ER Modelling Exercise - SMCSE

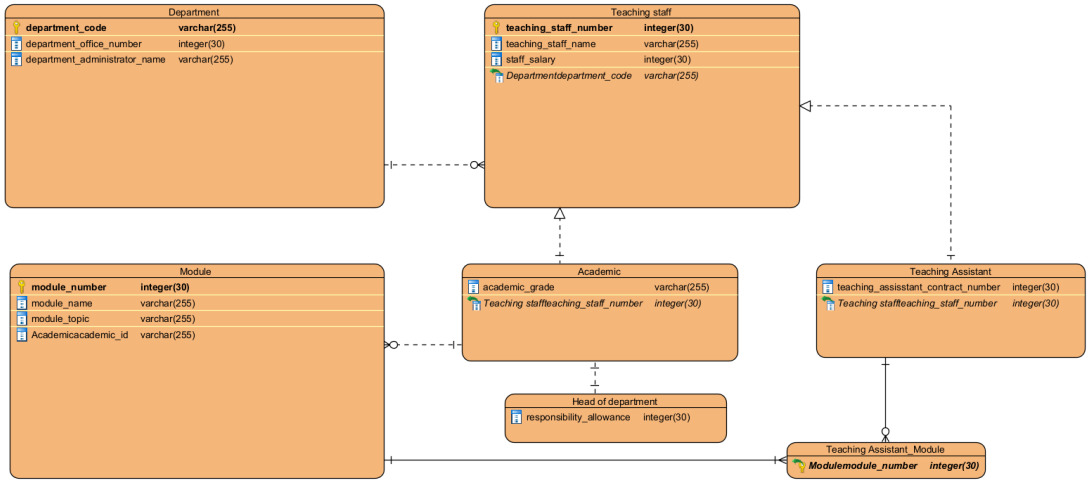
The School of Mathematics, Computer Science and Engineering is composed of several departments. Each department is identified by a code, has a departmental office (office number) and a departmental administrator (administrator name). Each department has teaching staffs that teach modules. Each teaching staff member has a staff number, a name, and a salary. Teaching staff are either Academics or Teaching Assistants. Academics have grades, while Teaching Assistants have contracts (Contract Number). Most Academics are responsible for one or more modules (module number, module name, topic), and a module is the responsibility of only one Academic. Teaching Assistants must assist with teaching one or more modules. Module can have several Teaching Assistants. In each department, one of the Academics acts as the Head of Department, and they have a special responsibility allowance.

Design an E-R diagram for the above database.

Derive a corresponding relational scheme from your E-R diagram.

Superclass: Department (Entity) – Code (Primary key), Office number, administrator name (will have foreign key for teaching staff)?
Superclass: Teaching staff member (Subclass of Department) – Staff number (Primary key), Staff name, Staff salary.
Subclass of teaching staff: Academics or Teaching Assistant (Subclass of Teaching staff and will have foreign keys for teaching staff)
Academics – Grades (Head of department, has a special responsibility and is a subclass)
Teaching Assistants – Contract number
Superclass: Module – Module number (primary key), Module name, module topic (will have foreign keys for teaching assistant and academics?)
Teaching staff (Superclass) - Teaching staff and Academics (subclasses)
Most Academics are responsible for one or more modules (One to many?)
A module is the responsibility of only one Academic. (ONE)
Teaching Assistants must assist with teaching one or more modules. (At least one, many)
Module can have several Teaching Assistants. (Many to many RS)

E-R Diagram:


Department
department_code varchar(255)
department_office_number integer(30)
department_administrator_name varchar(255)
Teaching staff
teaching_staff_number integer(30)
teaching_staff_name varchar(255)
staff_salary integer(30)
Departmentdepartment_code varchar(255)
Module
module_number integer(30)
module_name varchar(255)
module_topic varchar(255)
Academicacademic_id varchar(255)
Academic
academic_grade varchar(255)
Teaching staffteaching_staff_number integer(30)
Head of department
responsibility_allowance integer(30)
Teaching Assistant
teaching_assisstant_contract_number integer(30)
Teaching staffteaching_staff_number integer(30)
Teaching Assistant_Module
Modulemodule_number integer(30)