

Mathcad 14.0 Curriculum Guide

NOTE: For a graphical depiction of the curriculum based on job role, please visit this page: http://www.ptc.com/services/edserv/learning/paths/ptc/mc_14.htm

Live Classroom Curriculum Guide

- Mathcad 14.0 Essentials
 - Using Advanced Programming Techniques with Mathcad 14.0
 - Using Advanced Plotting Techniques with Mathcad 14.0
 - Configuring Application Controls using Mathcad 14.0
 - Using Advanced Formatting Techniques with Mathcad 14.0
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Mathcad 14.0 Essentials

Course Code	TRN-2124-T
Course Length	2 Days

Overview

In this course, you will learn the essentials of Mathcad, including its unique whiteboard interface, and math toolbars. It reinforces Mathcad's extensive functionality using clear and concise trainer-led instruction and examples. This course will familiarize you with many of Mathcad's critical features to ensure immediate application of the product.

Pro/FICIENCY assessments will be provided in order for you to assess your understanding of the course materials. The assessment results will also identify the class topics that require further review. At the end of the class, you will take an assessment via your PTC University account.

After completing this course, you will be well-prepared to perform basic operations in Mathcad 14.0.

Prerequisites

- N/A

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Mathcad Overview
 - Entering & Editing Expressions
 - Formatting & Documenting
 - Functions
 - Units
 - Plotting (2-D and 3-D)
 - Calculus & Symbolics
 - Solving & Optimization
 - Differential Equations
 - Programming
 - Data Exchange & Analysis
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Agenda

Day 1

Module 1	Introduction
Module 2	The Basics
Module 3	Variables and Functions
Module 4	Range Variables
Module 5	Vectors and Matrices
Module 6	Intro to Units
Module 7	Unit Systems
Module 8	Angular and Temperature Units
Module 9	Documenting and Formatting
Module 10	Plotting in Two Dimensions
Module 11	Plotting in Three Dimensions

Day 2

Module 12	Advanced Computational Techniques
Module 13	Symbolic Math
Module 14	Roots of Equations
Module 15	Solving
Module 16	Optimization
Module 17	Differential Equations
Module 18	Programming
Module 19	Data Exchange
Module 20	Data Analysis

Using Advanced Programming Techniques with Mathcad 14.0

Course Code	TRN-2161-T
Course Length	1 Day

Overview

This course expands on the capabilities of Mathcad's programming interface. It reinforces Mathcad's programming functionality using clear, straightforward instruction and examples. This course will familiarize the user with many of Mathcad's advanced programming features including; while loops, conditional tolerances, controlling program flow, and additional debugging techniques.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- While Loops
 - Conditional Tolerances
 - Controlling Program Flow
 - Debugging Techniques
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Agenda

Day 1

Module 1	Using Advanced Programming Techniques
Appendix A	Exercise Solutions

Using Advanced Plotting Techniques with Mathcad 14.0

Course Code	TRN-2162-T
Course Length	1 Day

Overview

This course expands on Mathcad's plotting capabilities. It reinforces Mathcad's plotting functionality using clear, straightforward instruction and examples. This course will familiarize the user with many of Mathcad's advanced plotting features including; histograms, polar plots, parametric plots, plotting piecewise functions, space curves, and animating 2D plots.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- Plotting a Histogram
 - Plotting a Polar Plot
 - 2D and 3D Parametric Plots
 - Plotting Piecewise Functions
 - Animating a 2D Plot
 - Plotting a Space Curve
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Agenda

Day 1

Module 1	Using Advanced Plotting Techniques
Appendix A	Exercise Solutions

Configuring Application Controls using Mathcad 14.0

Course Code	TRN-2163-T
Course Length	1 Day

Overview

This course introduces Mathcad's control capabilities. It reinforces Mathcad's control functionality using clear, straightforward instruction and examples. This course will familiarize the user with Mathcad's control features such as creating web and scripted controls, including check boxes, radio and push buttons, text and list boxes, and sliders.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- Web Controls
 - Scripted Controls
 - Buttons: Check, Radio, and Push
 - Boxes: Text and List
 - Sliders
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Agenda

Day 1

Module 1	Configuring Application Controls
Appendix A	Exercise Solutions

Using Advanced Formatting Techniques with Mathcad 14.0

Course Code	TRN-2165-T
Course Length	1 Day

Overview

In this course, you will learn about Mathcad's advanced formatting capabilities. Using clear, straightforward instruction and examples, you will learn how to use Mathcad's formatting features such as creating headers and footers, hyperlinks, referencing a worksheet, embedding an object, protecting calculations, and adding metadata.

