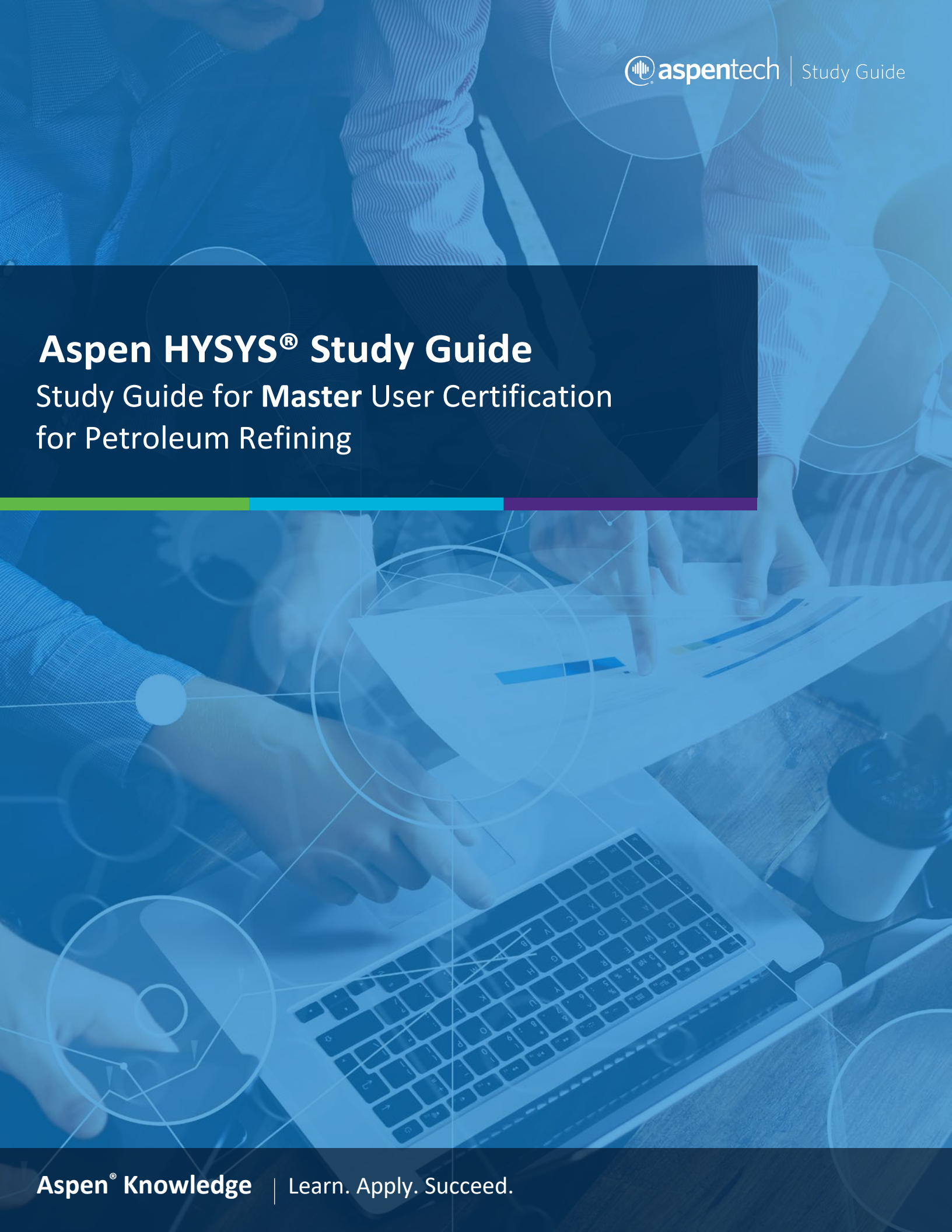

aspentech | Study Guide

Aspen HYSYS® Study Guide

Study Guide for **Master** User Certification for Petroleum Refining

Aspen® Knowledge | Learn. Apply. Succeed.

