1. Introduction to databases

   Sub-topics:
   a. Database Management Systems benefits

2. The Relational Model

   Sub-topics:
   a. Relation/Table
      - Attributes
   b. Integrity Constraints
   c. Keys
   d. Primary key
   e. Candidate key
   f. Surrogate key
   g. Foreign key
      - Referential integrity constraint

3. SQL

   Sub-topics:
   a. SELECT…FROM… WHERE… framework
   b. DISTINCT keyword
   c. ORDER BY
   d. Aggregate operators: COUNT, MIN, MAX, AVG, SUM
   e. GROUP BY… HAVING
   f. Subqueries
   g. Joins (select from multiple tables), including outer joins (left, right)
   h. Set operations: UNION, UNION ALL
   i. CREATE /ALTER /DROP TABLE
   j. INSERT, DELETE, UPDATE

4. Data Modeling with the Entity-Relationship Model

   Sub-topics:
   a. Entities
      - Identifiers /Composite identifiers
      - Attributes
   b. Relationships
      - Has-A relationships
         Maximum and minimum cardinality
         Identifying/non-identifying relationships
      - Is-A relationships (supertype/subtype)
         Inclusive/Exclusive