Green University of Bangladesh

Department of Computer Science and Engineering

Course Outline

1 General Information

Fall 2024 CSE 210

Faculty	Faculty of Science and Engineering (FSE)
Department	Department of Computer Science and Engineering (CSE)
Programme	Bachelor of Science in Computer Science and Engineering
Semester	**Fall 2024**
Course Title	*Database System Lab*
Course Code	CSE 210
Course Credit	1.5 units
Contact Hours	2.5/week
Course Status	Core Course
Prerequisite Course	None

2 Course Instructors

Section	Name	Office	Email
222_D1	Farhana Akter Sunny	A-403	farhana@cse.green.edu.bd
222_D2	Farhana Akter Sunny	A-403	farhana@cse.green.edu.bd
222_D3	Farhana Akter Sunny	A-403	farhana@cse.green.edu.bd
222 D4	Fatema Tuj Johora	A-510	fatema@cse.green.edu.bd
222 D5	Babe Sultana	A-510	babe@cse.green.edu.bd
222 D6	Umme Habiba	A-510	umme@cse.green.edu.bd
231 D1	Fatema Tuj Johora	A-510	fatema@cse.green.edu.bd
231 D2	Umme Habiba	A-510	umme@cse.green.edu.bd
231 D3	Babe Sultana	A-510	babe@cse.green.edu.bd
222+231E1	Farhana Akter Sunny	A-403	farhana@cse.green.edu.bd

3 Laboratory and Counseling Hours

Section	Room	Laboratory Weekday	Time	Counseling Weekday	Time
222_D1	A-503	Monday	11:00:AM - 01:00:PM	Tuesday	02:00 PM-03:30 PM
222_D2	A-502	Monday	02:00:PM - 04:30:PM	Thursday	02:00 PM-03:30 PM
222_D3	A-501	Wednesday	11:00:AM - 01:00:PM	Thursday	02:00 PM-03:30 PM
222 D4	J-108	Friday	10.30 AM-1.00PM	Tuesday	11.00 AM
222 D5	A-502	Friday	02:15:PM - 04:45:PM	Tuesday	12.15 PM-1.30 PM
222 D6	A-503	Friday	02:15:PM - 04:45:PM	Wednesday	11:00 -12:15 PM
231 D1	A-502	Monday	11.00 AM	Tuesday	11.00 AM
231 D2	A-501	Monday	02:00:PM - 04:30:PM	Wednesday	11:00 -12:15 PM
231 D3	A-503	Monday	08.30 AM- 11.00 AM	Monday	12.15 PM-1.30 PM
222+231E1	A-502	Friday	10:20:AM - 01:00:PM	Tuesday	02:00 PM-03:30 PM

4 Course Rationale

MySQL is a free, open-source database management system (DBMS for short). A DBMS is a system that manages databases and connects them to software. For example, a MySQL database can be used to run a website, to run the database of an ERP or any other software. MySQL is a powerful, free open-source database management system that has been around for years. It is very stable and has a big community that helps maintain, debug and upgrade it. MySQL might not be as popular for larger systems that will mostly run on Microsoft SQL Server or Oracle. These proprietary DBMS are more scalable, have more resources available on the market and have more advanced features that MySQL.

5 Course Description

Course Description Concepts of database systems, Integrity constraint, DDL, DML, DTL, Introduction to SQL, Syntax, Aggregation function, relational operators, logical operators, string operations, Join functions; Query Processing, Hashing and Indexing, Query Optimization; Database Triggers- Row level triggers based on update, insert, delete; basic of data mining and data warehousing, PL/SQL, functions, sequences, procedures.

6 Teaching Methods

Lecture, Laboratory experiments, Project developments.

