

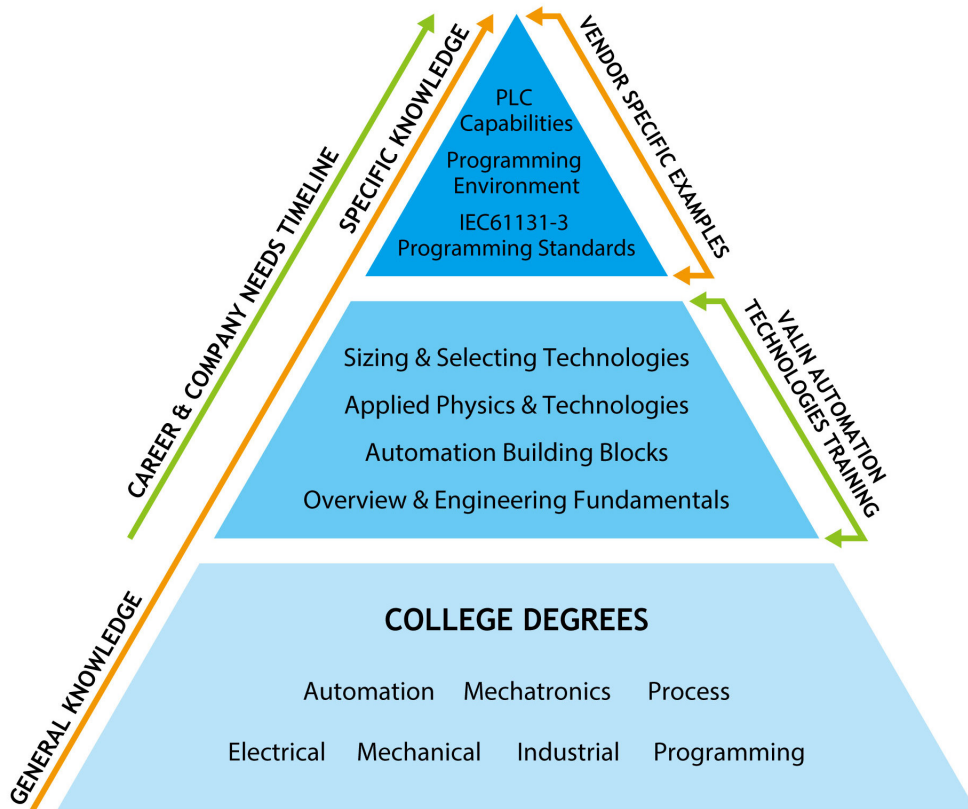
Automation Technologies Training

Why?

The engineers and technicians that have grown up with modern automation since the early 1980s are now in their later years and starting to retire. Unfortunately there are more engineers and technicians retiring than there are knowledgeable ones to replace them. This creates a set of major problems:

- Who understands the equipment they have been working on that is also aging?
- Who has the knowledge to implement the technologies they have spent 20+ years in learning?
- Modern technologies are great, but without a foundation from which to understand them, they can be difficult to understand.

Attending product-specific classes are helpful, but they always assume a base of knowledge. It is like learning algebra without learning the basic arithmetic first! Students come out of college with a base of general knowledge and the ability to think, but don't know what to do with that knowledge or how to apply it practically in their corporate environments.



[REGISTER](#)



Automation Technologies Training

Curriculum

- Level 1: Basics - Introduction to Automation
 - Overview and conceptual understanding
 - Foundation for Level 2
 - Target audience:
 - Non-technical personnel seeking some frame of reference
 - Recent college graduates entering the workplace
- Level 2: Architectures - Intermediate Automation
 - Architectures
 - Sizing factors & concepts
 - Software, electrical & mechanical concepts
 - Target audience: technical personnel seeking to better understand general automation technologies

Level 3: Selection - Advanced Automation

- Sizing & selection
- Target audience: experienced technical personnel seeking to design systems and do their own sizing and selecting of products

COURSE	LEVEL	LENGTH	OBJECTIVES & TOPICS
Advanced Automation	1	30 min	What is “automation”? Why does one “automate”?
Automation Solutions Overview	1	15 min	What are the areas we cover in Valin’s Automation Group?
Motion Control Building Blocks	1	30 min	What is required for electromechanical motion? What other types of motion are there?

