**In-Class ERD Exercises**

**Problem-1:** International Courier Service, ICS, provides up-to-date information on the processing and current location of each shipped item. To do this, ICS relies on a company-wide information system in which shipped items are characterized by unique item number, weight, dimensions, insurance, destination, and final delivery date. Shipped items are received into the ICS system at a retail centre. Retail centres are characterized by their type, uniqueID, and address. Shipped items make their way to destination via one or more standard ICS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique scheduleNumber, a type (e.g, flight, truck), and a deliveryRoute. A transportation event may be carrying various shipped item. Create an Entity Relationship diagram that captures this information about the ICS system.

Transportation Event

Retail Center

Shipped Via

Received from

ShippedItems

**Relational Schema:**

ShippedItems(itemNumber,weight,dimension,insurance,destination,deliveryDate,uniqueId[FK])

RetailCenter(uniqueid,address,type)

TransportationEvent(scheduleNumber,type,deliveryRoute)

ShippedVia(itemNumber[FK],scheduleNumber[FK])

**Problem-2:** University database

▪ We have students; each student has a unique ID, name, address, gender, major, and contact no. A student can have multiple contact numbers.

▪ We have courses, each course has a unique courseID, title, and number of credits

▪ Students will register in courses in certain semesters. Each semester has a unique ID, type (Fall, Spring, Summer) and a year associated with it. We need to keep track of the grade that a student has received in a given course. The model should allow a student to take the same course in different semesters.

Register

Student

Course

Semester

**Relational Schema:**

Student(ID,Name,Addr, Gender,Major)

Contact(studentID[FK],ContactNo)

Courses(courseID,Title,Credit)

Semester(ID,Type,Year)

Register(studentID[FK],courseID[FK],semesterID[FK],Grade)