7 Course Outcomes

CO	CO Description	PO	Domain (LoBT)	Weight	WK	WP	EA	Assessment Methods
CO1	Analyze various techniques of the database management system to evaluate data storage and querying issues for database-oriented applications.	PO2	Cognitive (C4)	75%	WK3			Please refer to Section 8.
CO2	Adapt appropriate tools and techniques for building a relational data model and implementing complex queries.	PO5	Psychomotor (P6)	15%	WK6			
CO3	Explore real-world database problems that meets organizational needs proposing database interfaces.	PO12	Affective (A5)	10%				

Legend:

CO: *Course Outcome*
WK: *Knowledge Profile* (Appendix: B)
EA: *Complex Engineering Activities* (Appendix: D)
PO: *Program Outcome* (Appendix: A)
WP: *Complex Problem Solving* (Appendix: C)
LoBT: *Level of Bloom's Taxonomy* (Appendix: E)

8 Assessment Methods of COs

Assessment Method	CO1	CO2	CO3	Total
Continuous Lab Performance	15%	10%		25%

Lab Report	15%			15%
Capstone Project Presentation & Viva	15%	5%	10%	30%
Lab Final	30%			30%
Total	75%	15%	10%	100%

9 Lab Activity Outline

Class	Experiment Title	COs	Reference	Activities
1	Introduction to MySQL and Managing tables in MySQL	1	Lab Manual No. 1	Lab Experiment
2	Implementation of Integrity Constraints in MySQL	2	Lab Manual No. 2	Lab Experiment
3-4	Modifying MySQL databases and Updating Data in MySQL Table	2	Lab Manual No. 3	Lab Experiment
5-6	Querying and Filtering data in MySQL Table	2	Lab Manual No. 4	Lab Experiment
5	Implementation of MySQL Aggregate Function	2-3	Lab Manual No. 5	Lab Experiment
7	Implementation of Relational Databases (Join Function)	2-3	Lab Manual No. 6	Lab Experiment
8	**Midterm Examination**	1, 2, 3		Lab test, Viva
9-10	Implementation of subquery in MySQL	2-3	Lab Manual No. 7	Lab Experiment
11	Introduction to PL/SQL in MySQL	2-3	Lab Manual No. 8	Lab Experiment
12	Implementation of Databases Triggers	2-3	Lab Manual No. 9	Lab Experiment
13	Implementation of Databases Transactions and Multi-user Usage	2-3	Lab Manual No. 10,11	Lab Experiment
14	Project presentation	1, 2, 3		Presentation
15	Final Examination	1, 2, 3		Lab test, Viva

10 Text and Reference Materials

T Textbook:

- *Rick van der Lans*, **SQL for MySQL Developers: A Comprehensive Tutorial and Reference**, 4th Edition, Pearson Education, 2007.

R References:

- *Kevin Loney*, **Oracle Database 10g The Complete Reference**, First Edition McGraw Hill, 2004.
- *Abraham Silberschatz, Henry Korth, S. Sudarshan*, **Database System Concepts**, 7th Edition, McGraw Hill, 2019.

11 Grading Policy

Marks Obtained	Letter Grade	Numerical Evaluation	Definition
80% and above	A+	4.00	Excellent
75% <80%	A	3.75	Excellent

70% <75%	A-	3.50	Very Good
65% <70%	B+	3.25	Good
60% <65%	B	3.00	Good
55% <60%	B-	2.75	Good
50% <55%	C+	2.50	Average
45% <50%	C	2.25	Average
40% <45%	D	2.00	Below Average
below 40%	F	0.00	Failing

12 Additional Course Policies

1. **Equipment and Aids**: Bring your own materials such as a calculator, notebook, and pen to participate effectively in classroom activities. You are NOT allowed to borrow from others inside the classroom which may potentially create distractions for your classmates.
2. **Assignments**: There will be a number of assignments for formative assessment purposes. The average of the assignment marks will be used for computing the final grade. Late submission of homework will carry a zero mark.
3. **Class Tests**: There will be at least three Class Tests taken during the semester and the best two will be counted for final grading. A class test can be taken with/without prior announcement.
4. **Examinations**: The midterm and final examinations will be a closed book, closed notes. Mobile phones are strictly prohibited in the exam hall. Please bring your own watch (non-smart) and synchronize at the beginning of the examination.
5. **Test Policy**: In case of missing a test without prior notice to the respected faculty member, a zero mark will be given. No makeup tests will be taken as the best two test scores will be considered for grading out of three tests.
6. **Mobile Devices Policy**: Empirical evidence of using multitasking devices such as laptops and smartphones in the classroom hinders the learning experience. Thus, the use of multitasking devices is strictly discouraged. Switch off your laptop/mobile devices during class activities.

