

Linn-Benton Community College
Machine Tool Technology
Course Syllabus

Course Name: Mastercam III: Solids

Course Number: MA3.434

CRN: 40588

Credits: 3

Prerequisite: Mastercam II: Surfaces, grade C or better

Required Text: Imperial Training Tutorial Series Mastercam 2019 - SOLIDS
<https://www.emastercam.com/store/product/1281-mastercam-2019-solids-training-tutorial/>

Days, Hours: Tuesday, 6:00 to 7:00 PM and on your own.

Location: Intertubes

Instructor: Teryk Morris

Office Hours: Tuesday, 6:00 to 7:00 and by appointment

Phone #: 541-246-0435

E-mail address: teryk.morris@linnbenton.edu

Catalog Description: Mastercam III: Solids is the third course in the Mastercam series. This course introduces students to solid modeling as it relates to Cad / Cam / CNC technology. Practical examples of current manufacturing methods are used for the Exercises. Students are encouraged to assume some design responsibility when working through projects.

Course Learning Outcomes: The purpose of this course is to provide a good introduction to creating solid models in Mastercam. Students successfully completing this course will be able to demonstrate the ability to use solid models to create complex toolpaths and the NC code required for production on a Vertical Machining Center. Students are expected to be able to plan a series of efficient machining operations and execute their plan by using Mastercam.

Learning Activities: A combination of lectures, demonstrations, exercises and projects are used to guide students to a series of competencies. Students will apply skills gained working through the exercises and accomplish projects that will be specified by the instructor. The knowledge necessary for a successful Final Exam outcome will be reviewed.

Method of Evaluation and Grade Weighting: Class Participation 10%, Solid Modeling Exercises and Quizzes 70%, Final Exam 20%. Homework will be handed in weekly. Homework may be handed in late with a penalty of 10% per week that it is late.

A: 100~90% B: 89~80%

C: 79~70%

D: 69~60%

F: 59% or below

Course Content:

Week 1

Lecture topic: Introductions, Course Syllabus, Getting Moodle and Google Drive Setup. *Introduction to Mastercam solids*, 2D Wireframe & Solid Geometry, Extruding solids, Hole Command and Chamfer.

Week 2

Lecture topic: Viewing and Using levels, Revolving solids, More 2D wireframe drawing including Arc Tangent, Create Line Parallel and Transform Translate

Week 3

Lecture topics: Solid Sweep and more wireframe geometry, deleting and adding features, solid shell

Week 4

Lecture topics: Solid Primitives, Coloring Features, Boolean Solid Operations.

Week 5

Lecture Topics: Loft Command, More Wireframe drawing, using the history tree.

Week 6

Lecture topics: Wireframe Mirror, Extrude with Draft angles, chaining with window selection and color masks, solid history.

Week 7

Lecture topics: Working with Views, Working with Surfaces, Splines, Solids from Surfaces, Solid Patterns

Week 8

Lecture topics: Removing Solid History, Boolean Solid Operations, Trijm to Plane and Transform Dynamic.

Week 9

Lecture topics: Importing Solids and modifying them with Model Prep.

Week 10

Review for the Final Exam.

Week 11 Final Exam

Request for Special Needs or Accommodations

Direct questions about or requests for special needs or accommodations to the LBCC Disability Coordinator, RCH-105, 6500 Pacific Blvd. SW, Albany, Oregon 97321, Phone 541-917-4789 or via Oregon Telecommunications Relay TTD at 1-800-735-2900 or 1-800-735-1232. Make sign language interpreting or real-time transcribing requests 2-4 weeks in advance. Make all other requests at least 72 hours prior to the event. LBCC will make every effort to honor requests. LBCC is an equal opportunity educator and employer.

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Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency should speak with their instructor during the first week of class. If you believe you may need accommodations but are not yet registered with the Center for Accessibility Resources (CFAR), please visit the CFAR Website for steps on how to apply for services or call 541-917-4789.