NATIONAL INSTITUTE OF TECHNOLOGY CALICUT
Department of Computer Science and Engineering
Tentative Course Plan - Monsoon 2020
CS3002D DATABASE MANAGEMENT SYSTEMS

About the Lecture

Lecture Hours (B slot): MON (11.15-12.15), TUE (8-9), THU (9-10)
Quiz / Course Project discussions/ Presentations: B+ Slot : FRI (2-3)
Lecture Hall: ELHC 403/NLHC 101
(Note: Classes will be conducted in the online mode until further notice)

Instructors

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Course Outcomes

CO1: Model, design and normalize databases for real life applications.
CO2: Code and deploy databases for applications using RDBMS
CO3: Query Database applications using Query Languages
CO4: Undertake and successfully complete Database Development projects within the allotted time.
CO5: Deploy efficient IT solutions using free and open software and help the society

Course Outline

Database System Concepts and architecture, Data Modeling using Entity Relationship (ER) model and Enhanced ER model, Specialization, Generalization

The Relational Model, Relational Database design using ER to relational mapping, Relational algebra and relational calculus, Tuple Relational Calculus, Domain Relational Calculus, SQL.

Database design theory and methodology, Functional Dependencies and Normalization of relations, Normal Forms, Properties of relational decomposition, Algorithms for relational database schema design.

Data Storage and indexing, Single level and multi level indexing, Dynamic Multi level indexing using B Trees and B+ Trees.

Transaction processing concepts, Schedules and serializability, Concurrency control, Two Phase Locking Techniques, Optimistic Concurrency Control, Database recovery concepts and techniques, Introduction to database security.

References

1. R. Elmasri and S. B. Navathe, Fundamentals of Database Systems, 7/e, Pearson Education, 2016.
2. R. Ramakrishnan and J. Gehrke, Database Management Systems,3/e, McGraw Hill, 2003.
3. P. Rob and C. Coronel, Database Systems-Design, Implementation and Management, 7/e, Cengage Learning, 2007.

Evaluation Plan (Tentative)

Mid-Term Test : 30 Marks
Assignments/Quizzes/Course Project : 30 Marks
End Exam: 40 Marks

Grading Policy

- Grading will be relative. 'S' grade reserved for truly outstanding performance.
- Even though the grading will be relative here is a tentative grade distribution: 90-100: S; 80-89: A; 70-79: B; 60-69: C; 50-59: D; 40-49: E; <40: F.
- Absence for exams/quiz without prior written permission from the instructor will be equivalent to zero marks in the corresponding exam.
- There will be no makeup exams except in case of genuine reasons. In the event of such exceptional cases, the student must get written permission from the HoD, as per R17 of the B.Tech Regulations of the Institute.
- All issues regarding valuation of exams must be resolved within one week after the marks are announced.

Standard of Conduct

Each student is expected to adhere to high standards of ethical conduct, especially those related to cheating and plagiarism. Any submitted work MUST BE an individual effort. Any academic dishonesty will result in zero marks in the corresponding exam and will be reported to the department council for record keeping and further disciplinary actions. Please refer the 'Academic Integrity Policy of CSED: http://minerva.nitc.ac.in/cse/sites/default/files/attachments/news/Academic-Integrity_new_0.pdf

Note: *As per the evolving circumstances, there can be changes in the Evaluation Plan and Grading Policy which will be informed to the students from time to time.*