Instructional Objectives for Class Diagrams

The student should be able to do the following after completing the class diagram portion of the text, lecture, and homework:

1. Define, apply in the proper form, and give examples of the following forms of classes:
   - Class name only;
   - Class name and responsibilities;
   - Class name, attributes, and operations;
   - Class name, attributes, operations, and responsibilities.

2. Define an attribute in the proper form:
   - $\textbf{vis attributeName: type = initVal\{constraint\}}$

3. Define an operation in the proper form:
   - $\textbf{vis operationName(argName:argType = defVal, ...): retType\{constraint\}}$

4. Define, apply in the proper form, and give examples of the following relationships between classes:
   - Association;
   - Inheritance/Generalization;
   - Aggregation;
   - Composition;
   - Dependency.

5. Define, apply in the proper form, and give examples of the following adornments to relationships between classes:
   - Multiplicity;
   - Roles;
   - Names.

6. Given a description of a moderately complex “system”, model the classes and relationships with correct UML class diagram notation. That is, student must be able to draw a class diagram.

7. Given a class diagram and a supporting set of UML diagrams, use the supporting diagrams to populate the attributes and operations of the class diagram.

8. Given a class diagram and a related set of UML diagrams, use all diagrams to derive a correct set of UML diagrams that fully describe the system.