**M.V.S.R ENGINEERING COLLEGE, NADERGUL, HYDERABAD**

**DEPARTMENT OF CSE**

**Year: 2nd AY: 2021-22(AMC) Semester: IV**

**Course Name: Database Management Systems Theory**

**Course Code: PC 403 CS**

**Course Coordinator: G.Srishailam**

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| --- | --- | --- | --- |
| **Course code** | **Statement**  After completing this course the student must demonstrate the knowledge and ability to (Student will be able to) | **Cognitive Level** | **PO / PSO addressed** |
| CO1 | Understand the basic differences of File System and DBMS. | R, U, Ap | PO1,PO5,PO6,PO12,PSO2 |
| CO2 | Model a set of requirements using the Extended Entity Relationship Model (EER), transform an EER model into a relational model and refine the relational model using theory of normalization. | U, An, Ap ,E, C | PO1,PO2,PO3,PO4,PO5,PO8,PO9, PO10,PO12,PSO1,PSO2 |
| CO3 | Use the knowledge of file organization and indexing to improve database application performance and understand the working of concurrency control. | U, R, Ap,An, E, | PO1,PO2,PO3,PO4,PO5,PO10,PO12,PSO1,PSO2 |
| CO4 | Understand the Mathematical foundations in Relational Algebra and Relational Calculus. | U, An, AP, C | PO1,PO2,PO5,PO10,PO12,PSO1,PSO2 |
| CO5 | Evaluate the Queries in SQL using Aggregate functions and NOSQL. | U,R, An, Ap ,E,C | PO1,PO2,PO3,PO4,PO5,PO6,PO10,PO12,PSO1,PSO2 |

**Table 1: Course Outcomes - Cognitive levels**

**Cognitive Levels: R-Remember; U-Understand; Ap-Apply; An=Analyze; E-Evaluate; C-Create**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| **No. of PI** | **4/5** | **7/14** | **8/14** | **6/8** | **5/6** | **1 / 2** | **0/4** | **3/3** | **6/7** | **6/7** | **0/5** | **5/6** | **2/3** | **3 / 4** |
| CO1 | 1.5.1,1.6.1,1.7.1  3/5=  60% |  |  |  | 5.4.1,5.5.1,5.6.1  3/5=  60% | 6.3.1  1 /2=  50% |  |  |  |  |  | 12.4.1,12.4.2,12.5.1,12.5.2,12.6.1  5/6=  83% |  | 1,2,3  3/4=  75% |
| CO2 | 1.2.1,1.5.1,1.6.1  3/5=  60% | 2.5.1,2.5.2,2.5.3,2.6.1,2.6.2,2.6.3,2.7.1  7/14=  50% | 3.5.1,3.5.3,3.5.4,3.6.1,3.6.2  5/8=  63% | 4.4.1,  4.4.2,  4.4.3,  4.5.1,  4.6.1,  4.6.2  6/8=  75% | 5.4.1,  5.4.2,5.5.1,5.6.1  4/5=  80% |  |  | 8.3.1,8.4.1,8.4.2  3/3= 100% | 9.4.1, 9.4.2, 9.5.1, 9.5.2, 9.5.3, 9.6.1  6/7= 85% | 10.4.1, 10.4.2, 10.4.3, 10.5.1, 10.5.2, 10.6.1  6/7= 86% |  | 12.4.1,12.4.2,12.5.1,12.5.2,12.6.1  5/6=  83% | 1,2  2/2=  100% | 3  1/3=  33% |
| CO3 | 1.2.1,1.5.1,1.6.1, 1.7.1  4/5=  80% | 2.5.1, 2.5.2, 2.5.3, 2.6.1, 2.6.2, 2.6.3, 2.7.1, 2.7.2, 2.8.3, 2.8.4  10/14=  71% | 3.5.1,3.5.3,3.5.4,3.6.1,3.6.2  5/8=  63% | 4.4.1,  4.4.2,  4.4.3,  4.5.1,  4.6.1,  4.6.2  6/8=  75% | 5.4.1,  5.4.2,5.5.1,5.6.1  4/5=  80% |  |  |  |  | 10.4.1, 10.4.2, 10.4.3, 10.5.1, 10.5.2, 10.6.1  6/7= 86% |  | 12.4.1,12.5.1,12.5.2,12.6.1  4/4=  100% | 1,2  2/2=  100% | 2.3  2/3=  67% |
| CO4 | 1.2.1, 1.2.2, 1.6.1  3/5=  60% | 2.5.1,2.5.2,2.5.3,2.6.1,2.6.2,2.7.1.2.7.2  7/10=  70% |  |  | 5.4.1,  5.4.2,  5.5.1,5.6.1  5.6.2  5/5=  100% |  |  |  |  | 10.4.1, 10.4.2, 10.4.3, 10.5.1, 10.5.2, 10.6.1  6/7= 86% |  | 12.4.1,12.4.2,12.5.1,12.5.2,12.6.1  5/6=  83% | 1,2  2/2=  100% | 1  1/3=  33.3% |
| CO5 | 1.2.1,1.5.1,1.6.1, 1.7.1  4/5=  80% | 2.5.1, 2.5.2, 2.5.3, 2.6.1, 2.6.2, 2.6.3, 2.7.1, 2.7.2, 2.8.3, 2.8.4  10/14=  71% | 3.5.1,3.5.3,3.5.4,3.6.1,3.6.2  5/8=  63% | 4.4.1,  4.4.2,  4.4.3,  4.5.1,  4.6.1,  4.6.2  6/8=  75% | 5.4.1,  5.4.2,5.5.1,5.6.1  4/5=  80% | 6.3.1  1 /2=  50% |  |  |  | 10.4.1, 10.4.2, 10.4.3, 10.5.1, 10.5.2, 10.6.1  6/7= 86% |  | 12.4.1,12.5.1,12.5.2,12.6.1  4/4=  100% | 1,2  2/2=  100% | 1,2,3  3/3=  100% |

