# Lab Assignment Phase 3 and 4

## Development of EER-model, Relational Model and a 3-tier Application

## [Deadline: 5 November 2014, 9 PM]

## Phase 3

1. Enhance the ER diagram you have submitted during Phase 2 with Generalization and Specialization. Identify corresponding constraints. Write justification.
2. Convert the EER model developed in the preceding step into relational model. Define all integrity constraints (domain constraints for each attribute, candidate keys, primary keys, foreign keys). Write explanation for all domain constraints, candidate keys and foreign keys.

Write the assignment on A4/A3/A2/A0 sheets. Write your names and roll numbers.

Submit these documents (adding them to the same file that you submitted earlier) in **CDE Main Lab (A5 – 302)** by **5th November**.

## Phase 4

By taking the tables generated from Phase 3, carry out the following:
(1) Build a three tier application
(2) Documentation of three tier application

Details of the assignment are as follows:

- Three tier application
  A. Front tier:
    - Application specific forms to enter, delete and modify data.
    - Application specific reports (more than five).
    - GUI for administrator to update the tables, create the tables, and grant the read, write, update permission. Create different types of users with authorization hierarchy.
    - Client layer should have a proper interface with the all the relevant explanation about the project and manual (html static pages).
  B. Middle tier: Request handling scripts.
  C. Database layer: MySQL server. Base schema should contain 8 to 10 tables. You can ignore other tables. Each table should be populated with at least 15 rows.

- Documentation of three tier application

  A Document (A4-sheets) should be submitted containing the description of three tier architecture. All the three tiers should be described separately. The first tier should explain the client side pages. Each script in the middle tier with the functionality should be explained. It should also display the request coming from client tier pages to middle tier pages with the response. Finally, at the bottom tier-level, all the DDL statements and constraints should be explained.