**Course Specification**

I. Course Information

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| --- | --- | --- | --- |
| **Course Code:** | DBA 372 | **Course Name:** | Database management system |
| **Academic Year/Level:** | 3 Year /B.Sc | **Specialization:** | Computer Science Information Systems |
| **Department Offering the Course:** | | Information Systems | |
| **No. of Instructional Hours:** | |  |  |  |  | | --- | --- | --- | --- | | **Total Hours** | **Theoretical** | **Tutorial** | **Practical** | | 5 Hours | 3 Hours | - | 2 Hours | | | |
| **Approval Date of Course Specification:** | |  | |

II. Course Aim

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| --- |
| 1. Define the internal organization of a database system, and of the main tasks of a database administrator. 2. Design and implement a complete database application, from the initial conceptual modeling stage to implementation with an SQL-based relational database system. 3. Normalize DB and put plans for physical DB design, indexing, and query optimization 4. Explain the rules of DB project and used tools. |

III. Program ILOs Covered by the Course

| Program Intended Learning Outcomes (ILOS) by Code | | | |
| --- | --- | --- | --- |
| Knowledge & Understanding | Intellectual Skills | Practical / Professional  Skills | General & Transferable  Skills |
| a1,a3,a4,a11 | b2,b5,b8 | c5,c6 | d2,d3,d6 |

IV. Intended Learning Outcomes of the Course (ILOs)

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| **a) Knowledge and Understanding** |
| **On completing the course, the student should be able to:**   1. Describe the techniques of modeling and design of computer-based systems (Gen: A1). 2. Identify requirements, practical constraints for computer-based systems (Gen: A1, A3, A11). 3. Describe the impact of Database systems on information systems (Gen: A1, A11). 4. Illustrate fundamentals of database management systems (Gen: A4, A11). 5. Give an account on design methods and tools to increase data sharing, flexibility, functionality, reusability and the reduction of complexity and maintenance of IS solutions (Gen: A4). |
|  |
| **b) Intellectual Skills** |
| b1. Classify attributes, components, relationships, patterns, main ideas, and errors (Gen: B5).  b2. Select the suitable tools, methods and techniques for modeling and analyzing is (Gen: B5).  b3. Suggest, evaluate and justify proposed design solutions (Gen: B2).  b4. Judge computer system considering balanced costs, benefits, safety, quality, reliability, and environmental impact (Gen: B2, B8). |
|  |
| **c) Practical / Professional Skills** |
| c1. Design and implement software systems (Gen: C6).  c2. Apply appropriate programming tools (Gen: C6).  c3. Design methodologies of database systems (Gen: C5, C6).  c4. Develop requirements and specifications for multi-user information system based on database techniques (Gen: C6).  c5. Design and implement information technology solutions that enhance information system project for a given organization (Gen: C5, C6). |
|  |
| **d) General and Transferable Skills** |
| **On completing the course, the student should be able to:** |
| 1. Work in groups and manage team, time and organizational skills (Gen: D2). 2. Retrieve the information efficiently (Gen: D3). 3. Use communication skills, public speaking and presentation skills, and delegation, writing skills, oral delivery, and effectively using various media for a variety of audiences (Gen: D6). |

V. Course Matrix Content

| No. | Main Topic | No. of Weeks | Course ILOs Covered by Topic  (By ILO Code) | | | |
| --- | --- | --- | --- | --- | --- | --- |
| K.U. | I.S. | P.P.S. | G.T.S. |
| 1 | The Database Environment | 2 | a3,a4 |  |  |  |
| 2 | ER Model and conversions | 2 | a1 | b1,b3 | c1, c3 |  |
| 3 | Logical Database design | 2 | a1,a2 | b1,b2 | c3,c4 |  |
| 4 | Data Normalization | 2 | a4, a5 | b3 | c5 |  |
| 5 | Physical Database design | 2 | a2,a5 | b4 | c3,c4,c5 |  |
| 6 | SQL Basics | 2 | a1, a4 | b1, b2 | c2 | d2 |
| 7 | Project concepts |  | a5 | b4 | c1:c5 | d1,d3 |
| Total Number of Teaching Weeks: | | 12 | | | | |
| K.U. : Knowledge & Understanding  I.S. : Intellectual Skills | | | P.P.S. : Practical / Professional Skills  G.T.S. : General & Transferable Skills | | | |

