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Course Catalog

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Camstar Semiconductor Suite
Release 6

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General Information

Camstar Education Services offer quality coursework to support customer needs on all capabilities of the products within the Camstar Semiconductor Suite.

Instructor led training and interactive course labs provide the knowledge and skills needed by customers to implement solutions to business needs using Camstar Semiconductor Suite. Camstar education is developed for core members of the implementation team, including: modelers, designers, developers, and managers.

Courses provide focused, hands-on training and are presented as:

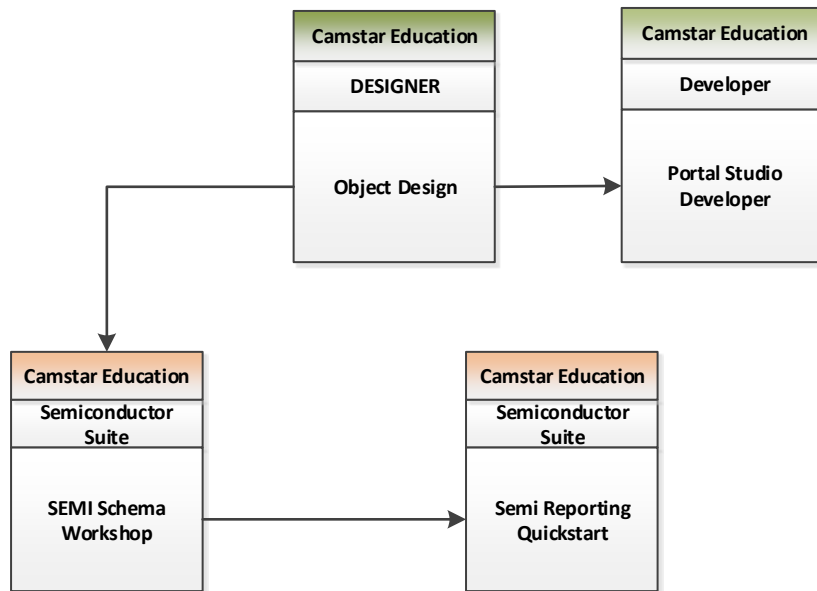
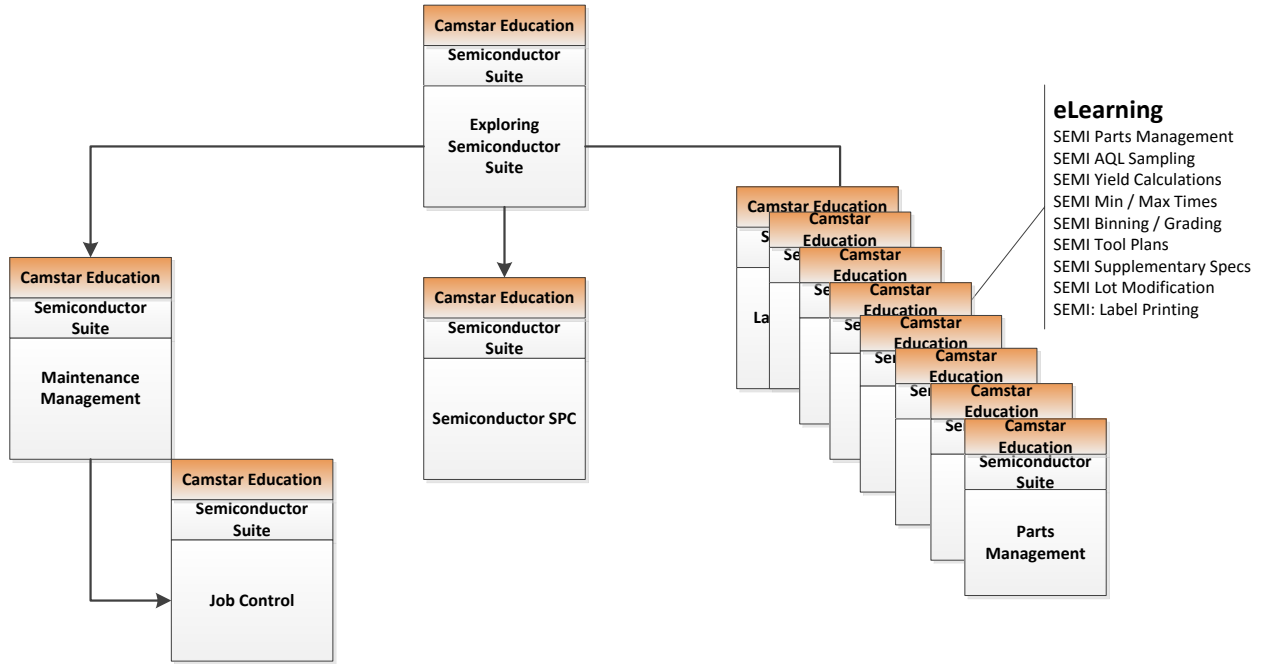
- Classroom Presentation and Demonstration
- Instructor Lectures / Discussion
- Interactive Labs
- Case Studies
- QuickStart Programs