At the end of the course, a Pro/FICIENCY skills assessment will be used to reinforce your understanding of the course topics.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad

Topics

- Creating headers and footers
 - Creating hyperlinks
 - Referencing a worksheet
 - Embedding an object
 - Protecting calculations
 - Adding metadata
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Agenda

Day 1

Module 1	Using Advanced Formatting Techniques
Appendix A	Exercise Solutions

Web Based Curriculum Guide

- Mathcad 14.0 Essentials
 - Using Advanced Programming Techniques with Mathcad 14.0
 - Using Advanced Plotting Techniques with Mathcad 14.0
 - Configuring Application Controls using Mathcad 14.0
 - Using Advanced Formatting Techniques with Mathcad 14.0
 - Mathcad 14.0: Application Orientation
 - Mathcad 14.0: Working with Units
 - Mathcad 14.0: Plotting
 - Mathcad 14.0 : Using Symbolics and Solving Equations
 - Mathcad 14.0 : Programming Mathematical Expressions
 - Mathcad 14.0 : Data Exchange and Analysis
 - Using Mathcad 14.0 with Pro/ENGINEER Wildfire 3.0
 - Creating E-books with Mathcad 14.0
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Mathcad 14.0 Essentials

Course Code	TRN-WBT2124-S
Course Length	16 Hours

Overview

In this course, you will learn the essentials of Mathcad, including its unique whiteboard interface, and math toolbars. It reinforces Mathcad's extensive functionality using clear and concise trainer-led instruction and examples. This course will familiarize you with many of Mathcad's critical features to ensure immediate application of the product.

Pro/FICIENCY assessments will be provided in order for you to assess your understanding of the course materials. The assessment results will also identify the class topics that require further review. At the end of the class, you will take an assessment via your PTC University account.

After completing this course, you will be well-prepared to perform basic operations in Mathcad 14.0.

Prerequisites

- N/A

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Mathcad Overview
 - Entering & Editing Expressions
 - Formatting & Documenting
 - Functions
 - Units
 - Plotting (2-D and 3-D)
 - Calculus & Symbolics
 - Solving & Optimization
 - Differential Equations
 - Programming
 - Data Exchange & Analysis
-

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Module 1	Introduction
Module 2	The Basics
Module 3	Variables and Functions
Module 4	Range Variables
Module 5	Vectors and Matrices
Module 6	Intro to Units
Module 7	Unit Systems
Module 8	Angular and Temperature Units
Module 9	Documenting and Formatting
Module 10	Plotting in Two Dimensions
Module 11	Plotting in Three Dimensions
Module 12	Advanced Computational Techniques
Module 13	Symbolic Math
Module 14	Roots of Equations
Module 15	Solving
Module 16	Optimization
Module 17	Differential Equations
Module 18	Programming
Module 19	Data Exchange
Module 20	Data Analysis

Using Advanced Programming Techniques with Mathcad 14.0

Course Code	TRN-WBT2161-S
Course Length	4 Hours

Overview

This course expands on the capabilities of Mathcad's programming interface. It reinforces Mathcad's programming functionality using clear, straightforward instruction and examples. This course will familiarize the user with many of Mathcad's advanced programming features including; while loops, conditional tolerances, controlling program flow, and additional debugging techniques.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- While Loops
 - Conditional Tolerances
 - Controlling Program Flow
 - Debugging Techniques
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Module 1	Using Advanced Programming Techniques
Appendix A	Exercise Solutions