Exam Scope

- ☐ Advanced Aspen HYSYS Topics
- ☐ Petroleum Refining Applications
- ☐ Dynamic Simulation
- ☐ Column Convergence

Grading

Grade	Weight
Multiple choice questions	37%
Lab Task	63%
Total	100%

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Prove your Credibility

An **Aspen Certified Master User in Aspen HYSYS for Petroleum Refining** demonstrates comprehensive understanding and mastery of the product's features. Additionally, they can build complex models in both steady-state and dynamic simulation mode and interpret results and resolve simulation issues with minimal guidance.

For the lab section of the exam, petroleum refining, dynamic applications and column models will be covered.

Step 1: Take the Classes:

- Aspen HYSYS Dynamics: Introduction to Dynamic Modeling
- Refinery Process Modeling using Aspen HYSYS and Aspen HYSYS Petroleum Refining

AspenTech offers a variety of delivery methods in which you can take training.

- Register for public training (face to face or virtual)
- Register for private training (face to face or virtual)
- Subscribe to eLearning (on-demand)

Step 2: Review Scope and Objectives

This **study guide** covers **all the objectives** for the Aspen HYSYS Master User Certification exam and serves as both a study tool and an on-the-job reference.

Step 3: Take the Exam: **Aspen HYSYS Master User Certification for Petroleum Refining** (ACMU-HYSYS01)

The total time for the certification exam is four hours.
The passing score is 70%.

SCOPE	TECHNICAL CONTENT	TEST OBJECTIVES
Dynamic Simulation	General	**Understand** the basics of dynamic simulation
		Recognize dynamics details for better performance
	Dynamic modeling development	**Master** the techniques required for dynamic modeling development
		Set up control schemes and monitor key parameters
		Develop scenarios with Event Scheduler and CEM
		Familiarize Columns dynamic modeling conversion
		Understand Pipeline and Hydraulics dynamic modeling
	Compressors in dynamics	**Know** how to do Surge Analysis in dynamic modeling
		Recognize how to model multiple Compressor types (Screw / Reciprocator)
Petroleum Refining	Assay Characterization	**Illustrate** the available forms for Heavy Oil Characterization
		Customize property characterization methods for better fit
	Refinery Models	**Learn** Petroleum Refining unit operations features and workflow
		Build and **calibrate** FCC/HCR/CCR refinery reactors
		Integrate the refinery reactor templates with unit operations in main flowsheet
	Molecular Based reactor	**Recognize** the capabilities of MB reactor
Activated Integration	Economic Evaluation	**Perform** preliminary economic cost estimation
	Energy Analysis	**Understand** the features of Energy Analysis
		Recognize how to explore and implement design changes, then optimize energy efficiency
		Know how to implement new utility types in energy analysis
	Aspen Exchanger Design and Rating	**Integrate** exchangers except Shell and Tube with EDR for rigorous modeling
	Aspen Flare System Analyzer	**Identify** the options of transferring PSVs from HYSYS to Aspen Flare System Analyzer
	Aspen Simulation Workbook	**Know** how to integrate HYSYS with ASW
	Greenhouse Gas Emissions	**Understand** CO2 equivalent calculation and carbon tax calculation and settings
Steady State	Optimization and Data Fit	**Illustrate** the workflow of setting up Original and SQP optimizers

		Understand the configuration and features of Data Fit
	Compressor Surge Analysis	**Understand** the settings, features and know how to apply into simulation
	Correlation Manager	**Utilize** Correlation Manager to get non-standard correlations
	Separator Carryover	**Familiarize** basics of three carryover options and explore the available results
		Perform carryover calculation to minimize data discrepancy from reality
	EO Modeling	**Understand** the basics of EO modeling
	Property Package Customization	**Configure** Tabular Props to better fit experimental data
		Comprehend how to resolve flash failure or suspicious results with stab test options
		Customize property methods within Options of fluid packages
	Reaction	**Explore** the reaction types and configurations
		Configure the reactors with reactions and explore the results
	Register Extension	**Identify** the workflow of extension development and implementation
	Column Operations	**Recognize** technics to fit column results with plant data
		Familiarize the available Side Operations and converge columns (atmospheric/vacuum)
		Identify troubleshooting parameters in Column Analysis to resolve hydraulics issues
Sustainability	Acid Gas Removal	**Recognize** the configuration of advanced calculation type of acid gas removal
	Alkaline electrolysis	**Configure** electrolyzer and explore the results