POLYTECHNIC UNIVERSITY OF THE PHILIPPINES
College of Computer and Information Sciences
DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE TITLE	**Information Management**
COURSE CODE	**INTE 20093**
CREDIT UNITS	**3 units**
COURSE PREREQUISITE	**COMP 20063**
COURSE DESCRIPTION	The course introduces students the basic relational database concepts. During the course, students will learn how to design databases observing concepts and procedures in relational database design, document design using entity-relationship diagram, and use SQL to retrieve data and generate information. Students gain actual experience of database development from analysis of actual user requirements to implementation and testing of their database design.

Institutional Learning Outcomes	**Program Outcomes**		**Course Outcomes**
	BSIT	BSIT Graduate Outcomes	
Creative and Critical Thinking Graduates use their imaginative as well as a rational thinking ability to life situations in order push boundaries, realize possibilities, and deepen their interdisciplinary and general understanding of the world.	IT01	Apply knowledge of computing, science, and mathematics appropriate to the discipline.	Knowledge and understanding of thoughts and actions of Research principles with creative and critical thinking. Demonstrate effective communication in associating principles and theories in Research Analyze the various concepts and techniques needed in creating and sustaining effective Research writing techniques with service orientation. Analyze the various techniques and tools in -problem solving to improve adeptness in the responsible use of technology in Research. Draw a passion to life-long learning plan for the organization of research proposal using a developed software to solve its computing problem. Establish the nature and importance of creating and sustaining research writing skills for leadership and organization effectiveness. Encourage people involved in the teaching learning process to actively implement personal and professional ethics.
	IT03	Analyze complex problems, and identify and define the computing requirements appropriate to its solution.	
	IT04	Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems.	
	IT05	Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints.	
	IT06	Integrate IT-based solutions into the user environment effectively.	
	IT09	Assist in the creation of an effective IT project plan.	
Adeptness in the Responsible Use of Technology Graduates demonstrate optimized use of digital learning abilities, including technical and numerical skills. **Community Engagement** Graduates take an active role in the promotion and fulfillment of various advocacies (educational, social and environmental) for the advancement of community welfare.	IT07	Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession	
	IT02	Understand best practices and standards and their applications.	
High Level of Leadership and Organizational Skills.	IT08	Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal.	

Graduates are developed to become the best professionals in their respective disciplines by manifesting the appropriate skills and leaderships qualities. **Strong Service Orientation** Graduates exemplify the potentialities of an efficient, well-rounded and responsible professional deeply committed to service excellence**.**			Apply real life research writing cited situations using nationalism and globally accepted standards.
Effective Communication Graduates are proficient in the four macro skills in communication (reading, writing, listening, and speaking) and are able to use these skills in solving problems. Making decisions, and articulating thoughts when engaging with people in various circumstances.	IT10	Communicate effectively with the computing community and with society at large about complex computing activities through logical writing, presentations, and clear instructions.	
Sense of Nationalism and Global Responsiveness. Graduates' deep sense of national compliments the need to live in a global village where one's culture and other people culture are respected.	IT11	Analyze the local and global impact of computing information technology on individuals, organizations, and society.	
Sense of Personal and Professional Ethics Graduates show desirable attitudes and behavior either in their personal and professional circumstances.	IT12	Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.	
Passion to Life-Long Learning Graduates are enabled to perform and function in the society by taking responsibility in their quest to know more about the world through lifelong learning.	IT13	Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development.	

Course Plan

Week	Topic	Learning Outcomes	Methodology	Resources	Assessment
Week 1	**1. Introduction to the Course** a. Vision Mission Goals and Objectives of the University, and College. b. Self-Introduction c. Course Overview d. Grading System e. Classroom Management	a. Demonstrate a sense of readiness for the upcoming semester. b. Identify their learning outcomes and expectations for the course. *c.* Recognize their capacity to create new understandings from reflecting on the course	Orientation Self-Introduction Group Discussions	University Student Handbook College Manual Course Syllabus	
Week 1-2 February 27, 2025	**2. Database Concepts**	Discuss the fundamentals of relational database and database design.	Class Discussion Reading Assignment	Slide Presentation	Quiz

	a. Fundamentals of Data, Information, Database, Data Warehouse and Data Processing Activities b. Electronic Database (Range of Database Application, Components of Database Environment) c. Database Approach (Advantages of DB Approach, DB Development Process, DB Models/Architecture) **Assignment : Project proposal with existing company**				
Week 2-4 **March 6,13 2025**	**Assignment : Project proposal with existing company** **3. Requirement Analysis** (Forms, Reports, Business Functions, Business Rules) **4. Relational Database Modeling** (Properties of Relations, Integrity Constraints, Normalization)	a. Analyze forms, reports, and business rules and transform them into relations observing the properties of relational database. b. Design a relational database applying principles of relational database design and using standard notations and tools. c. Use normalization to decompose relations with anomalies into well-structured relations. d. Design relations in at least 3rd Normal Form. e. Implement Integrity Constraints	Class Discussion Demonstration & Simulation Group Discussions	Slide Presentation Sample Forms and Reports	Seatwork
Week 5-6 **March 20,27, 2025**	**5. Conceptual Data Modeling** (Entity-Relationship Model)	a. Design a relational database applying principles of relational database design and using standard notations and tools. b. Use Entity relationship diagram as data model. c. Evaluate database design of a group and formulate recommendations based on principles in database design. Document both assessments and recommendation.	Class Discussion Seatwork Problem Solving Data Modelling	CASE tool Slide Presentation	Case Study Project: Conceptual Data Model
Week 7-8 **April 3,10**	**6. Logical Database Design** (Transforming ERD into Relations)	a. Utilize CASE tools to evaluate and implement database design.	Laboratory Class Discussion Seatwork Problem Solving	CASE tool Slide Presentation	Project: Logical Schema and Data Dictionary Quiz