[REGISTER](#)

Automation Technologies Training

Curriculum

COURSE	LEVEL	LENGTH	OBJECTIVES & TOPICS
Motion Control Basics	2	90 min	<ul style="list-style-type: none"> • Servo History • Servo Theory • Elements of motion control • Basics of: <ul style="list-style-type: none"> * Turning a step motor * Open-loop vs. Closed-loop * Control Theory Basics * Servo loops * Feedback * Commutation * Servo vs Stepper
Electrical Concepts	2	60 min	<p>Basic electrical definitions and concepts.</p> <ul style="list-style-type: none"> • Voltage, Current, Resistor and Power • Capacitor, Inductor • AC vs DC • Analog vs Digital vs 4-20mA • Grounding planes • Optical Isolation • H-bridge • Sinking and Sourcing current • Electrical noise • Single-ended vs Differential

REGISTER



Automation Technologies Training

Curriculum

COURSE	LEVEL	LENGTH	OBJECTIVES & TOPICS
Sensors	1	30 min	<ul style="list-style-type: none">• Main sensor types• Basics• Terminology
Sensors	2	60 min	<ul style="list-style-type: none">• More on sensor types• Advanced features• How to select photoelectric sensors• Reading data sheets• Fiber optics
Mechanical Basics	1	60-90 min	<ul style="list-style-type: none">• Force, Torque & Moment• Precision, Accuracy & Repeatability• Mechanical components• LOSTPED overview
Mechanical Concepts	2	2 hours	<ul style="list-style-type: none">• Mechanical components - deeper look• Linear Motors• Mechanical specifications• Statics & Dynamics• Mitigating risk in mechanics• LOSTPED deeper look
Automation in Process	1	30-60 min	Automation applications in the process industry: <ul style="list-style-type: none">• Not your regular valve control• Networking• Information control

REGISTER

Automation Technologies Training

Curriculum

COURSE	LEVEL	LENGTH	OBJECTIVES & TOPICS
Controls Architectures	2	1 - 2 hours	<ul style="list-style-type: none"> • PLC vs Motion controllers and their evolutions • Old types of controls • Centralized vs Decentralized • Local vs Remote • Controller-based vs Drive or PC-based • Types of programming languages
Drives, Motors & Feedback Overview	1	1 hours	<ul style="list-style-type: none"> • What does a drive do? • What different types of motors are there? • What methods of feedback are there?
Drives, Motors & Feedback In-depth	2	1.5 - 2 hours	<ul style="list-style-type: none"> • What makes motors move? • What are the parts of motors? • How does a drive work? • What are the different drive architectures? • How do the different feedbacks operate?
EMC Installation	3	1 hours	<ul style="list-style-type: none"> • Why is installation important? • What is the source of electrical noise? • What is the solution?
Safety Overview	1	4 hours	<ul style="list-style-type: none"> • Overview
Safety: Risk Assessments	2	4 hours	<ul style="list-style-type: none"> • Why? What? How?

[REGISTER](#)



Automation Technologies Training

Curriculum

COURSE	LEVEL	LENGTH	OBJECTIVES & TOPICS
Safety: Machine Guarding Overview	2	1 day	<ul style="list-style-type: none"> • Risk Assessments • Standards • Circuit configurations • Guarding technologies
Safety: OSHA Machine Guarding	3	1 day	<ul style="list-style-type: none"> • What are the rules per OSHA? • Covers all the OSHA Machines • plus the general safeguarding clause (1910.212)

Pricing

- \$750 per person per day with a minimum of 4 people in the class.
- \$3000 per day for one company onsite plus travel expenses if outside of California.

[REGISTER](#)

For more information please email: valinuniversityinquiries@valin.com

Class may not be available in your area. Please [email](#) to confirm.

About Valin

Valin Corporation is the leading technical solutions provider for the technology, energy, life sciences, natural resources, and transportation industries. For over 45 years, Valin has offered personalized order management, on-site field support, comprehensive training, and applied expert engineering services utilizing automation, fluid management, precision measurement, process heating, and filtration products.

COMPLEX TECHNOLOGY MADE SIMPLE.

ISO 9001 Certified