Training Plans are tailored to customer needs as part of the implementation project. All classes are taught by certified instructors.

Open Enrollment Scheduled classes are taught at the Camstar Education Center in Charlotte, North Carolina and Penang, Malaysia. The schedule is posted on the Camstar Website Education pages.

Classes can also be taught onsite at customer locations.

Available Training Camstar Semiconductor Suite v6



Course Names and Descriptions

Camstar provides the following training classes on the Semiconductor Suite. Classes will be combined to form a training plan specific to the needs of the customer implementing the Semiconductor Suite and may be scheduled for various audiences and timed to fit the project timeline.

Exploring Camstar Semiconductor Suite	
Course Objective	This course provides basic understanding of the Camstar solution for Semiconductor Manufacturers. It is the starting point for the Semiconductor Suite curriculum and pre-requisite for all other courses.
Product	Camstar Semiconductor Suite™
Who Should Take this Course	All members of the project implementation team.
When to Take this Course	At or near project kick off
Prerequisites	None
Course Duration	3 days
	This course is the pre-requisite for other courses in the Semiconductor Suite curriculum.
Topics Covered	<ul style="list-style-type: none"> • Semi Suite Overview – Factory Model, Process Model, Work Order & Schedule, Process Spec, WIP Processing, Equipment Processing and Access Control. • Modeling Structure and Navigation • Base setup – Setup A, Setup B (Highest Matching Algorithm), Modeling Sequence and Initial Setup. • Inventory Tracking – Lot Start, Lot Create, Lot Form, Lot Receiving, Lot Move Inventory, Lot Ship, Lot Ship Cancel • Excel Spreadsheets for import of modeling data • Scheduling Transactions – Schedule, Preparation, Release, Modify, Request and Request Cancel. • Navigation in Camstar Portal – User Interface • WIP Tracking – WIP Main, Move In, Track In, In Process Rejects, Track Out, Post Process Rejects, Move Out, WIP Data, Equipment Setup, Equipment Set Status, Equipment Materials Setup, • Ad-Hoc Transactions – Hold, Further Hold, Release, Lot Modifications, Split, Combine, etc. • Electronic Procedures • Service Attributes

Exploring Camstar Semiconductor Suite Feature Modules

Course Objective	There are several features of the Semiconductor Suite that may be taught in conjunction with the project kick off or as later phases of implementation. They have been formed as modules of training to allow for better sequencing and timing.
Product	Camstar Semiconductor Suite™
Prerequisites	Exploring Camstar Semiconductor Suite
Course Duration	Variable depending on software purchased or optional modules requested and depending on how they are sequenced.
Each of the Modules is described below.	
They can be completed in 2 – 4 hours each and should be attended after Exploring Semiconductor Suite.	
Maintenance Management (*)	The Maintenance Management course is designed to teach the methods to setup regular and/or conditional maintenance within Camstar Manufacturing for equipment (resource) associated with manufacturing process. Maintenance Management is licensed separately. This course and its labs can be taught in approximately 2 hours and is a supplemental course taught after Exploring Semiconductor Suite.
Job Control	Job Control is capability of the Camstar Semiconductor Suite that tracks and controls processing setting-up and repairing a Resource.. The system includes specific Job Transactions. This course and its labs can be taught in approximately 2 hours and is a supplemental course taught after Maintenance Management
Parts Management	Parts Management is capability provided with the Semiconductor Suite that extends the Maintenance Management capability to include consumable and reusable “parts” or sub-resource maintenance and requests. This course and its labs can be taught in approximately 4 hours and is a supplemental course taught after Maintenance Management.

