

### SysML Model Builder Advanced Exam Overview

<b>Exam Series Code</b>	OMG-OCSMP-MBA400
<b>Exam Duration</b>	105 minutes in native English-speaking countries and 135 minutes in all others. <b>Note:</b> When scheduling your exam in a non-native English-speaking country, you will not see this extra time until you complete your exam order.
<b>Exam Fee</b>	US\$350 (or local equivalent)
<b>Exam Type</b>	Multiple choice (text and SysML diagrams)
<b>Exam Pass Score</b>	>=64 of 90 questions answered correctly (>=71%)
<b>Exam Prerequisite(s)</b>	Passing scores on the OCSMP Model User, Model Builder Fundamental and Model Builder Intermediate Exams.
<b>Exam Specifications</b>	<p>This exam is based on <a href="#">System Modeling Language (SysML) v1.2</a>. Use it solely as a reference. If interested, you can only view the differences between SysML v1.2 and <a href="#">v1.6</a>.</p> <p><a href="#">UML Profile for MARTE: Modeling and Analysis of Real-Time Embedded Systems v1.2</a>: Chapters 2 (Scope), 7.1 (Scope of OMG RT/E Related Standards), 7.2 (Rationale and General Principles) and 7.3 (Approach and Structure).</p> <p><a href="#">Unified Profile for DoDAF and MODAF (UPDM) v2.1.1</a>: Figures 2.2 (UPDM Compliance Levels 0 and 1) and 2.3 (LO and L1) and Chapters 7.1 (Introduction), 7.2 (Philosophy), 7.3 (Core Principles) and 7.6 (Important Areas of the Architecture) and 8.3 (UPDM L1) to 8.3.1.</p> <p><a href="#">SysML-Modelica Transformation v1.0</a>: Chapters 1 (Scope) and 7 (Transformation Approach), and Annexes A (Examples) and B (Justification). For more information visit the <a href="#">Modelica Website</a>.</p> <p><a href="#">Requirements Interchange Format v1.2</a>: Chapter 1 (Scope)</p> <p><a href="#">Object Constraint Language v2.4</a>: Chapter 7 through 7.3.</p>
<b>Recommended Exam Study Guides</b>	<p><b><i>A Practical Guide to SysML: The Systems Modeling Language, 3<sup>rd</sup> Edition (Friedenthal, Moore and Steiner)</i></b>: Chapters 2.2 (Modeling Principles), 2.4 (Questions), 5 (Viewing SysML Models with Diagrams), 15 (Customizing SysML for Specific Domains), 17.3.4 (Define Logical Architecture) and 18 (Integrating SysML into A Systems Development Environment). All authors contributed to the SysML specification.</p> <p><b><i>Systems Engineering with SysML/UML: Modeling, Analysis, Design (Weilkiens)</i></b>: Chapter 5 (Systems Engineering Profile—SYSMOD). The author contributed to the SysML specification.</p>
<b>Additional Reading</b>	<p><a href="#">Using OMG's SysML to Support Simulation (Paredis &amp; Johnson)</a></p> <p><a href="#">Metamodel-based UML Notations for Domain-specific Languages (Brucker &amp; Doser)</a></p> <p><b><i>Applied Metamodeling – A Foundation for Language Driven Development (Clark)</i></b>: Chapters 2 (Metamodelling) and 3 (A Metamodelling Facility).</p> <p><a href="#">What Do Models Mean? (Seidewitz)</a></p> <p><b><i>Simulation-Based Design Using SysML: Part 1: A Parametrics Primer (Peak)</i></b>: Four authors contributed to generating this exam.</p> <p><b><i>Simulation-Based Design Using SysML: Part 2: Celebrating Diversity by Example (Peak)</i></b>: Four authors contributed to generating this exam.</p> <p><b><i>All About IEE Std 1471 (Hilliard)</i></b>: Focus on Slides 23 to 31. See <a href="#">IEEE Std 1471 Webpage</a> for more.</p> <p><a href="#">Building Bridges Between Systems and Software with SysML and UML (Hause &amp; Thorn)</a></p> <p><a href="#">MARTE, THE UML Standard Extension for Real-Time and Embedded Systems (Gerard)</a></p> <p><a href="#">Introduction to UPDM (Bleakley)</a></p> <p><a href="#">Model-Based System of Systems Engineering with UPDM (Hause)</a></p> <p><a href="#">Integrating Models and Simulations of Continuous Dynamics into SysML (Johnson)</a></p> <p><b><i>Survey of Model-Based Systems Engineering (MBSE) Methodologies (Estefan)</i></b>: Chapters 1 (Introduction) and 2 (Differentiating Methodologies from Processes, Methods, and Lifecycle Models).</p>