Using Advanced Plotting Techniques with Mathcad 14.0

Course Code	TRN-WBT2162-S
Course Length	4 Hours

Overview

This course expands on Mathcad's plotting capabilities. It reinforces Mathcad's plotting functionality using clear, straightforward instruction and examples. This course will familiarize the user with many of Mathcad's advanced plotting features including; histograms, polar plots, parametric plots, plotting piecewise functions, space curves, and animating 2D plots.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- Plotting a Histogram
 - Plotting a Polar Plot
 - 2D and 3D Parametric Plots
 - Plotting Piecewise Functions
 - Animating a 2D Plot
 - Plotting a Space Curve
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Module 1	Using Advanced Plotting Techniques
Appendix A	Exercise Solutions

Configuring Application Controls using Mathcad 14.0

Course Code	TRN-WBT2163-S
Course Length	4 Hours

Overview

This course introduces Mathcad's control capabilities. It reinforces Mathcad's control functionality using clear, straightforward instruction and examples. This course will familiarize the user with Mathcad's control features such as creating web and scripted controls, including check boxes, radio and push buttons, text and list boxes, and sliders.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- Web Controls
- Scripted Controls
 - Buttons: Check, Radio, and Push
 - Boxes: Text and List
 - Sliders

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Module 1	Configuring Application Controls
Appendix A	Exercise Solutions

Using Advanced Formatting Techniques with Mathcad 14.0

Course Code	SAB-CEK2639
Course Length	4 Hours

Overview

In this course, you will learn about Mathcad's advanced formatting capabilities. Using clear, straightforward instruction and examples, you will learn how to use Mathcad's formatting features such as creating headers and footers, hyperlinks, referencing a worksheet, embedding an object, protecting calculations, and adding metadata.

At the end of the course, a Pro/FICIENCY skills assessment will be used to reinforce your understanding of the course topics.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad

Topics

- Creating headers and footers
 - Creating hyperlinks
 - Referencing a worksheet
 - Embedding an object
 - Protecting calculations
 - Adding metadata
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Module 1	Using Advanced Formatting Techniques
Appendix A	Exercise Solutions

Mathcad 14.0: Application Orientation

Course Code	SAB-CEK2453
Course Length	3 Hours

Overview

This course introduces the essentials of Mathcad, including its unique whiteboard interface, and math toolbars. It reinforces Mathcad's extensive functionality using clear instruction and examples. In this course, you will learn about many features of Mathcad including; variable and function definitions, vectors and matrices, and documenting and formatting, ensuring immediate application of the product.

Prerequisites

- N/A

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Mathcad Overview
 - Entering & Editing Expressions
 - Formatting & Documenting
 - Variables and Functions
 - Range Variables
 - Vectors and Matrices
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Table of Contents

Module 1	Introduction
Module 2	The Basics
Module 3	Variables and Functions
Module 4	Range Variables
Module 5	Vectors and Matrices
Module 6	Documenting and Formatting

Mathcad 14.0: Working with Units

Course Code	SAB-CEK2454
Course Length	2 Hours

Overview

This course introduces the essentials of using units in Mathcad. It demonstrates Mathcad's extensive unit applications using clear instruction and examples. In this course, you will learn many features of Mathcad including; using units in calculations, units systems, and angular and temperature units.

Prerequisites

- Mathcad 14.0 Essentials: Application Orientation

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Introduction to Units
 - Unit Systems
 - Angular and Temperature Units
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Table of Contents

Module 1	Introduction to Units
Module 2	Unit Systems
Module 3	Angular and Temperature Units

Mathcad 14.0: Plotting

Course Code	SAB-CEK2455
Course Length	2 Hours

Overview

This course introduces the essentials of plotting in Mathcad. It demonstrates the extensive plotting capabilities in Mathcad using clear instruction and examples. In this course, you will learn many features of Mathcad including; plotting in two and three dimensions, formatting the plots, and plotting with units.