VI. Course Weekly Detailed Topics

| No. | Topics | Total Hours/ Week | Theoretical  Hours | Practical/ Tutorial  Hours |
| --- | --- | --- | --- | --- |
| 1 | The Database Environment | 10 | 6 | 4 |
| 2 | ER Model and conversions | 10 | 6 | 4 |
| 3 | Logical Database design | 10 | 6 | 4 |
| 4 | Data Normalization | 10 | 6 | 4 |
| 5 | Physical Database design | 10 | 6 | 4 |
| 6 | SQL Basics | 10 | 6 | 4 |
| 7 | Project concepts |  |  |  |
| Total Hours | | 60 | 36 | 24 |

VII. Teaching and Learning Methods

| No. | Teaching / Learning  Method | Selected Methods | Course ILOs Covered by Topic  (By ILO Code) | | | |
| --- | --- | --- | --- | --- | --- | --- |
| K.U. | I.S. | P.P.S. | G.T.S. |
| 1 | lectures | √ | a1:a5 |  |  |  |
| 2 | Tutorials | √ |  |  |  |  |
| 3 | Laboratory | √ |  | b1:b4 | c1:c5 | d1:d3 |
| 4 | Brain storming | √ |  | b1:b4 |  |  |
| 5 | Electronic Learning | √ | a1:a5 |  | c1:c5 |  |
| 6 | Self-learning (Research & report - Presentation & seminars - Project) | √ |  |  | c1:c5 | d1:d3 |
| 7 | Case Study | √ |  | b1:b4 |  |  |
| 8 | Problem solving | √ |  | b1:b4 | c1:c5 | d1:d3 |
| K.U. : Knowledge & Understanding  I.S. : Intellectual Skills | | | P.P.S. : Practical / Professional Skills  G.T.S. : General & Transferable Skills | | | |

VIII. Assessment Methods, Schedule and Marks Distributions

| No. | Assessment  Method | Selected Method | Course ILOs Covered by Topic  (By ILO Code) | | | | Week(s) No. | Marks |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| K.U. | I.S. | P.P.S. | G.T.S. |
| 1 | Midterm Exam | √ | a1:a5 | b1:b4 |  |  | 8 |  |
| 2 | Quizzes | √ | a1:a5 | b1:b4 |  |  | 4,9 |  |
| 3 | Assignments | √ |  | b1:b4 | c1:c5 |  | By the end of each topic |  |
| 4 | Projects | √ |  | b1:b4 | c1:c5 | d1:d3 |  |  |
| 5 | Reports | √ |  | b1:b4 | c1:c5 |  | 10 |  |
| 6 | Practical Exam | √ |  |  | c1:c5 |  | 15 |  |
| 7 | Oral Exam | √ | a1:a5 | b1:b4 |  |  | 15 |  |
| 8 | Final Exam | √ | a1:a5 | b1:b4 |  |  | 16 | 65 |
| Total | | | | | | |  | 100 |
| K.U. : Knowledge & Understanding  I.S. : Intellectual Skills | | | | | P.P.S. : Practical / Professional Skills  G.T.S. : General & Transferable Skills | | | |

IX. References

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| Essential Text Books | Jeffery A.Hoffer “Modern database management system “pearson prentice hall 2007 |
| Course Notes | None |
| Extra Recommended  Books | Raghu Ramakrishnan and Johannes Gehrke ,”Database Management Systems” McGraw-Hill Companies; 2nd Bk&Cdr edition, 2000  T. Connolly & C. Begg, "Database Systems", 3rd Edition, Addison Wesley, 2001 |
| Online Web Sites | IEEE transactions on computers and software, Related web sites  BU website |
| Others (Specify) | None |

X. Tools and Facilities Required for Teaching and Learning

| Facility | Lecture | Class | Lab |
| --- | --- | --- | --- |
| White Board | √ |  | √ |
| Smart Board | √ |  | √ |
| PC/Laptop | √ |  | √ |
| Data-Show | √ |  | √ |
| LCD Display | √ |  |  |
| Projector Screens | √ |  | √ |
| Sound System | √ |  |  |
| Internet |  |  | √ |
| Laboratories | |  |  | | --- | --- | | PC Lab. | √ | | Language Lab. |  | | Physics Lab. |  | | Electronics Lab. |  | | Microprocessor Lab. |  | | Logic Design Lab. |  | | Multimedia Lab. |  | | CISCO Networking Lab. |  | | Embedded Systems Lab. |  | | | |
| Software Packages | Oracle 9i | | |

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| Course Instructor: | Signature :( ) |
| Head of Department: | Signature :( ) |
| Date: |  |