13 Additional Information

Please click or scan:

Academic Calendar Fall, 2024:

Academic Information and Policies:

Proctorial Rules:

Grading and Performance Evaluation:

Babe Sultana
Course Coordinator, CSE 210
August 28, 2024

Dr. Muhammad Aminur Rahaman
Chairman, Department of CSE
August 28, 2024

Appendix A : Program Outcomes

POs	Category	Program Outcomes
PO1	Engineering Knowledge	Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
PO2	Problem Analysis	Identify, formulate, research the literature and analyze complex engineering problems and reach substantiated conclusions using first principles of mathematics, the natural sciences and the engineering sciences.
PO3	Design/Development of Solutions	Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety as well as cultural, societal and environmental concerns.
PO4	Investigations	Conduct investigations of complex problems, considering design of experiments, analysis and interpretation of data and synthesis of information to provide valid conclusions.
PO5	Modern tool usage	Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
PO6	The engineer and society	Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
PO7	Environment and sustainability	Understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of, and need for sustainable development.
PO8	Ethics	Apply ethical principles and commit to professional ethics, responsibilities and the norms of the engineering practice.
PO9	Individual work and teamwork	Function effectively as an individual and as a member or leader of diverse teams as well as in multidisciplinary settings.
PO10	Communication	Communicate effectively about complex engineering activities with the engineering community and with society at large. Be able to comprehend and write effective reports, design documentation, make effective presentations and give and receive clear instructions.
PO11	Project management and finance	Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member or a leader of a team to manage projects in multidisciplinary environments.
PO12	Life Long Learning	Recognize the need for and have the preparation and ability to engage in independent, life-long learning in the broadest context of technological change.

Appendix B : Knowledge Profile

Knowledge Profile	Attribute
WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline
WK2	Conceptually based mathematics, numerical analysis, statistics and the formal aspects of computer and information science to support analysis and modeling applicable to the discipline
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline
WK5	Knowledge that supports engineering design in a practice area
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline
WK7	Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the engineer's professional responsibility to public safety; the impacts of engineering activity; economic, social, cultural, environmental and sustainability

WK8	Engagement with selected knowledge in the research literature of the discipline

Appendix C : Range of Complex Engineering Problem Solving

Attribute	Identity	Complex Engineering Problem Description
Depth of knowledge required	WP1	Cannot be resolved without in-depth engineering knowledge at the level of one or more of K3, K4, K5, K6 or K8 which allows a fundamentals-based, first principles analytical approach
Range of conflicting requirements	WP2	Involve wide-ranging or conflicting technical, engineering and other issues
Depth of analysis required	WP3	Have no obvious solution and require abstract thinking, originality in analysis to formulate suitable models
Familiarity of issues	WP4	Involve infrequently encountered issues
Extent of applicable codes	WP5	Are outside problems encompassed by standards and codes of practice for professional engineering
Extent of stakeholder involvement and conflicting requirements	WP6	Involve diverse groups of stakeholders with widely varying needs
Interdependence	WP7	Are high-level problems including many component parts or sub-problems

Note: Complex Engineering Problems have identity P1 and some or all of P2 to P7.

Appendix D : Range of Complex Engineering Activities

Attribute	Identity	Activity Description
Range of resources	EA1	Involve the use of diverse resources (and for this purpose resources include people, money, equipment, materials, information and technologies)
Level of interaction	EA2	Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues
Innovation	EA3	Involve creative use of engineering principles and researchbased knowledge in novel ways
Consequences for society and the environment	EA4	Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation
Familiarity	EA5	Can extend beyond previous experiences by applying principles-based approaches

Note: Complex activities means (engineering) activities or projects that have some or all of the above activities.

Appendix E : Domain and Level of Bloom's Taxonomy

Cognitive Domain		Psychomotor Domain		Affective Domain	
C1	Remembering	P1	Perception	A1	Receive
C2	Understanding	P2	Set	A2	Respond
C3	Applying	P3	Guided Response	A3	Value
C4	Analyzing	P4	Mechanism	A4	Organize
C5	Evaluating	P5	Complex Overt Response	A5	Internalize
C6	Creating/ Designing	P6	Adaption		
		P7	Origination		