LECTURE PLAN

Institute/Department	UNIVERSITY INSTITUTE OF ENGINEERING (UIE)	**Program**	**Bachelor of Engineering (Computer Science and Engineering) (Hons.) (with specialization in Artificial Intelligence and Machine Learning) (In association with IBM) (Lateral Entry)(CS220)**
Master Subject Coordinator Name:	Amanpreet Kaur	**Master Subject Coordinator E-Code**:	**E13851**
Course Name	Advanced Database Management	**Course Code**	**21CSH-434**

Lecture	Tutorial	Practical	Self Study	Credit	Subject Type
3	0	2	0	4.0	T

Course Type	Course Category	Mode of Assessment	Mode of Delivery
N.A	Graded (GR)	Hybrid	Hybrid (HYB)

Mission of the Department	M1: To provide relevant, rigorous and contemporary curriculum and aligned assessment system to ensure effective learning outcomes for engineering technologies. M2: To provide platform for industry engagement aimed at providing hands-on training on advanced technological and business skills to our students. M3: To provide opportunities for collaborative, interdisciplinary and cutting-edge research aimed at developing solutions to real life problems M4: To imbibe quest for innovation, continuous learning and zeal to pursue excellence through hard work and problem-solving approach M5: To foster skills of leadership, management, communication, team spirit and strong professional ethics in all academic and societal endeavours of our students
Vision of the Department	To be recognized as a centre of excellence for Computer Science & Engineering education and research, through effective teaching practices, hands-on training on cutting edge computing technologies and excellence in innovation, for creating globally aware competent professionals with strong work ethics whom would be proficient in implementing modern technology solutions and shall have entrepreneurial zeal to solve problems of organizations and society at large.

Program Educational Objectives(PEOs)	
PEO1	To be able to explore areas of research, technology application & innovation and make a positive impact in different types of institutional settings such as corporate entities, government bodies, NGOs, inter-government organizations, & start-ups.
PEO2	To be able to design, and implement technology and computing solutions to organizational problems, effectively deploy knowledge of engineering principles, demonstrate critical thinking skills & make the intellectual connections between quantitative and qualitative tools, theories, and context to solve the organizational problems
PEO3	To be able to work with, lead & engage big and small teams comprising diverse people in terms of gender, nationality, region, language, culture & beliefs. To understand stated and unstated differences of views, beliefs & customs in diverse & interdisciplinary team settings
PEO4	To be able to continuously learn and update one's knowledge, engage in lifelong learning habits and acquire latest knowledge to perform in current work settings
PEO5	To continuously strive for justice, ethics, equality, honesty, and integrity both in personal and professional pursuits. Able to understand and conduct in a way that is responsible and respectful.

Program Specific OutComes(PSOs)	
PSO1	1. The graduate student shall be able to analyse and make valuable contributions in the design, development, and production of computer science and related engineering applications in the areas of Artificial intelligence and Machine learning.
PSO2	2. The graduate student shall be able to use the latest software tools and technologies related to Artificial intelligence and Machine learning and ability to practice as an engineer/researcher in the evolving field of AI and ML and its allied application domains by employing project
PSO3	3. The graduate student shall be able to analyse and exhibit proficiency in Artificial Intelligence and Data Analytics for providing solutions to real-world problems in Industry and Research establishments.

Program OutComes(POs)	
PO1	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
PO3	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal, and environmental considerations.
PO4	Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
PO5	Create, select, and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
PO6	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO7	Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	Communicate effectively on complex engineering 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.
PO11	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context to technological change.

Text Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	Database Management System (DBMS)A Practical Approach	Rajiv Chopra	5	S.Chand	2010
2	SQL/PL	Bayross	1	Ivan BPB	2009

Reference Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	Database System Concepts	Korth, Henry	1	MGH	2009
2	Fundamentals of Database System	Ramez Elmasri	6	Pearson	2010

Course OutCome	
SrNo	OutCome
CO1	Describe and execute advanced level SQL queries.
CO2	Create views of data and Implement transaction control using locks.
CO3	Apply the concept of PL/SQL programming to implement all features of package including procedure, function and cursor.
CO4	Analyze and make use of advanced normalization technique.
CO5	Create triggers for various applications and also apply the concurrency control methods.

