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## CLASS TOPICS OUTLINE

### X4 Lathe Syllabus

#### DAY ONE

- A. Overview of Mastercam interface
- B. Overview of Design Functions
- C. Creation and Editing of 2D wireframe geometry
- D. Creation of Turn Geometry from Solid and Surface Models
- E. Student Question and Answer Session on day's work

#### DAY TWO

- F. 2D Wireframe Toolpath projects
- G. Face, Longhand Roughing, and Finishing Toolpaths
- H. Canned Roughing and Finishing Cycles
- I. Creating custom tools and tool libraries
- J. Overview of Grooving Toolpaths
- K. Post Processing Options
- L. Student Question and Answer Session on day's work

#### DAY THREE

- M. Importing files and solid models
- N. Continuation of Grooving Toolpaths
- O. Overview of threading options
- P. Stock Flip, Stock Transfer, and Tailstock options
- Q. Introduction to C-Axis toolpaths and Live Tooling
- R. Student Question and Answer Session on day's work

### X4 Mill 2D Syllabus

#### DAY ONE

- A. Overview of Mastercam interface
- B. Overview of Design Functions
- C. Creation and Editing of 2D wireframe geometry
- D. Creation of "Prismatic Solids for 2D Machining and Feature Bases Machining
- E. Student Question and Answer Session on day's work

#### DAY TWO

- F. 2D Wireframe Toolpath projects
- G. Face, Contour, Pocket, and Drilling Toolpath options
- H. Introduction to Mastercam 2D High Speed Toolpaths including Peel Mill and Dynamic Milling options
- I. Post Processing Options
- J. Student Question and Answer Session on day's work

#### DAY THREE

- K. Continuation 2D Wireframe Toolpath projects
- L. Overview of Mastercam's Feature Based Machining options
- M. Applying Mastercam 2D toolpaths to Solid Geometry
- N. Setting Operation defaults
- O. Student Question and Answer Session on day's work

## Mill 3D Syllabus

### DAY ONE

- A. Overview of Mastercam 3D Design functions
- B. Overview of Mastercam 3D Planes
- C. Overview of 3D Wireframe Design
- D. Overview of 3D Surface Creation
- E. Overview of 3D Solid Modeling
- F. Student Question and Answer Session on day's work

### DAY TWO

- G. Introduction to Surface Machining
- H. Mastercam Finishing Options explained
- I. Mastercam Finish Toolpaths applied to a model
- J. Mastercam Roughing Options explained
- K. Mastercam Roughing Toolpaths applied to a model
- L. Set up and machine a model to completion using the Surface Finish and Surface Rough toolpaths
- M. Student Question and Answer Session on day's work

### DAY THREE

- N. Introduction to the Highspeed Surface Toolpaths
- O. High Speed Roughing Options
- P. High Speed Finishing Options
- Q. Converting Solid Models to Surface Models and creation of Containment Boundaries
- R. Set up and machine a model to completion using the Surface High Speed Toolpaths
- S. Setting Operation defaults
- T. Student Question and Answer Session on day's work

## X4 3 Day Wire Syllabus

### DAY ONE

- A. Overview of Mastercam interface
- B. Overview of Design Functions
- C. Creation and Editing of 2D wireframe geometry
- D. Creation of "Wireframe" geometry on Solid and Surface models
- E. Student Question and Answer Session on day's work

### DAY TWO

- F. Importing files in other formats (DXF, DWG, IGES etc)
- G. Overview of Toolpaths Options and Job Set Up
- H. Contour Toolpaths
- I. No Core Toolpaths
- J. Student Question and Answer Session on day's work

### DAY THREE

- K. 4 Axis Wire Toolpaths
- L. Post Processing Options
- M. Mastercam Wire Tips and Tricks
- N. Student Question and Answer Session on day's work

## **SOLIDS SYLLABUS: One Day**

(This is for MASTERCAM Solids NOT “Solidworks” or “Mastercam For Solidworks”)

Prerequisites Introduction & Design or ability to efficiently draw Mastercam Wireframe Geometry

- A) Explanation of what a “solid” is and it’s uses in Mastercam
- B) Review of 2D wireframe Creation
- C) Extruded Solids
- D) Chamfer and Fillets command
- E) Adding and subtracting Solid Features
- F) Revolved extrusions and cuts
- G) Ruled and Lofted Solids
- H) Swept Solids
- I) Boolean Operations
- J) Shelling Solids.
- K) Drafting Faces
- L) Solids from Surfaces
- M) Solid Layouts

### **MASTERCAM FOR SOLIDWORKS SYLLABUS**

#### **DAY ONE**

- A. Overview of Mastercam for Solidworks Interface
- B. Overview of the Work Coordinate System in Solidworks
- C. Overview of toolpaths options
- D. Introduction to 2D Toolpaths projects
- E. Mastercam job set up options
- F. Mastercam 2D Geometry selection in SolidWorks
- G. Student Question and Answer Session on day’s work

#### **DAY TWO**

- H. Continuation of 2D Toolpaths projects
- I. Face, Contour, Pocket, and Drilling Toolpaths options
- J. Overview of Mastercam’s Feature Based Machining options
- K. Mastercam 2D High Speed Toolpaths including Peel Mill and Dynamic Milling options
- L. Post Processing Options
- M. Student Question and Answer Session on day’s work

#### **DAY THREE**

- N. Introduction to 3D toolpaths
- O. Toolpaths refinement filters
- P. Roughing toolpaths: Area Clearance, Core Roughing, and Rest Roughing toolpaths options
- Q. Finish Toolpaths: Waterline, Scallop, Horizontal Area, Raster, Pencil, Spiral, and Radial finishing options
- R. Mastercam’s Machine and Control Definitions
- S. Student Question and Answer Session on day’s work

**MULTI-AXIS SYLLABUS:**

**DAY ONE**

- A. MACHINE OVERVIEW
- B. CURVE 5 axis
- C. DRILL 5 axis

**DAY TWO**

- D. SWARF 5 axis
- E. FLOW 5 axis
- F. MSURF5AX

**DAY THREE**

- G. ROTARY 4 AXIS
- H. C-HOOKS
- I. 5 AXIS MULTISURF

**ROUTER SYLLABUS: CALL FOR AVAILABLE DATES**

**DAY ONE**

- A. IMPORTING FILES (DWG, X\_T, ETC)
- B. OVERVIEW OF TOOLPATH MENU OPTIONS
- C. OVERVIEW OF SYSTEM CONFIGURATIONS
- D. SETUP SHEET FOR TOOLS AND OPERATIONS

**DAY TWO**

- E. ENGRAVING TOOLPATHS
- F. TRANSFORM AND NESTING
- G. C-HOOK FUNCTIONS
- H. AGGREGATE HEAD TOOLPATHS