**NITK –Surathkal**

**Department of Computer Science & Engineering**

**Course Plan**

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| --- | --- | --- |
| Name of the Course: Database Management System | Course No: CO303 | No. of Credits (L-T-P): 2(0-0-3) |
| Year : 2018  Semester: V  Section: S1 &S2 | Course Type: Program Core(PC) | Academic Session: ODD |

Prerequisites (if any):None

**Name and Contact Details of Course Instructor:**

Dr.M.Venkatesan, [venkisakthi77@gmail.com](mailto:venkisakthi77@gmail.com)

Dr. P.Santhi Thilagam, [santhisocrates@gmail.com](mailto:santhisocrates@gmail.com)

Marwa Mohiddin(AL)

Gautham Amiya (AL)

**Evaluation Scheme**: Project(Web Based Application) - 30%, Mid Sem - 30%, Final Exam - 40%.

**Course Objectives:**

1. Develop solid understanding and practical experience using relational databases
2. Understand database logical design and draw an ER diagram using data model tools
3. Understand the types of SQL Language such as DDL,DML,DTL and DCL
4. Construct advanced database queries using sub query and join
5. Develop an web based application for real time case studies

**Course (Learning) Outcomes (COs):**

CO1 – Able to know the basic structure of database and its related operations.

CO2 – Recognise and use various types SQL queries for database applications.

CO3 – Design database using ER Model and various types of normalization techniques.

CO4 – Know the complex SQL Queries and able to develop a web based applications.

**Mapping of COs with POs:**

(Strength of correlation: S-Strong, M-Medium, W-Weak)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
| CO1 | M | S | S | M | S | M | M | W | W | S | S | S |
| CO2 | S | S | S | S | S | W | W | W | W | M | S | S |
| CO3 | S | S | S | S | S | S | M | M | M | S | M | S |
| CO4 | S | S | S | S | S | M | S | M | S | M | S | S |

1. **Teaching Learning Interaction:**

|  |  |  |  |
| --- | --- | --- | --- |
| Module – **Title** | | Content | **L-T-P hours** |
| M1 | Overview of Database Concepts and Introduction to SQL | Database concepts, Introduction to MySQL, DDL,DML,DTL and DCL. | 6-0-0 |
| M2 | Integrity Constraints | Overview of Constraints, Primary Key, Unique, Not Null, check and Foreign Key. Table level and column level constraints. Constraints violation. | 10-2-0 |
| M3 | My SQL Operators | Arithmetic ,Relational and Logical operator | 6-1-0 |
| M4 | My SQL Functions | String Functions, Date and time functions  Numeric Functions and Aggregate Functions | 7-2-0 |
| M5 | Sub query | Select query with where, Having and Group by clause and Nested query | 5-1-0 |
| M6 | Joins | Querying multiple tables, Inner Join, Equi Join, Left Outer and Right outer Join | 10-1-0 |
| M7 | Advanced Concepts | Index, Database Backup and SQL Injection, | 4-2-0 |
|  |  | |  |
|  | Topics beyond syllabus/Advanced Topics (if any): No SQL Database-MongoDB | |  |
|  | Gaps in the Syllabus (if any) | |  |

**2. List of Text Books & Reference Books, On-line Course Resources:**

1. *Ramez Elmasri and Shamkant B.Navathe, Fundamentals of Database Systems, Pearson Education,7th edition, 2016.*
2. *Raghu Rama Krishnan, Database Management Systems, Tata Mcgraw Hill,3rd Edition,2014.*
3. *Vikram Vaswani , MySQL(TM): The Complete Reference, McGraw Hill Education; 1 edition, 2017*
4. [*James Groff*](https://www.amazon.in/s/ref=dp_byline_sr_book_1?ie=UTF8&field-author=James+Groff&search-alias=stripbooks) *(Author),* [*Paul Weinberg*](https://www.amazon.in/s/ref=dp_byline_sr_book_2?ie=UTF8&field-author=Paul+Weinberg&search-alias=stripbooks) *(Author),* [*And Oppel*](https://www.amazon.in/s/ref=dp_byline_sr_book_3?ie=UTF8&field-author=Andy+Oppel&search-alias=stripbooks)*, SQL The Complete Reference, 3rd Edition,2017*

**2.1 NPTEL Courses (**[**http://www.nptel.ac.in**](http://www.nptel.ac.in/)**):**

1. Database Design /Database Management System -Prof. D. Janakiram- -IIT Madras
2. Fundamentals of Database Systems- Prof. Arnab Bhattacharya-IIT Kanpur
3. Database Management System -Partha Pratim Das-IIT Kharagpur

**2.2** **Other Online Courses:**

1. SQL Course For Beginners: Learn SQL Using MySQL Database <https://www.udemy.com/sqlcourse/>
2. MySQL for Beginners: <https://www.udemy.com/mysql-db-for-beginners/>
3. Introduction to Structured Query Language (SQL): <https://www.coursera.org/learn/intro-sql>
4. **Suggested list of Assignments / home works /problems/ ANY OTHER :**

**Annexure-I**

1. **Laboratory Instructions (if any) :**

Develop a Web based application and implement a database system for an any real time applications area in which you have an interest. Use back end as MySQL and front end environments of your choice to develop your system. You are required to consider the following stages to complete your task:

Stage1: Choose your real time application and explore suitable framework to develop your

application and submit one page abstract about your project.

Stage 2: Design an ER diagram of your proposed database application using any one of the

ER tools like ER win, ER studio, etc

Stage 3: Map the ER diagram to Relation Schema and Apply integrity constraints.

Stage 4: Develop your backend using MySql database and learn sql operations, sub query

and join.

Stage 5: Develop an web based application(front end environment) based on your choice

Stage 6: Demonstrate the web based DB system with a written report and justify your

system meets the minimum requirements of the lab.

**5. Assessment Pattern (Use Bloom’s Taxonomy to design rubrics for evaluating student performance)**

| Level No. | Knowledge Level | Evaluation Component | | | | | Assessment (%) |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Project Review1  (10%) | Project Review 2  (10%) | Project Review 3  (10%) | Mid Sem (30%) | Final Exam  (40%) |  |
| K1 | Remember | 10% | 0% | 0% | 10% | 10% | 8 |
| K2 | Understand | 20% | 20% | 20% | 20% | 15% | 18 |
| K3 | Apply | 20% | 20% | 10% | 25% | 25% | 22.5 |
| K4 | Analyse | 20% | 20% | 10% | 20% | 25% | 21 |
| K5 | Evaluate | 20% | 20% | 10% | 15% | 15% | 15.5 |
| K6 | Create | 10% | 20% | 50% | 10% | 10% | 15 |
|  |  |  |  |  |  |  | **100%** |

Name and Signature of Course Instructor:

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HOD signature: