

**UNIVERSITY OF GHANA**

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**DEPARTMENT OF COMPUTER SCIENCE**

**SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES**

**SEMESTER 2, 2024/2025**

**COURSE OUTLINE**

**Course Code and Title: DCIT 214 – Information Modeling and Specification Credits: 3**

**Lecture Period(s):**

**Wenesday : 11.30 am to 12.20 pm**

**Thursday : 7.30am to 9.20 am**

**Prerequisites**: None

**Course Instructor**

* Name: Matilda S. Acheamong Wilson (Dr.)
* Office Location: Comp Sc. Wing, 1st Floor, Room CS 11
* Office Hours: Wenesday 3:30pm – 4:20pm,
* Email: matwaa@ug.edu.gh

**Teaching Assistant:** Prince Ofori (0559991163)

**Ebenezer Acquah (0207087333)**

**Course Overview**

The course introduces the role of an analysts in understanding and documenting the information needs to be recorded in an information system or its supporting information technology (IT) system to meet the needs of the business for the storage and retrieval of information.

The main focus will be on Modeling Approache languages and its application in relational database modeling. The tools utilized are Object Role Modeling (ORM) and Entity Relationship Modeling (ERM also known as an entity relationship diagram) or a UML class model (also known as a class diagram) can help a business analyst understand the information needs of a particular business area and then help communicate that understanding, both to the business users and, finally, to the systems developers.

**Course Objective/Goals:**

At the end of this course students should understand the role of analysis and design in the software engineering lifecycle, develop software designs by applying established design principles, develop use-case and scenario descriptions of the requirements develop descriptions of design models using ERD and UML diagrams.

**Learning Outcomes**

At the end of this **Course**, Students will learn:

1. ***Why business analysts should model information***
2. ***Modelling the things of interest to an enterprise and the relationships between them***,
3. ***Modelling more complex relationships***
4. ***Drawing and validating information model diagrams***
5. ***Recording information about things***,
6. ***Understand Data Modeling Concepts***

**Course Delivery:**

**Mode of Delivery**

Lecture, discussion, practical, group work, and demonstration

**Assessment and Grading:**

Continuous Assessment 40%

Final Exam 60%

**Grading Scale:**

Refer to Undergraduate Handbook*.*

**Reading List /Required Text**

Reading List

Blaha, M., & Rumbaugh, .f . (2005). Object-Oriented Modeling and Design with UML (2d

Edition). Prentice-Hall. Pearson Education Inc.

Gamma, E.o Helmo R.o.lohnson, R., & Vlissides, J. Design Patlerns: Elemenls of Reusable Object-Oriented Software. Addison-Wesley.

Halpin, T. & Morgan, T. (Mar 2008). Information Modeling and Relational Databases (2nd Edition). Elsevier Inc,

Ramakrishnana, R., & Gehrk, J. (2002). Database Management Systems (2d Edition).

McGraw Hill.

**Other Information**

##### Laboratory time schedule would be worked out and announced.

Each student is required to own a laptop and to bring it for the Lab./Tutorial sessions.

**Course Delivery Plan/Schedule**

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| --- | --- | --- | --- |
| **Week** | **Date**  **(2022)** | **Lecture Topics / Assessment** | **LAB./Tutorial Activities** |
| **1** |  | Introduction to Information Modeling |  |
| **2** |  | Relational Model Components |  |
| **3** |  | Conceptual Data Modeling |  |
| **4** |  | Information Modeling Approaches | Object Role Modeling (ORM) Approach to Information Modeling |
| **5** |  | The Importance for a Business Analyst of Understanding Information Needs | Various Steps in Conceptual Schema Design Procedures (CSDP) in ORM |
| **6** |  | Relationships and Association of Entities, Objects, Entity Types and Object Types | Modelling Notations |
| **7** |  | Complex Relationships in Information Modeling | Entity Relationship Modeling (ERD) |
| **8** |  | The Drawing of Information Model Process and Communicating Models | Unified Modeling Language (Class Modeling) |
| **9** |  | Information Specification with Extended notations | Mapping from ORM to ER |
| **10** |  | The Naming of Artefacts on Information Models | Mapping from ORM to UML |
| **11** |  | Information Model Quality | Conceptual Modeling |
| **12** |  | Corporate Information and Data Models, |  |