		b. Transform ERD to a logically equivalent set of relations in at least 3rd Normal Form.	Data Modelling		
Week 9 **April 17**	**MIDTERM EXAMINATION** **Written exam** **Project**				Written Examination
Week 10-11	**7. Enhanced Entity-Relationship Diagram** **8. Creation of Database Using Data Definition Language**	a. Analyze and identify if the problem requires an Enhanced Entity-Relationship Diagram. b. Apply generalization/specialization processes for the problem. c. Implement constraints in the EERD. d. Implement database design to actual database. e. Establish referential integrity using SQL.	Class Discussion Seatwork Laboratory Problem Solving Data Modelling	Slide Presentation	Hands-on exercises
Week 12-13	**9. Data manipulation language** (Basic SQL statements for data retrieval and simple manipulation)	Write DML SQL statements to generate information required by the database users using: 1. Simple SELECT Statement 2. SELECT Statement with WHERE clause (using Relational, Logical and Special database operators) 3. SELECT Statements using SCALAR Functions	Laboratory Class Discussion Demonstration Group Seatwork	Computer DBMS-SQL	Hands-on exercises Quiz
Week 14-15	**10. Aggregate Functions**	Write DML SQL statements to generate information required by the database users using: 1. SELECT Statement with Aggregate functions. 2. SELECT Statement with GROUP BY and HAVING Clause	Laboratory Class Discussion Demonstration Group Seatwork	Computer DBMS-SQL	Hands-on exercises Quiz
Week 16	**11. Complex Retrieval of Data** (Use of multiple relations and subqueries)	Write DML SQL statements to generate information required by the database users using multiple tables.	Laboratory Class Discussion Demonstration Group Seatwork	Computer DBMS-SQL	Hands-on exercises
Week 17	**PRESENTATION OF LEARNING OUTPUT**				Project Documentation Database Implementation

					Project Presentation
Week 17	**FINAL EXAMINATION**				Hands-on Examination Written Examination
Week 18	**Round Up Activities**				

Suggested Readings and References

REQUIRED READING:
1. Database Systems, Thomas Connolly and Carolyn Begg, 3rd edition, 2007

REFERENCES
1. Modern Database Management by J.A. Hoffer, Ramesh Toppi , 11th edition, Benjamin-Cummins (Narosa), 2014.
2. Concepts of Database Management, Philip Pratt, 2012.
3. Fundamentals of Database Systems, Ramez Elmasri and Shamkant B. Navathe, 2007.
4. DB2 SQL Workshop Guide, 2002 and other DBMS Guides
5. An Introduction to Database System by CJ Date, 8th edition, 2004
6. Database System Concepts by Silberchatz, 2002.

Note: Extended Readings may be assigned by the professor.

Course Grading System

COURSE ASSESSMENT& EVALUATION CRITERIA (GRADING & REQUIREMENTS)

- ASSIGNMENTS / QUIZZES / HANDS-ON ACTIVITIES

MAJOR REQUIREMENTS

- MIDTERM AND/OR FINAL EXAM
- DATABASE PROJECT FOR SMALL/MEDIUM BUSINESS

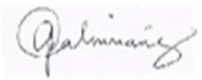
FIRST GRADING = Class Standing (70%): Quizzes, Long Test, Recitation, Research Work, Assignment, Exercises, Projects, Recitation; Midterm Examination (30%)
SECOND GRADING = Class Standing (70%): Quizzes, Long Test, Recitation, Research Work, Assignment, Exercises, Projects, Recitation; Final Examination (30%)
FINAL GRADE = (FIRST GRADING + SECOND GRADING) / 2

Classroom Policy

Aside from what is prescribed in the student handbook, the following are the professor's additional house rules:
1. The course is expected to have a minimum of four (4) quizzes. No makeup tests will be given.
2. Assignments and research projects/report works will be given throughout the semester. Such requirements shall be due as announced in class. Late submission shall be penalized with grade deductions (5% per day) or shall no longer be accepted, depending on the subject facilitator's discretion. Assignments and exercises are designed to assist you in understanding the materials presented in class, and to prepare you for the exams.
3. Students are required to attend classes regularly, including possible make-up classes. The student will be held liable for all topics covered and assignments made during his/her absence. The university guidelines on attendance and tardiness will be implemented.
4. Any evidence of copying or cheating during any examinations may result in a failing grade from the examination for all parties involved. Note that other university guidelines shall be used in dealing with this matter.

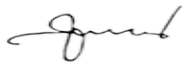
5. Students are advised to keep graded work until the semester has ended. 6. Contents of the syllabus are subject to modification with notification. 7. Cell phones, radios or other listening devices are not allowed to be used inside lecture and laboratory rooms to prevent any distractive interruption of the class activity. 8. No foods, drinks, cigarettes nor children are allowed inside the lecture and laboratory rooms. 9. Withdrawal and dropping from the subject should be done in accordance with existing university policies and guidelines regarding the matter.
Consultation Time
Schedule of meeting with the teacher to discuss a particular problem with a student in order to provide advice.

Enhanced by:



Gecilie C. Almirañez
Faculty

Approved by:



Dr. Marissa B. Ferrer
Branch Director

Reviewed by:

Dr. Cecilia R. Alagon
Head of Academic Programs

Revised March 2020