**Table 2: Relevance of CO - PO/PSO wrt to performance indicators**

* Calculate each CO contribution to PO as follows:



|  |  |
| --- | --- |
| Levels | > = 60% - level 3 |
| >=40 % to <60% - level 2 |
| >=20 % to <40% - level 1 |
| <20% – no correlation |

* Calculate overall course contribution to PO as follows:
* *Contribution (course) = Rounded average of levels where it is addressed (in column) of a particular PO*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PO1** | | **PO2** | | **PO3** | | **PO4** | | **PO5** | | **PO6** | | **PO7** | | **PO8** | | **PO9** | | **PO10** | | **PO11** | | **PO12** | | **PSO1** | | **PSO2** | |
| No. of PI |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |
| Course Code | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** | **%** | **Level** |
| CO1 | 60 | 3 |  |  |  |  |  |  | 60 | 3 | 50 | 2 |  |  |  |  |  |  |  |  |  |  | 83 | 3 |  |  | 75 | 3 |
| CO2 | 60 | 3 | 50 | 2 | 63 | 3 | 75 | 3 | 80 | 3 |  |  |  |  | 100 | 3 | 85 | 3 | 86 | 3 |  |  | 83 | 3 | 100 | 3 | 33 | 2 |
| CO3 | 80 | 3 | 71 | 3 | 63 | 3 | 75 | 3 | 80 | 3 |  |  |  |  |  |  |  |  | 86 | 3 |  |  | 100 | 3 | 100 | 3 | 67 | 3 |
| CO4 | 60 | 3 | 70 | 3 |  |  |  |  | 100 | 3 |  |  |  |  |  |  |  |  | 86 | 3 |  |  | 83 | 3 | 100 | 3 | 33 | 2 |
| CO5 | 80 | 3 | 71 | 3 | 63 | 3 | 75 | 3 | 80 | 3 | 50 | 2 |  |  |  |  |  |  | 86 | 3 |  |  | 100 | 3 | 100 | 3 | 100 | 3 |
| No of Cos mapped | 5 | | 4 | | 3 | | 3 | | 5 | | 2 | | 0 | | 1 | | 1 | | 4 | | 0 | | 5 | | 4 | | 5 | |
| Average w.r.to Level | 15/5=3 | | 11/4=3 | | 9/3=3 | | 9/3=3 | | 15/5=3 | | 4/2=2 | |  | | 3/1=3 | | 3/1=3 | | 12/4=3 | |  | | 15/5=3 | | 12/4=3 | | 13/5=3 | |

**Table 3: Calculation of CO-PO/PSO correlation levels**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** | **PO11** | **PO12** | **PSO1** | **PSO2** |
| CO1 | 3 |  |  |  | 3 | 2 |  |  |  |  |  | 3 |  | 3 |
| CO2 | 3 | 2 | 3 | 3 | 3 |  |  | 3 | 3 | 3 |  | 3 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 3 | 3 |  |  |  |  | 3 |  | 3 | 3 | 3 |
| CO4 | 3 | 3 |  |  | 3 |  |  |  |  | 3 |  | 3 | 3 | 2 |
| CO5 | 3 | 3 | 3 | 3 | 3 | 2 |  |  |  | 3 |  | 3 | 3 | 3 |
| AVERAGE LEVELS | **3** | **3** | **3** | **3** | **3** | **2** |  | **3** | **3** | **3** |  | **3** | **3** | **3** |
| **Course Code** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** | **PC 403 CS** |

**Table 4: Course Articulation Matrix**