

Design Document for Create and Add a New Machine in the Machines Maintenance System (MMS)

By Amy Koshoshek-Winkler

Purpose of the Course	<p>Teach the MMS administrators (mechanical engineers) at ABC Company to access and update the MMS using information from either the Vacuum and Vent Block Sizing Form or a manufacturer's specification sheets (specs).</p> <p>To accurately generate the block sizing results in the EZ Block Sizer software application, the machine attributes need to be updated periodically in the MMS (database). The MMS administrator(s) will be responsible for keeping the machines attributes and specifications up-to-date in the in the MMS to ensure accurate calculations are then generated in the EZ Block Sizer software application.</p>
Audience Description	<p>The target audience consists of two MMS administrators (mechanical engineers). Additional learner characteristics include:</p> <ul style="list-style-type: none">• Ages: 41 – 50• Gender: 100% men• Education: Post-secondary• Work Experience: 2 years with current company, 5 to 10 years in engineering and 2 years in die casting industry• Familiar with EZ Block Sizer software application• Familiar with computers and technology• Familiar with die cast terminology

Major Course Objectives (Terminal)	<p>Terminal Objective1 (TO1): The MMS administrator(s) will access and sign in to the MMS via a computer.</p> <p>Terminal Objective2 (TO2): The MMS administrator(s) will create and save a new machine in the MMS.</p> <p>Terminal Objective3 (TO3): The MMS administrator(s) will edit and update a machine in the MMS.</p> <p>Terminal Objective4 (TO4): The MMS administrator(s) will delete a machine from the MMS.</p>
Project Objectives (Enabling)	<p>Enabling Objective (EO2): Given either a Vacuum and Vent Block Sizing Form or a manufacturer's machine specification sheet, the MMS administrator(s) will enter the correct machine specifications to create and save a new machine in the MMS.</p>
Learning Assessment for Course	<p>There will be assessments throughout the course (see MMS Alignment Chart) but no certification granted at the end.</p>
Learning Assessment for Project	<p>Multiple choice questions. Select matching drop-down.</p>
Instructional Delivery method for Course (overall)	<p>Online, asynchronous e-Learning module</p>

Instructional Strategy for Project

The main instructional strategy will be direct instruction that is job-based and consists of the following activities:

Absorb: Watch and read about where to locate machine attribute information on a manufacturer's specification sheet or a Vacuum and Vent Block Sizing Form. Watch software demonstration (screencast with narration) that includes entering values into the Create New Machine dialog box in the MMS.

Do:

Multiple Choice Questions: The learner picks the required fields Learner can practice this activity multiple times.

Performance Question(s): e-Learning simulation: The learner performs the steps to create and save a new machine in the MMS simulation. (**Note:** Do to development time constraints this was not developed and a select matching drop-down list quiz was developed and used as the substitute.)

Connect: A glossary and resource samples of specification sheets with highlighted attributes used in the MMS are available in the module.

Media

The RLO will include the following media:

- Text
- Various graphics of forms and software
- Video screencasts of software interaction
- Audio narrative

508 Accommodations	<p>The RLO will include the following 508 accommodations:</p> <ul style="list-style-type: none"> • Alt-text for graphics • Closed captioning and transcript of audio available for download (PDF file) • Design and layout will be consistent • Appropriate size type and color screen fonts • Keyboard tabbing navigation • User will be able to control pace of navigation (menu, pause, continue, previous, next, and exit buttons, etc.)
Course Structure Description	<p>One unit, four lessons (Navigation, Create, Edit and Delete) taught online in one day (1 – 1.25 hours). This course can be used as an overview of the MMS and as a refresher course when needed.</p>
Seat Time of Course	<p>1 – 1.25 hours</p>
Seat Time of Project	<p>20 minutes</p>
Project Scope	<p>One lesson topic: Create a New Machine in the MMS (TO2/EO2).</p>
Project Outline	<p>See Appendix A</p>
Project Flowchart	<p>See Appendix B</p>

Screens/Pages in Project	18 screens
Knowledge Checks or Other Assessments or Practices	Estimated number of knowledge checks or other interactions. 3 – Multiple choice 1 – Other – (Select matching drop-down)
Rollovers/click events	These are estimates: 5 to 6 Click Events
Course and Project Navigation	Menu, Closed Captioning (cc), Pause/Continue, Previous, Next, Turn audio off; and allow user to move around because course can be taken as a refresher.

Screen Layouts

Intended layout/templates for screens. Variations of blues, grays and black color selections intended to match and complement company banding. Try to use colors close to Hex: #1F497D, #D9D9D9, #4F81BD.