	<p><a href="#">Systems Engineering Best Practices with the Rational Solution for Systems and Software Engineering v4.1 (Hoffmann)</a>: Chapter 2.2</p> <p><a href="#">What Is Systems Engineering? (Bahill &amp; Dean)</a></p> <p><a href="#">Evaluating Quality in Model-Driven Engineering (Mohagheghi &amp; Aagedal)</a></p> <p><a href="#">Existing Model Metrics and Relations to Model Quality (Mohagheghi &amp; Dehlen)</a> For greater detail, read <a href="#">Definitions and Approaches to Model Quality in ModelBased Software Development – A Review of Literature (Mohagheghi &amp; Dehlen)</a>.</p>
<b>Exam Voucher Program</b>	View our <a href="#">Voucher Program</a> for potential discounts.
<b>Testing Accommodations</b>	For hearing, learning, physical and/or visual disability accommodations, please contact <a href="mailto:certification@omg.org">certification@omg.org</a> with proof of your most recent diagnosis thereof so we can officially request accommodation(s) on your behalf via Pearson, and once approved, provide you with further instructions on scheduling your exam(s) with your requested accommodation(s).
<b>Exam Registration</b>	<a href="#">Pearson VUE</a> : create an account, locate a test center, view available tests, (re)schedule a test (online or at a test center), cancel your exam (contact Pearson VUE > 24 hours prior to exam for a full refund or you forfeit the full exam price), view exam scores and <a href="#">Contact Pearson VUE</a> (for any technical issues-use chat feature to expedite a response).
<b>Online Exam Check-In &amp; Requirements</b>	Visit <a href="#">Pearson VUE Online Proctoring</a> for detailed info. Log in at least 30 minutes early (online verification may take 15-20 minutes). Late arrivals will not be allowed to take the exam.
<b>Test Center Check-In &amp; Requirements</b>	Arrive at least 30 minutes early. Late arrivals will not be allowed to take the exam. Bring two forms of ID (at least one with photo and both with signature): alien registration card, bank card, credit card, employee badge, government issued, green card, military, passport, school and state ID. Do not bring any items (personal or otherwise) other than the two forms of ID to a test center.
<b>Technical Issues</b>	<a href="#">Contact Pearson VUE (use chat feature to expedite a response)</a> .
<b>Exam Languages</b>	This exam is only offered in English and Japanese. You cannot use a translation app during the exam.
<b>Review Your Answers</b>	Before completing your exam, you will be presented with a screen to review your answers to all questions.
<b>Exam Score Reports</b>	Whether at a test center or online, pass or fail, you will be provided with a score report on your computer screen immediately following your exam. A hardcopy of your score report will be provided before an individual leaves a test center with their score in each major section. You can also review your exam score reports via your <a href="#">Pearson VUE account</a> . If you fail your exam, you can review general sections where you scored poorly to assist when you decide to retake your exam.
<b>Digital Badges/Certificates</b>	Those who pass their exam will immediately receive an email from <a href="#">Credly</a> (admin@credly.com - check Junk folder) to claim their verifiable digital badge. Credly provides certified professionals with the option to share their certification credentials with others via the Credly Network, social media, <a href="#">print to .pdf or hardcopy certificate</a> , and other avenues.
<b>Retake Vouchers</b>	If you failed your exam, contact <a href="mailto:certification@omg.org">certification@omg.org</a> to request a 30% discounted exam retake voucher.
<b>Certification Expiration</b>	Your certification expires 5 years from the date you passed your exam. The same or a higher-level certification must be taken prior to the previous certification's expiration date to extend your certification.
<b>Still Have Questions?</b>	<a href="mailto:certification@omg.org">certification@omg.org</a>

### General Areas Tested in the SysML Model Builder Advanced Exam

<b>CONCEPTS FOR ADAPTING SYSML INCLUDING METAMODELING, PROFILES, MODEL LIBRARIES &amp; VIEWPOINTS</b>	
<p><b>Customizing the Language</b> Rationale and motivations for using the different available mechanisms for extending the language.</p> <p><b>Metamodel-based Extensions of SysML</b> Understanding metamodeling concepts, capabilities and limitations.</p> <p><b>Profiles</b> Creating and using a profile, including defining stereotypes, their properties and constraints.</p> <p><b>Model Libraries</b> Creating and using a model library.</p> <p><b>Viewpoints</b> Specifying a viewpoint and using that viewpoint to support model development.</p>	25%
<b>INTEGRATING SYSML WITH OTHER MODELING LANGUAGES SUCH AS UML, MARTE, UPDM &amp; MODELICA</b>	
<p><b>UML</b> Integrating SysML and UML models to support the transition from systems to software design.</p> <p><b>MARTE</b> Extending the modeling of hardware and software to real-time and embedded environments.</p> <p><b>UPDM/TM</b> Supporting the transition from a MoDAF or DoDAF enterprise architecture expressed using UPDM, into systems architectures using SysML.</p> <p><b>Modelica</b> Preparing SysML models for analysis in Modelica-based tools.</p>	20%
<b>INTEGRATING SYSML MODELING TOOLS WITH OTHER TYPES OF TOOLS &amp; TOOL SELECTION CRITERIA</b>	
<p><b>Tool Integration Approaches</b> Integrating a SysML modeling tool with other engineering tools (e.g., requirements management, software or hardware development, model analysis, etc.). Configuring SysML models in configuration management tools including the use of the MOF versioning standard for model versioning.</p> <p><b>Model Interchange</b> Understanding the reasons for performing model interchange and issues that must be considered. Understanding different interchange mechanisms. Using model interchange standards such as XMI, RIF and AP233.</p> <p><b>Tool Selection Criteria</b></p>	20%
<b>METHODOLOGY-RELATED CONCEPTS AND PRACTICES INCLUDING ASSESSMENT OF THE QUALITY OF THE MODEL</b>	
<p>Understanding all the steps of a project development from start to final design. Understanding the different aspects of a system development methodology. Choosing a system development methodology. Using OCL to state formal constraints. Assessing model quality.</p>	35%
<b>Total</b>	<b>100%</b>