507-389-7222.

Disabilities page http://southcentral.edu/academic-policies/disability-rights.html