Prerequisites

- Mathcad 14.0 Essentials: Application Orientation
- Mathcad 14.0 Essentials: Working with Units

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Plotting in 2 Dimensions
 - Plotting in 3 Dimensions
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Table of Contents

Module 1	Plotting in 2 Dimensions
Module 2	Plotting in 3 Dimensions

Mathcad 14.0 : Using Symbolics and Solving Equations

Course Code	SAB-CEK2456
Course Length	3 Hours

Overview

This course introduces the essentials of symbolics and solving equations in Mathcad. It demonstrates Mathcad's extensive symbolics and solving capabilities using clear instruction and examples. In this course, you will learn many of features of Mathcad including; symbolics, solving for roots of equations, solving sets of simultaneous equations, optimization, and solving differential equations.

Prerequisites

- Mathcad 14.0 Essentials: Application Orientation
- Mathcad 14.0 Essentials: Working with Units

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Symbolic Math
 - Roots of Equations
 - Solving
 - Optimization
 - Differential Equations
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Table of Contents

Module 1	Symbolic Math
Module 2	Roots of Equations
Module 3	Solving
Module 4	Optimization
Module 5	Differential Equations

Mathcad 14.0 : Programming Mathematical Expressions

Course Code	SAB-CEK2457
Course Length	2 Hours

Overview

This course introduces the essentials of programming in Mathcad. It demonstrates Mathcad's programming capabilities using clear instruction and examples. In this course, you will learn many features of Mathcad including; Boolean operators, piecewise continuous functions, and programming.

Prerequisites

- Mathcad 14.0 Essentials: Application Orientation

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Advanced Computational Features
 - Programming
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Table of Contents

Module 1	Advanced Computational Features
Module 2	Programming

Mathcad 14.0 : Data Exchange and Analysis

Course Code	SAB-CEK2458
Course Length	2 Hours

Overview

This course introduces the essentials of data exchange and analysis in Mathcad. It demonstrates Mathcad's capabilities using clear instruction and examples. In this course, you will learn many features of Mathcad including; data import and export features, data smoothing, interpolation, and regression functions.

Prerequisites

- Mathcad 14.0 Essentials: Application Orientation
- Mathcad 14.0 Essentials: Plotting

Audience

This class is intended for the novice or intermediate user of Mathcad.

Topics

- Data Exchange
 - Data Analysis
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Table of Contents

Module 1	Data Exchange
Module 2	Data Analysis

Using Mathcad 14.0 with Pro/ENGINEER Wildfire 3.0

Course Code	SAB-CEK2364
Course Length	2 Hours

Overview

This course is designed for users who already know Pro/Engineer and Mathcad and wish to understand how to use both of the products in conjunction with one another.

Pro/FICIENCY assessments will be provided in order for you to assess your understanding of the course materials. The assessment results will also identify the class topics that require further review.

Prerequisites

- T1803 Introduction to Pro/ENGINEER Wildfire 3.0 or equivalent experience.
- T2124 Mathcad 14.0 Essentials or equivalent experience.

Audience

This course is intended for design engineers and mechanical designers. People in related roles will also benefit from taking this course.

Topics

- Preparing models for use with a Mathcad worksheet.
 - Flagging variables in Mathcad to receive information from a Pro/ENGINEER model.
 - Flagging variables in Mathcad to return information to a Pro/ENGINEER model.
 - Performing Mathcad analyses in Pro/ENGINEER.
 - Creating Mathcad analysis features in Pro/ENGINEER.
 - Configuration, licensing and software requirements.
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Module 1	Integration Basics
Module 2	Using Mathcad in Designs

Creating E-books with Mathcad 14.0

Course Code	SAB-CEK2528
Course Length	2 Hours

Overview

In this course, you will learn about Mathcad's advanced authoring capabilities for creating an electronic book (E-book). Using clear, straightforward instruction and examples, you will learn how to use Mathcad's authoring features to create and open an E-book.

At the end of the course, a Pro/FICIENCY skills assessment will be used to reinforce your understanding of the course topics.

Prerequisites

- Mathcad 14.0 Essentials

Audience

This class is intended for the intermediate or advanced user of Mathcad.

Topics

- Creating an E-book
 - Opening an E-book
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Table of Contents

Module 1	Creating an E-Book
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