

## M-920

### Modicon 984/Quantum Family Programmable Controllers/Level Two - Advanced Maintenance & Troubleshooting

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<b>Course Description</b>	This 32-hour training program provides a thorough introduction to the Advanced instruction and Enhanced instruction set capabilities of the 984 family of programmable controllers. Application exercises are used throughout the course to create a hands-on learning environment.
<b>Topical Outline</b>	<ul style="list-style-type: none"><li>▪ Review of Hardware and Basic Instruction</li><li>▪ Review of Memory Organization</li><li>▪ Instruction Entry and Interpretation:</li><li>▪ Data Transfer<ul style="list-style-type: none"><li>- Register to Table</li><li>- Table to Register</li><li>- Block Move</li><li>- First In, First Out</li><li>- Search, Status</li></ul></li><li>▪ Matrix Instructions Logical AND, OR, Exclusive OR<ul style="list-style-type: none"><li>- Compliment</li><li>- Compare</li><li>- Bit Modify, Bit Sense, Bit Rotate</li><li>- ASCII Read and Write Function</li></ul></li><li>▪ Skips</li><li>▪ Subroutines</li><li>▪ Advanced/Enhanced Instructions:<ul style="list-style-type: none"><li>- Table to Block</li><li>- Block to Table</li><li>- Double Precision Math</li><li>- Square Root</li><li>- Floating Point Math</li></ul></li><li>▪ Communications:<ul style="list-style-type: none"><li>- Modbus</li><li>- Modbus Plus</li></ul></li><li>▪ Hands-On Application Projects: Hands-on application exercises utilizing conveyors, material handling robots, or batch process stations are used to create a hands-on learning environment.</li></ul>
<b>Prerequisites</b>	Students should have successfully completed Intellect Controls Group course M-910 or have knowledge equivalent to the course description. M-920 IS NOT AN ENTRY LEVEL TRAINING PROGRAM.
<b>Course Hardware</b>	Modicon 984 Models: 385, 485, Quantum

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***Course Length***

36 hours

***CEU's***

3.3

***Objectives***

Persons successfully completing this course will be able to:

- Identify hardware components of a 984 programmable controller system.
- Enter and interpret programs that use the Advanced and Enhanced instructions of the 984 Family of programmable controllers.
- Troubleshoot hardware and software faults by interpreting control programs using the advanced capabilities of the 984 Family of programmable controllers.