Exploring Semiconductor Suite Feature Module

This module of training is available for Engineers and should be taken after Exploring Semiconductor Suite. It will take approximately 2 days to complete.

Semiconductor SPC

This course provides basic understanding of the Camstar Semiconductor Suite SPC product offering. Topics include:

- Semiconductor Suite SPC Overview – SPC Model, Execution and Architecture
- Modeling sequence for data elements, data collections, charts, queries, connections and some Statit parameters
- Developing queries to retrieve current data and historical data
- Execution options: Track Out (before and after), Ad Hoc
- Modeling for shop floor in-process checks and offline analysis
- Configuring Data Collection Limits, Control Limits and Specification Limits; configuring dynamic Control Limits
- SPC Records – Search, modify and re-plot of previous SPC executions
- Semiconductor Suite Full loop integration in to SPC failures

This course and its labs are designed to be covered in 2 days. The student that completes this class will have an understanding of the modeling entities, modeling sequence and how Semiconductor Suite works with Statit to perform SPC on the data collected in Semiconductor Suite. There is a supplemental course available which covers more complex scenarios, uses more Charts, provides guidance on how leverage Statit and describes how to collect data through automation.

Participants should be familiar with SPC concepts such as control charts, rules, data normalization and limit violations. Additional training is offered by the 3rd party vendor for Statit Custom QC and Statit eServer is highly recommended for building custom charts and extending rules.

Exploring Camstar Semiconductor eLearning Modules

Course Objective	There are several features of the Semiconductor Suite that may be taught in conjunction with the project kick off or as later phases of implementation. They are being formed as modules of training to allow for better sequencing and timing and will be available in the Education Portal for self-paced training as needed.
Product	Camstar Semiconductor Suite™
Prerequisites	Exploring Camstar Semiconductor Suite Subscription to the Camstar Education Portal
Course Duration	Self-paced learning events that describe specific capability
	Each of the Modules is described below. They can be completed in 2 – 4 hours each and should be attended after Exploring Semiconductor Suite.
AQL Sampling (*)	Licensed Feature Module – coming soon
Yield Calculations	
Min / Max Times	
Binning / Grading	
Tool Plans	For information on any of these topics and training release timing, contact the Education Manager at SmartCamstar@camstar.com A brief description of each is inserted below
Supplementary Specs	
Lot Modifications	
Label Printing	

Camstar Semiconductor Feature Modules

The Camstar Semiconductor Suite curriculum in eLearning format is in development and expected for release in Q2 and Q3 2015. The following learning events are included in this curriculum.

221.1 Min Max Windows

Min – Max stands for Minimum and Maximum. Time Windows are defined relative time segments in which shop floor manufacturing events must occur. In Semiconductor Manufacturing, there are time constraints placed on some types of processing. Violation of these time constraints can result in defects. Sometimes a minimum amount of time is required for processing at a step.

221.2 Supplementary Specs ^{*coming soon}

In Semiconductor Manufacturing, there is a need for customized processing on a specific lot. As an example, a lot may be designated for experimentation on a workflow that performs operations specifically for the experiment – these are unique and separate operations that are not part of the standard processing. Semiconductor Suite allows for the modeling of this type of processing which is sometimes referred to as a planned or ad hoc reassignment. The feature is called Supplementary Specs.

221.3 Lot Modifications ^{*coming soon}

The Semiconductor Suite MES allows for the changing of a lot attribute value at any time and for any reason. The access to this feature is often controlled so that only supervisors and production engineers can make the change without resulting in misprocessing. The change could be beyond the scope responsibilities of an operator on the factory floor.

221.4 Tools Plans ^{*coming soon}

In Semiconductor Manufacturing, there is a need to manufacture specific product through specific tools on equipment. The tools must be associated with the equipment and changed based on the product that is going to be processed. A tool plan provides this functionality to force specific tools to be used for equipment based on specific product processes.