Lesson title and screen name (Calibri, 12pt., Regular, Black. Gray background) Page #/Total Pages#

Course Menu
(Arial 14pt., Bold)

Text (Arial 12pt., Regular, Black)

Gray background

Title Screen Headline (Verdana 16pt., Bold, Blue)

Content Text (Arial, 14pt... Regular, Black)

Navigation Bar/Player - per authoring tool- Arial (Player: CC, Pause/Continue, Previous, Next)

Lesson title and screen name (Calibri, 12pt., Regular, Black. Gray background) Page #/Total Pages#

Course Menu
(Arial 14pt., Bold)

Text (Arial 12pt., Regular, Black)

Gray background

Content / Instructional Screen Headline 50/50, (Verdana 14pt., Bold, Blue)

Media location

Headline (Verdana, 12pt., Bold, Light Blue)
Content text (Arial 12pt., Regular, Black)

- Bullet
- Bullet
- Bullet

Navigation Bar/Player - per authoring tool- Arial (Player: CC, Pause/Continue, Previous, Next)

Lesson title and screen name (Calibri, 12pt., Regular, Black. Gray background) Page #/Total Pages#

Course Menu
(Arial 14pt., Bold)

Text (Arial 12pt., Regular, Black)

Gray background

Knowledge Check Screen Headline (Verdana 14pt., Bold, Blue)

Question/Instructions (Arial 12pt., Regular, Black)

Answer 1
 Answer 2
 Answer 3
 Answer 4

Feedback and/or Hint information will pop-up here Arial 12pt., Regular, Black)

Navigation Bar/Player - per authoring tool- Arial (Player: CC, Pause/Continue, Previous, Next)

Lesson title and screen name (Calibri, 12pt., Regular, Black. Gray background) Page #/Total Pages#

Course Menu
(Arial 14pt., Bold)

Text (Arial 12pt., Regular, Black)

Gray background

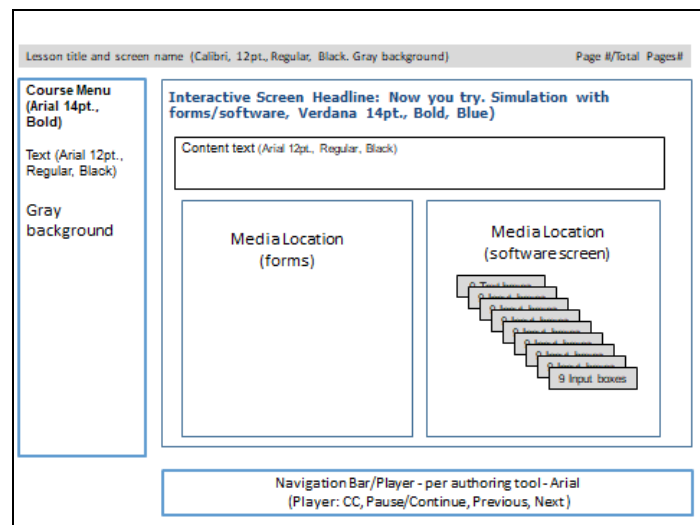
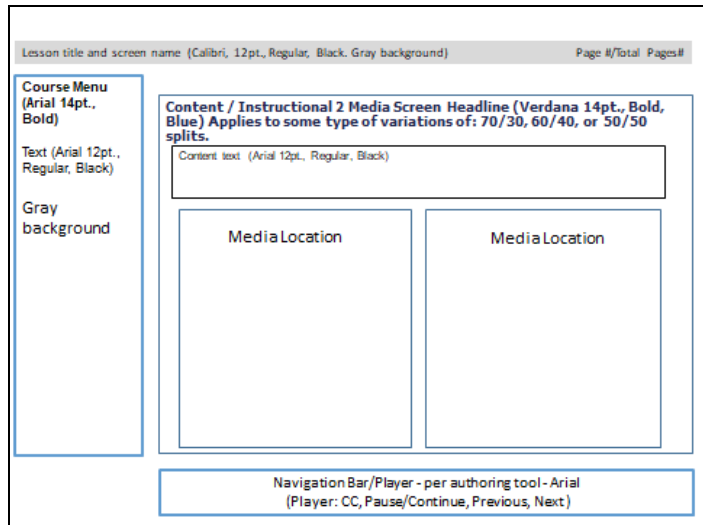
Interactive Screen Headline 1, (Verdana 14pt., Bold, Blue). Applies to some type of variations of: 70/30, 60/40, or 50/50 splits.

(Verdana, 12 pt., Bold, Light blue)
Content text (Arial 12pt., Regular, Black)

- Bullet
- Bullet
- Bullet

Media location

Navigation Bar/Player - per authoring tool- Arial (Player: CC, Pause/Continue, Previous, Next)



Development Tools

Articulate 360/Storyline 360 (and content library), PowerPoint, SnagIt, Audacity, Word.

Ownership

Amy Koshoshek-Winkler (of Alva Consulting, Inc.) will develop the initial course and maintain the course for ABC Company (a die casting industry company).

