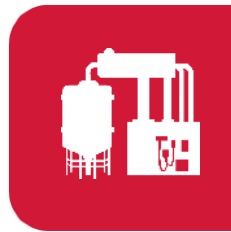


# BUILDING TECHNICAL CAPABILITY

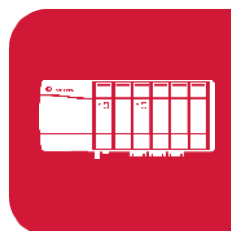
## ACADEMY OF ADVANCED MANUFACTURING

### TECHNICAL CURRICULUM



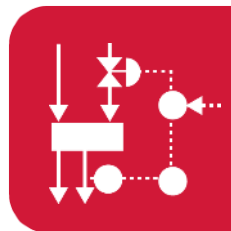
#### Industrial Automation Principles

Industrial Automation and Control Systems • Functions (IACS) • Manufacturing Environment/ Process • Mechanics • Computing • Ohm's Law • Electrical Symbols • Diagrams and Terminology • Use of a Digital Meter • Test Equipment • Circuit Wiring • Termination



#### Controller Technology and Programming

Relationship between plant floor Mechanical Components and IACS (especially PLC) • Communications between Maintenance and PLC • Data Types • Application Creation • Upload/Download • Ladder Logic • I/O Management • Controller Modes



#### Controller Products and Applications

IACS Troubleshooting • Peer-to-Peer versus I/O Communications • Programming Types • Function Block • Sequential Function Chart • Structured Text • Application Development (All Programming Types)



#### Network Infrastructure Technology

Network Architecture • Reference Models (OSI vs TCP/IP) • Media • Network Components (Repeater, HUB, Bridge, Switch, Router, Gateway) • Topologies • Data Link, Network, Transport Layers • Traffic Analysis • Message Formats (Unicast, Multicast, Broadcast) • LAN, WAN



#### Visualization and Information Software

Human Machine Interface (HMI) Purpose and its Relationship to the Plant Floor Mechanical Components • Components and Solutions • Application Creation • Industrial Computer/Open Platform Communications • Graphic Display Creation and Modification • Alarms • Troubleshooting • Enterprise Integration • Production Data • Reporting



#### AC Drives, Motors Technology

Drive Technologies • Relationship Between the Drive, Motor, and Plant Floor Mechanics • Six Block Diagram • Motor Nameplate, Wiring • Meter Usage • HMI Usage • Network Control • Start Up • Troubleshooting • Reading, Interpreting Drives Prints • Digital, Analog Relays, I/O Wiring • Motor Control Center Components



#### Instrumentation

Instrumentation Technologies • Hands-On • Instrumentation Devices • Flow Level • Pressure • Temperature • Analytics • Systems • System Components



#### Machine Safety Technology

Functional Capabilities of Safety Technology in Relationship to the Reality of Plant Floor Mechanics • Safety Design • Risk Assessment • Safety Circuits • Fail Safe vs Fault Tolerant • Safety Relay I/O • Non Contact Switches • Safety PLC • Safety I/O • E-stop • Troubleshooting

# BUILDING PROFESSIONAL CAPABILITY

ACADEMY OF ADVANCED MANUFACTURING  
PROFESSIONAL CURRICULUM



## Accelerating Team Performance

Partnering • Developing collaborative relationships •  
Continuous Improvement • Organizational Sensitivity



## Communicating Your Best

Shaping communication to needs of audience • Listening attentively  
Conveying ideas and opinions • Making requests and setting  
expectations • Using appropriate business grammar and vocabulary



## Customer One

Fostering key relationships • Developing and executing work plans •  
Customer focus • Understanding customer needs as basis for decision  
and action



## Influencing Across Boundaries

Professional adaptability • Cross-cultural savvy • Resilience and  
change management • Tenacity • Agility and flexibility



## Navigating Change

Resilience and change management • Tenacity •  
Agility and flexibility • Adjusting behavior to changing conditions



## Personal Management

Personal accountability and achievement • Learning agility •  
Technical excellence • Fostering accountability • Self development •  
Setting goals and expectations



## Priming Performance

Networking • Decision making • Judgment • Commitment



## Transforming Conflict

Managing conflict • Identifying alternatives and positions  
to reach mutually-beneficial outcomes • Problem-solving and  
decision-making