221.5 Semi – Binning and Grading ^{*coming soon}

In Manufacturing, there is a need to assign a quality grade to products and sort products based on a grade. Products with a different quality grades can be used in different grade and this grade can align with different customers. Associated with grading is the process of placing the products into bins based on grades. The process is called “binning.”

221.6 Semi – Yield Calculations ^{*coming soon}

Yield Control is used to test the output of a process step based on rejects, bins and data collected. Yield calculation is triggered at the following events: Complete Insertion, Post Process Bins/Rejects/Data Collections and Move out. Yield limits are based on a set of criteria used to indicate which limits to reference; Common Limits, Lot Size limits, Loss Reason Limit and Bin Limits.

Yield Handler, Yield Control, Yield Calculation and Yield Limits all reference the same base functionality.

221.7 Label Printing for Semi ^{coming soon}

The solution available for printing labels from the Semiconductor product is a separate application (windows service) that process print requests transacted from the Camstar Manufacturing Semi Suite. It

can be configured and deployed with the initial implementation of the Semiconductor MES tracking or as an add on in later phases. For this reason it is provided as a separate training feature module.

221.8 Maintenance Mgmt for Semi^{*coming soon}

The Maintenance Management course is designed to teach the methods to setup regular and/or conditional maintenance within Camstar Manufacturing for equipment (resource) associated with the manufacturing process.

221.9 Job Control^{*coming soon}

Job Control is capability of the Camstar Semiconductor Suite that tracks and controls processing setting-up and repairing a Resource. The system includes specific Job Transactions

222 Parts Mgmt^{*coming soon}

Parts Management is capability provided with the Semiconductor Suite that extends the Maintenance Management capability to include consumable and reusable “parts” or sub-resource maintenance and requests.

Education Quick Start Programs

Camstar Education offers quickstart programs to assist our customers with specific project deliverables and to extend Camstar training by providing mentored assistance.

- Definition: A quickstart program is a combination of informal training, mentoring and hands-on assistance to give a Customer resource (or two) an accelerated start with assigned project deliverables in a specific technical Camstar product.
- Duration: not to exceed 5 days (including travel)
- Typically performed on-site but may be conducted remotely
- Most quickstarts include pre-quickstart checklists to gauge readiness
- Training materials are informal; Additional collateral in the form of white papers, step by step instructions, and how too documents are also provided
- The related Training Class is available separately, ~2 days training in open enrollment on a generic model.

Camstar education is pleased to offer the following quickstarts by specific technical product. Following the quickstart descriptions you will find descriptions of the training content used in quickstarts. These can be scheduled as training apart from the quickstart and are occasionally offered in open enrollment seating in the Charlotte Training Center.

Camstar Installation:

Title	Enterprise Platform – Server installation
Audience	IT and Server administrators
Pre-checklist	Checklists to determine readiness are provided.
	Hardware and Software required must be available to schedule this quickstart
Duration	5 days
Training	Enterprise Platform Administration
Mentoring	Mentored assistance to install and configure Camstar servers based on the approved Technical Design Document in support of the Camstar implementation.
Title	Camstar Installation - Standalone
Audience	IT and Server administrators
Pre-checklist	Checklists to determine readiness are provided.
	Hardware and Software required must be available to schedule this quickstart
Duration	2 – 3 days
Training	Camstar Installation & Configuration
Mentoring	Mentored assistance to install and configure Camstar for standalone use as a practice sandbox or for onsite schedule training classes. A Camstar installer helps the customer build a standalone instance (physical or virtual) and teaches how to reset for various classes in the curriculum.

Camstar Interoperability:

Title	Enterprise Integration
Audience	Technical members of an implementation team involved with implementing ERP interfaces.
Pre-requisites	<u>Exploring Camstar Manufacturing</u> and knowledge of your Company interface requirements. The <u>Object Design</u> course is required if you plan to do Outbound transactions. <i>Familiarity with XML and XSLT (Style Sheets) is required</i>
Pre-checklist	Identified project deliverable defined as a touchpoint to or from Camstar Manufacturing and identified shop floor equipment.
	The specific transport to be used in Inbound or Outbound interface with the ERP or PLM
Duration	5 days
Training	CIO Inbound, Outbound, Message Mapping, Workflow
Mentoring	Mentored assistance to work on the deliverable identified in the pre-checklist