Lecture Plan Preview-Theory

Unit No	LectureNo	ChapterName	Topic	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer (s)
1	1	Transaction Control	Transaction Control and Commit	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1
1	2	Transaction Control	Roll Back, Savepoint	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1
1	3	Transaction Control	DCL Commands (GRANT)	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1
1	4	Transaction Control	DCL Commands (Revoke)	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1
1	5	Locks	Introduction to Locks	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	6	Locks	Types of Locks: Row Level Locks	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	7	Locks	Table Level Locks	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	8	Locks	Shared Lock and Exclusive Lock	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	9	Locks	Deadlocks	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	10	Synonym & Views	Introduction to Synonyms	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	11	Synonym & Views	Create Synonyms	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	12	Synonym & Views	Sequences: Create and Alter Sequences	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	13	Synonym & Views	Index: Unique and Composite	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	14	Synonym & Views	Create/Replace Views	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	15	Synonym & Views	Update and Alter Views	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2

2	16	PL/SQL	Basics of PL/SQL	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	17	PL/SQL	Advanced Data Types	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	18	PL/SQL	Advantages of PL/SQL	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	19	Control Structures	Introduction to Control Structures	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	20	Control Structures	Conditional Control Structures	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	21	Control Structures	Iterative Control Structures	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	22	Control Structures	Sequential Structures	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	23	Control Structures	Exceptions: Pre-defined Exceptions	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	24	Control Structures	Exceptions: User-defined Exceptions	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	25	Cursors & Packages	Introduction to Cursors and Packages	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	26	Cursors & Packages	Cursor: Static (Implicit and Explicit)	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	27	Cursors & Packages	Dynamic Procedures and Functions	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	28	Cursors & Packages	Package Specification	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	29	Cursors & Packages	Package Body	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	30	Cursors & Packages	Advantages of Packages	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
3	31	Normalization	Fourth Normal Form with Examples	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4

3	32	Normalization	Fifth Normal Form with example	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4
3	33	Normalization	Redundant Functional Dependencies	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4
3	34	Normalization	Closure of a set of Functional Dependencies	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4
3	35	Normalization	Example of Closure of a set of Functional Dependencies	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4
3	36	Advanced Concurrency Control Techniques	Concurrency Control	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	37	Advanced Concurrency Control Techniques	Methods for Concurrency Control	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	38	Advanced Concurrency Control Techniques	Timestamp Methods	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	39	Advanced Concurrency Control Techniques	Optimistic Methods	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	40	Advanced Concurrency Control Techniques	Other Concurrency Control Methods	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	41	Triggers	Triggers in DBMS	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	42	Triggers	Operation using Triggers	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	43	Triggers	Type of Triggers	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	44	Triggers	Triggers- Before, After for Each Row	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	45	Triggers	Triggers- For Each Statement	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5

Lecture Plan Preview-Practical

Unit No	ExperimentNo	Experiment Name	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer(s)
1	1	To study and understand TCL command	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1

1	2	To implement DCL commands in SQL.	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO1
1	3	To analyze and create locks and different types of	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
1	4	To create and perform queries on sequences, synony	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO2
2	5	To Implement PL/SQL programming using Control St	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	6	To Implement Pl/SQL programming using Cursors.	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3
2	7	To Implement Pl/SQL programming using exception	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO3,CO4
3	8	Perform various operations on Packages and Trigger	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO4
3	9	Prepare a Case Study explaining the need for conve	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5
3	10	Prepare a Case Study on Functional dependency with	,T-Database Management System (DB,T-SQL/PL,R-Database System Concepts,R-Fundamentals of Database Syste	PPT	CO5

Assessment Model			
Sr No	Assessment Name	Exam Name	Max Marks
1	Hybrid Course All	Practical Evaluations	40
2	Hybrid Course All	End Term Hybrid Theory	60
3	Hybrid Course All	Attendance Marks	2
4	Hybrid Course All	Surprise Test	12
5	Hybrid Course All	Practical MST	10
6	Hybrid Course All	Practical Worksheet/Projects 1	30
7	Hybrid Course All	Practical Worksheet/Projects 2	30
8	Hybrid Course All	Practical Worksheet/Projects 3	30
9	Hybrid Course All	Practical Worksheet/Projects 4	30
10	Hybrid Course All	Practical Worksheet/Projects 5	30
11	Hybrid Course All	Practical Worksheet/Projects 6	30
12	Hybrid Course All	Practical Worksheet/Projects 7	30
13	Hybrid Course All	Practical Worksheet/Projects 8	30

14	Hybrid Course All	Practical Worksheet/Projects 9	30
15	Hybrid Course All	Practical Worksheet/Projects 10	30
16	Hybrid Course All	Quiz	4
17	Hybrid Course All	Assignment/PBL	10
18	Hybrid Course All	MST-1 Hybrid	20
19	Hybrid Course All	MST-2 Hybrid	20