Keys Solution

For the following Relational Schema, define it's set of Superkeys and Candidate Keys (Show the complete process to extract the respective set of keys):

- Course (<u>CourseNumber</u>, <u>CourseName</u>, CreditHours, Department)

SOLUTION:

- Superkeys Set:
  - From the given relational schema, get all the combinations of attributes first:
    - { CourseNumber }
    - { CourseName }
    - { CreditHours }
    - { Department }
    - { CourseNumber, CourseName }
    - { CourseNumber, CreditHours }
    - { CourseNumber, Department }
    - { CourseName, CreditHours }
    - { CourseName, Department }
    - { CreditHours, Department }
    - { CourseNumber, CourseName, CreditHours }
    - { CourseNumber, CourseName, Department }
    - { CourseNumber, CreditHours, Department }
    - { CourseName, CreditHours, Department }
    - { CourseNumber, CourseName, CreditHours, Department }
  - From these combinations, extract the set of superkeys, i.e. keys that will be able to **<u>uniquely</u>** identify the tuple in a relation
    - { CourseNumber }
    - { CourseName }
    - { CourseNumber, CourseName }
    - { CourseNumber, CreditHours }
    - { CourseNumber, Department }
    - { CourseName, CreditHours }
    - { CourseName, Department }
    - { CourseNumber, CourseName, CreditHours }
    - { CourseNumber, CourseName, Department }
    - { CourseNumber, CreditHours, Department }
    - { CourseName, CreditHours, Department }
    - { CourseNumber, CourseName, CreditHours, Department }
  - This forms the superkey set

- Candidate Keys Set:
  - From the set of superkeys, we get the minimal set to get a set of candidate keys:
    - { CourseNumber }
    - { CourseName }
  - This is the candidate keys set – from this any one or more keys can be chosen to be the primary keys by the database designer