Title	Equipment Integration
Audience	Technical members of an implementation team involved with implementing interfaces to or from shop floor equipment and Camstar.
Pre-requisites	<u>Exploring Camstar Manufacturing</u> and knowledge of your Company interface requirements. The <u>Object Design</u> course is required if you plan to do Outbound transactions. <i>Familiarity with XML and XSLT (Style Sheets) is required</i>
Pre-checklist	Identified project deliverable defined as a touchpoint to or from Camstar Manufacturing and identified shop floor equipment.
	The specific transport to be used in Inbound or Outbound interface with the named shop floor equipment.
Duration	5 days
Training	CIO Inbound, Outbound, Message Mapping, Workflow
Mentoring	Mentored assistance to work on the deliverable identified in the pre-checklist

Title	Programming with Camstar
Audience	Technical members of an implementation team involved with implementing interfaces that may require use of Camstar APIs, Web Services, or WCF Services.
Pre-requisites	<u>Exploring Camstar Manufacturing</u> and knowledge of your Company interface requirements. The <u>Object Design</u> course is required if you plan to do Outbound transactions. <i>Familiarity with XML and XSLT (Style Sheets) is required</i>
Pre-checklist	Identified project deliverable
Duration	Not to exceed 5 days
Training	May include one or more of the following subjects:
	Programming with .NET API
	Programming with Camstar WCF Services
Mentoring	Mentored assistance with a specified project deliverable identified in the pre-checklist
Supplemental training	Customers using Camstar programming APIs should also participate in the appropriate version of Microsoft Visual Studio training.

SEMI Schema Workshop

Audience	Design and Development members of the project implementation team, Report Designers and Developers
Prerequisites	Exploring Camstar Semiconductor Suite Semiconductor Suite Part 2: Advanced Topics Object Design Good knowledge of Structure Query Language (SQL) and Relational Database concepts
Course Duration	5 days
Pre-Checklists	To identify objectives of the QuickStart – hands on activity
Topics Covered	SemiSuite Terminology Schema Table Categorization Schema Data Dictionary Entity Relationship Diagram (Maintenance Schema) Entity Relationship Diagram (ShopFloor History Schema) Camstar SemiSuite Business Object Universe Database Tool (Schema Discoverer) Installation of Data Discoverer Tool (Customer's training database) Hands on Practice reviewing various types of transactions and the related model setup

Reporting QuickStart

Audience	Universe Designers, Report Developers, Report Administrators
Pre-requisites	Exploring Semiconductor Suite, Semiconductor Suite Part 2: Advanced Topics, Object Design for SEMI, SEMI Schema Workshop <i>SAP-BO education is recommended.</i>
Pre-checklist	Checksheets used to assess readiness and identify quickstart objectives are required prior to scheduling the Reporting QuickStart. These may include Universe extensions based on Object changes identified and documented, modifications to existing reports provided out of the box, or new reports to be developed.
Documentation	Universe Extensions Report design specs
Duration	5 days
Training	Informal classroom training Not to exceed 2 days, the remaining time is spent in mentored assistance on a specific objective.
	<ul style="list-style-type: none"> • Explanation of the attributes of both the Standard Universe (for Manufacturing transaction data) and the Configuration universe supplied on the Camstar Manufacturing database structure including the following: <ul style="list-style-type: none"> • Classes • Objects • Conditions • Joins • Instruction on how to customize the Universe including the following: <ul style="list-style-type: none"> • Adding tables and joins • Creating Object subclasses and fields • Creating custom measures and pre-defined conditions • Saving and exporting the Universe • A review of the standard out of box manufacturing and configuration reports supplied. • Resetting the standard reports to an extended universe and publishing. • Report generation and publishing using WebI • Rendering Business Objects reports in Portal Studio
Mentoring	Mentored assistance with identified universe work and report generation as defined in the objectives in the Pre-Checklists
Supplemental SAP-BO Training	Camstar recommends that our customers using the Camstar Intelligence Reporting solutions also take appropriate classes for their role with SAP – Business Objects. SAP provides various courses to support Server Administration, Universe Design, and Report Generation.

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To request pricing or schedule information please contact SmartCamstar.plm@Siemens.com .

Unrestricted