

**Level IV Content Outline****Engineering Technician**

The candidates for NICET certification at Level IV in Water-Based Systems Layout should have the knowledge, experience and skills needed to supervise other technicians. Their work includes complex or specialized water-based systems. They have a comprehensive understanding of codes and standards. Level IV technicians have at least 10 years of experience in water-based systems layout.

4.1 Safety and Environmental Compliance

(Questions related to these tasks make up 1-10% of the exam.)

4.1.1 Manage compliance with environmental requirements.

4.1.2 Manage personnel safety.

4.2 Contract Documents

(Questions related to these tasks make up 1-10% of the exam.)

4.2.1 Generate contracts. 1

4.3 Survey Existing Conditions

(Questions related to these tasks make up 1-10% of the exam.)

4.3.1 Evaluate existing complex fire protection systems. 1

4.3.2 Plan piping obstruction investigations. 7

4.4 Codes and Standards

(Questions related to these tasks make up 30-40% of the exam.)

4.4.1 Determine intent of current fire protection codes/standards. 1

4.4.2 Address conflicts between NFPA standards and FM data sheets. 1, 3, 6

4.4.3 Address conflicts between new and previous editions of codes/standards. 1, 3

4.5 System Layout

(Questions related to these tasks make up 35-45% of the exam.)

4.5.1 Layout sprinkler systems with special occupancy requirements (per NFPA 13). 1

4.5.2 Mitigate corrosion. 1

4.5.3 Resolve fire pump system issues. 1, 2

4.5.4 Resolve issues with multiple considerations (e.g., multiple water supplies). 1

4.5.5 Resolve water supply issues. 1, 2, 3, 4

4.5.6 Evaluate system hydraulics. 1

4.5.7 Hydraulically calculate complex systems. 1, 2

4.5.8 Apply advanced concepts of bracing/restraints. 1

4.5.9 Coordinate complex interfaces with other fire protection systems. 1

4.5.10 Incorporate pre-engineered system layouts (e.g., kitchen hood systems). 1

4.6 Project Management

(Questions related to these tasks make up 5-15% of the exam.)

4.6.1 Oversee management of multiple projects. 5

4.6.2 Manage subcontractors. 1

4.6.3 Develop project budgets.

4.6.4 Monitor project progress and manage expenses. 5

4.6.5 Prepare maintenance plans. 7