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.

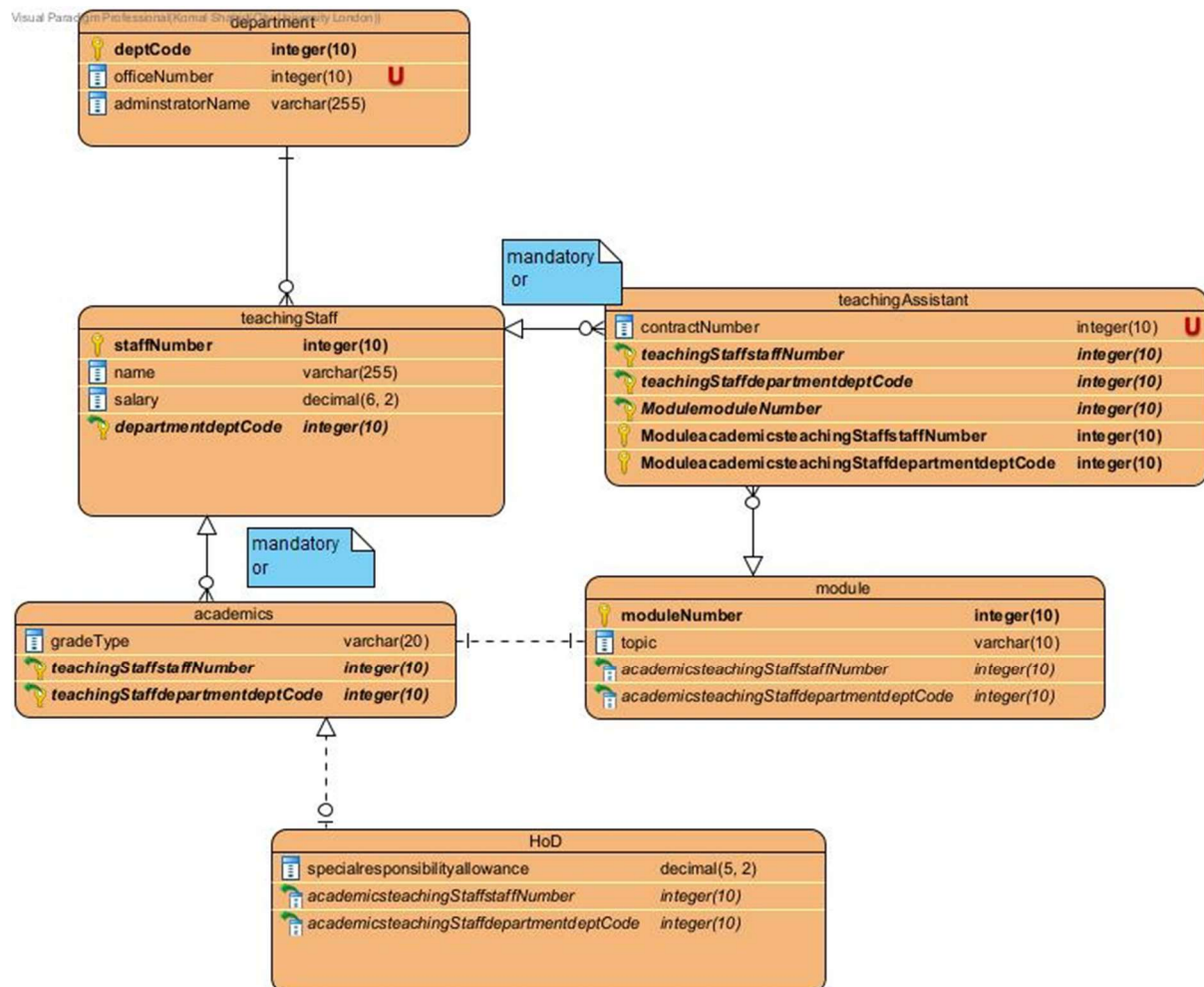Department: code (PK), officeNumber, administratorName

Teaching staff: staffNumber(PK),name,salary

Academics: gradeType, moduleNumber(FK) – additional feature would be HoD – will have special responsibility allowance

Module: moduleNumber(PK), name, topic

Teaching Assistants: contractNumber, moduleNumber(FK)

Entity	Key	Attributes
department	code(PK)	officeNumber, administratorName
module	moduleNumber(PK)	name, topic
teachingStaff	staffNumber(PK)	name, salary
academics	moduleNumber(FK)	gradeType
teachingAssistant	moduleNumber(FK)	contractNumber

Relational scheme:

Department(deptCode{pk}, officeNumber, administratorName)

teachingStaff(staffNumber{pk},name, salary, deptCode {fk deptCode department})

academics(staffNumber{pk},staffNumber{fk, staffNumber teachingStaff}, deptCode {fk deptCode department}, gradeType)

teachingAssistant(staffNumber{pk},staffNumber{fk, staffNumber teachingStaff}, deptCode {fk deptCode department}, contractNumber)

HoD(staffNumber{fk, staffNumber teachingStaff}, deptCode {fk deptCode department}, specialResponsibilityAllowance)

module(moduleNumber(PK), topic, staffNumber{fk, staffNumber teachingStaff}, deptCode {fk deptCode department})