Development Time

45 – 60 hours (estimate)

Support requirements

One SME. I am the designer and developer, including the development of graphic elements and audio. Authoring software. I will need help with usability testing after my prototype is done.

Project Sign-off [optional]

Please sign below indicating agreement with the proposed course plan and approving start-up of the storyboard and development phases.

Amy Koshoshek-Winkler	10/14/2019
Instructional Designer	Date

Project Manager/Sponsor	Date
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Appendix A

RLO Outline

The MMS administrator(s) will create and save a new machine in the MMS.

Welcome/Title

A short welcome message that includes:

- RLO title: Creating a new machine in the MMS

Familiar with Navigation? (Branching)

Are you new to this learning environment and navigation controls?

- Yes. I 'm new. Show me how to navigate this learning environment (Go to navigation instructions)
- No, I know what I'm doing. Let's get started. (Go to introduction)

Navigation and Menu Options

Side menu and navigation bar options:

- Side Menu: Use this menu to move to other pages within this module by clicking the appropriate page link. The menu also includes access to a glossary of terms and resources used in this module.
- Magnifier (icon): Click the magnifier icon located on some of the images to zoom in on the image. Click on the image again to reset the image back to the original size
- Speaker (Icon): Click and slide to control the volume of the audio associated with the screen you are viewing in the module.
- CC: (Closed captioning). Click to view closed captioning text on the lower half of the screen. Note that when used, the closed captioning text box may block some of the images on the screen.
- Play / Pause: It displays on the player when there is audio or video associated with the screen. Click the vertical parallel bars to pause the audio/video. Click the triangle to restart the audio.
- Previous: Click to move back one page.
- Next: Click to move forward one page.
- Exit: Click to exit and close the lesson.

Introduction/Objective – Why create and add a new machine to the MMS?

Information about when and why to create and add a new machine to the MMS; and how the machine's information is used by the EZ Block Sizer software application. (i.e. Information about a new machine obtained from a new inquiry customer information form, or a new machine a manufacturer just introduced.)

Machine attributes information used in the MMS.

Listing key machine attributes and definitions found in the MMS. The following machine attributes and definitions.

Field Name	Description
ID	This is the unique identifier auto-generated by the MMS.
Manufacturer*	The name of the manufacturer.
Model*	The manufacture's model number associated with the machine. This can be associated with the locking force of the machine (tonnage).
Chambering*	Indicates if the machine is used for cold or hot chambering.
Tonnage*	The locking force of the machine measured in tons (tonnage).
Hydraulic Pressure*	Also known as the machine Hydraulic System Pressure – Initial (PSI). The hydraulic pressure is used by the machine to power various functions of the machine such as operating hydraulic cylinders.
Accumulator Pressure	The accumulator is a pressure vessel in which hydraulic fluid is stored under pressure. The accumulator is pre-charged with nitrogen. This power is used during the metal injection portion of the cycle (PSI).
Shot Cylinder Diameter*	The diameter of the shot cylinder used on the machine (inches).
Dry Shot Speed*	The speed of how fast the dry materials move through the machine (inches per second).
Injection Stroke	The distance the shot cylinder can travel during metal injection (inches).

*= indicates required field.

Knowledge Check

Which machine attribute input entered in the MMS is based off a percentage of the hydraulic pressure? (Pick one – Correct answer: Accumulator Pressure.

Familiar with Location (Branching)

Familiar with location of information on customer information and/or machine specification forms?

- Yes – Go to Entering the correct machine attributes information.
- No – Go to Locating the correct machine information.

Locating the correct machine attribute information

- Customer information form and. manufacture's machine specification sheet
- Review where to find the correct machine attributes used in the MMS on the customer information sheet.
- Review where to find the correct machine attributes used in the MMS on a manufacturer specification sheet

Entering the correct machine attribute information into the Create New Machine dialog box.

- A narrated software demo highlighting the attributes entered into the Create New Machine dialog box from a customer information form.
- A narrated software demo highlighting the attributes entered into the Create New Machine dialog box from a manufacturer's specification sheet.

Knowledge check: formative

Two multiple choice questions (work in progress)

The learner can try 2 times – this will include feedback.

Knowledge Check: Now you try....

Select matching drop-down list associated with the values on the filled-in Vacuum and Vent Block Sizing Form.

Summary of Job-based situations

Review when to create a new machine in the MMS.

Congratulations

A short message acknowledging the participation that includes:

Thank you for your participation.

What would you like to do next? (Next lesson or quit and resume at a later date.)

Glossary and Resources

A glossary displaying field value descriptions. A PDF document displaying larger images of screen captures for better viewing which include examples of highlighted machine attributes on various forms.

Appendix B RLO Flowchart

The Machines Maintenance administrator(s) will create and save a new machine in the Machines Maintenance System.

Note: This flowchart represents the preferred path for the lesson, but the learner will be given some ability (locus of control) to move around in the course/lesson.

