COURSE PLAN

NAME OF THE DEPARTMENT: Computer Application

NAME OF THE FACULTY: **Prof. Goutam Sanyal and Prof. Abhishek Kumar Vishwakarma**

ACADEMIC SESSION: **2023-24**

YEAR: **2024**

PROGRAMME: **BCA/IT**

SEMESTER: **IV**

COURSE TYPE: Core

COURSE: Database Management System

COURSE CODE: C10

TOTAL CREDIT: 6

PROGRAMME OUTCOMES (POs):

PO1: Scientific & Computational Knowledge: - Apply the information on scientific & computational ideas, software engineering and innovation basics.

PO2: Problem Analysis, Design & Implementation: - Identify, formulate and analyze real world problem. Design solution for Software, Hardware & Networking problems and implementation using Software & Network tools.

PO3: Modern tool usage: - Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.

PO4: Project Management: - Show information and comprehension of the Software Engineering and Technology standards and apply these to one's own work, as a part and pioneer in a group, to oversee projects and in multidisciplinary conditions.

PO5: Carrier Development and Entrepreneurship: Classify opportunities, private enterprise dream and use of original thoughts to build worth and means for the betterment of the human being and the world.

PO6: Communication Skill: Communicate effectively on computational & information Technology activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO7: Professional Ethics: Ability to apply and commit professional Ethics, cyber regulations & control on software piracy in a global economic environment.

PO8: Preparation of student for future aspects

PO9: Life Long Learning

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: Explore technical comprehension in varied areas of Computer Applications and experience a conducive environment in cultivating skills for thriving career and higher studies.

PSO2: Application of modern technology Critical understand the concept of Programing logic, Web designing logic, Signal processing, Image processing, Mobile Applications, Multimedia Media.

PSO3: Preparing students in various disciplines of technologies such as Server side Web applications, computer networking, software engineering, database concepts and programming.

Course Outcome

CO1	Gain knowledge of fundamentals of DBMS, database design and normal forms
CO2	Understanding and Applying Database Modelling
CO3	Master the basics of SQL for retrieval and management of data
CO4	Be acquainted with the basics of transaction processing and concurrency control
CO5	Understanding file organization

Course Completion Plan

UNIT	NO. OF LECTURES		TEST	QUIZ	ASSIGNMENT
	THEORY	PRACTICAL/TUTORIAL			
1	6	4			
2	8	4			
3	20	8			
4	15	5			
5	3	3			6
6	8	4			

UNIT	TOPIC/SUBTOPIC	LECTURE REQUIRED	CO ADDRESSED	ASSIGNMENT /TEST/ QUIZ
1	Characteristics of database approach, data models, database system architecture and data independence.	10	1	1
2	Entity types, relationships, constraints.	12	1,2	1
3	Relational model concepts, relational constraints, relational algebra, SQL queries	28	1,2,3	4
4	Mapping ER/EER model to relational database, functional dependencies, Lossless decomposition, Normal forms (upto BCNF).	20	1,2	2
5	ACID properties, concurrency control	6	4	1

6	Operations on files, File of Unordered and ordered records, overview of File organizations, Indexing structures for files(Primary index, secondary index, clustering index), Multilevel indexing using B and B+ trees.	12	5	2

COURSE OUTCOME	ASSESSMENT			REMARKS
	QUIZ	TEST	MID SEMESTER	
CO1	Database Structure and Data Independence	1		
CO2	ER Modelling and Constraints	1		
CO3	SQL Queries	1		
CO4	Normalization	1		
CO5	Database Creation	2		

Text Books: A. Silberschatz, H.F. Korth, S. Sudarshan, Database System Concepts 6th Edition, McGraw Hill, 2010.

Reference Book :R. Elmasri, S.B. Navathe, Fundamentals of Database Systems 6th Edition, Pearson Education, 2010

Video Resource:

www.youtube.com/watch?v=IoL9Ve2SRwQ&list=PLIwC9bZ0rmjSkm1VRJROX4vP2YMlf4Ebh

(NPTEL IIT KGP)